

Non-CCR Data Gap Investigation Report

Former J.B. Sims Generation Station/Harbor Island

City of Grand Haven
December 6, 2023



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Abbreviations and Acronyms

| Abbreviation | Definition |
|--------------|---|
| ALN&M | Ayres, Lewis, Norris & May, Inc. |
| bgs | below ground surface |
| CCR | coal combustion residuals |
| COC | constituents of concern |
| DGI | Data Gap Investigation |
| DPT | direct push technology |
| DWC | Drinking Water Criteria |
| EGLE | Michigan Department of Environment, Great Lakes, and Energy |
| ft | feet |

| Abbreviation | Definition |
|--------------|---|
| 6:2 FTS | 6:2 fluorotelomer sulfonic acid |
| GHBLP | Grand Haven Board of Light & Power |
| Golder | Golder Associates, USA Inc. |
| GSI | Groundwater Surface Water Interface |
| GSIC | Groundwater-Surface Water Interface Criteria |
| GSIPC | Groundwater-Surface Water Interface Protection Criteria |
| HDPE | high-density polyethylene |
| HDR | HDR Michigan, Inc. |
| HFPO-DA | Hexafluoropropylene oxide dimer acid |
| ID | inside diameter |
| IDW | investigation derived waste |
| Job Site | Job Site Services, Inc. |
| Merit | Merit Laboratories, Inc. |
| MMD | Materials Management Division |
| MS/MSD | matrix-spike/matrix-spike duplicate |
| ng/L | nanograms per liter |
| NREPA | Natural Resources and Environmental Protection Act |
| ORP | oxidation reduction potential |
| % | percent |
| PFAS | per-and polyfluorinated alkyl substances |
| PFBS | Perfluorobutane sulfonic acid |
| PFHxA | Perfluorohexanoic acid |
| PFHxS | Perfluorohexane sulfonic acid |
| PFNA | Perfluorononanoic acid |
| PFOA | Perfluorooctanoic acid |
| PFOS | Perfluorooctane sulfonic acid |
| PID | photoionization detector |
| PPE | personal protective equipment |
| PVC | polyvinyl chloride |
| QA/QC | quality assurance/quality control |
| QAPP | Quality Assurance Project Plan |
| SOP | Standard Operating Procedure |
| SVOC | semi-volatile organic compound |
| SWQV-HNV | Surface Water Quality Value Human Non-Cancer Value |
| TOC | total organic carbon |
| USCS | Unified Soil Classification System |
| USEPA | United States Environmental Protection Agency |
| VAS | vertical aquifer sampling |
| VOC | volatile organic compound |
| Wood | Wood Environment & Infrastructure Solutions, Inc. |
| WSP USA | WSP USA Environment & Infrastructure, Inc. |

1.0 Introduction

WSP USA Environment & Infrastructure, Inc. (WSP), formerly Wood Environment & Infrastructure Solutions, Inc. (Wood) (hereafter referred to as WSP), has prepared this per-and polyfluorinated alkyl substances (PFAS) Data Gap Investigation (DGI) Report for the southwest portion of Harbor Island (also referred to as the Island), located in Grand Haven, Michigan (referred to as Site in this report and shown on **Figure 1**). The Site includes the former J.B. Sims Generating Station, which was located on the west side of Harbor Island with an address of 1231 North 3rd Street. The former J.B. Sims Generating Station was a coal-fired power generation facility operated by Grand Haven Board of Light & Power (GHBLP) that ceased operations in February 2020. This DGI Report will provide a review of PFAS data collected prior to the DGI, summarize activities performed by WSP from November 2022 through May 2023, associated results, and recommendations for next steps to address the PFAS at the Site.

1.1 Site Description

The Site is the southwestern portion of Harbor Island. Harbor Island is located in the Grand River on the north side of the City of Grand Haven, Michigan, bounded by the Grand River on the north and west, by US-31 on the east, and by the Grand River's South Channel on the south. The Island lies in the center of three major water bodies: Lake Michigan, the Grand River, and Spring Lake. **Figure 1** depicts the location of the Site relative to the surrounding area.

According to the 1998 Harbor Island Master Plan: Implementation Plan, portions of the Island were used for fishing, shipbuilding, and lumber storage prior to and into the early 1900s. In the early to mid-1900s, the Island was primarily used for industrial purposes that included a power plant, coal docks, and a petroleum bulk storage facility. An unknown portion of the Island was used as the City's waste dump, which accepted both household and industrial waste. The City dump stopped accepting waste in 1970. From the 1970s until the 1990s, a 30-acre area of the Island was diked, capped, and used by the U.S. Army Corp of Engineers for disposal of harbor dredge material from the bottom of the Grand River (City of Grand Haven, 1998).

Coal combustion residuals (CCR) generated at the J.B. Sims Generating Station were stored in two CCR units on the Island: (1) the inactive Units 1/2 Impoundment and (2) the excavated Unit 3A/B Impoundments (**Figure 2**). The inactive CCR Units 1/2 Impoundment was a depression in the ground where sluiced ash was disposed. The inactive Units 1/2 Impoundment ceased receiving CCR materials in 2012. The U.S. Environmental Protection Agency's (USEPA) CCR Rule 40 CFR §257 and Michigan's Part 115 Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451 (Part 115), establish a comprehensive set of requirements for the management and disposal of CCR (or coal ash) in surface impoundments by electric utilities. The monitoring associated with the CCR is being conducted by HDR, Inc. (HDR) and follows the 2022 Harbor Island Work Plan for CCR Compliance (HDR, 2022) with results provided in subsequent HDR monitoring reports.

During sampling conducted by GHBLP in preparation for work associated with the coal ash impoundments, groundwater samples were analyzed for PFAS. Results showed that groundwater had concentrations of PFAS that were above Michigan Generic Cleanup Criteria.

The source of the PFAS is not known, but it could be associated with the historical dump and other operations conducted on the Island. The exact location of the trash/dump site is unknown. **Figure 2** shows the approximate man-altered locations within the Site as referenced in the 1993 Harbor Island Master Plan prepared for the City of Grand Haven by Ayres, Lewis, Norris & May, Inc. (ALN&M). The Man–Altered locations include the suspected historical dump locations.

Aerial imagery acquired for Harbor Island depicts that the Island was being accessed via a network of roads via the 3rd Street Bridge as early as 1938. By 1955, the presence of aboveground storage tanks can be observed on the southeastern portion of the Island, adjacent to the South Chanel of the Grand River and the 3rd Street Bridge. By 1962, the former J.B Sims Generating Station is present and an east to west trending road has been constructed that bisects and cuts off a portion of the north wetland, creating a wetland in the interior of the Island. Additional manmade alterations to the Island are present in the southwest portion of the Island where material has been placed to reclaim portions of the river environment. By 1968, the framework for the existing road network is in place through the construction of three roads to provide access to the interior of the Island. An east to west trending road was constructed to provide access from US-31, a north-south route was constructed to provide access to the Grand River from the interior of the Island, and an east-west route was constructed to provide access to the northeastern portion of the Island from the north-south interior road. The construction of the road network resulted in the extensive filling in portions of the wetland environment and, in some areas, the destruction of the channel that connected the wetland area to the South Channel of the Grand River.

By 1974, additional portions of land had been reclaimed from the river channel to build a boat launch to provide access to the Grand River in the northern part of Harbor Island. By 1986, two clay lined ponds were constructed to contain coal ash from the J.B Sims Generating Station and the northeastern portion of Harbor Island began to be filled in with material and transformed from a wetland environment to its current form. By 2006, the above ground storage tanks on the southeastern portion of the Island had been demolished and several parking areas had been constructed on the northern portion of the Island. After 2006, manmade activities do not appear to have significantly altered the appearance or form of the Island until 2020 when decommissioning of the former J.B. Sims Generating Station began.

1.2 Geological and Hydrogeological Setting

The Site is located on the southwestern portion of Harbor Island. Large portions of Harbor Island have been altered using fill from various sources, including household and industrial waste and dredge material.

1.2.1 Geology

Harbor Island is situated with the Grand River and the South Channel of the Grand River surrounding the Island, which flows westerly towards Lake Michigan, approximately one mile to the west of the Site. The Site is located within an area of glacial drift (consisting of fine to medium sand with occasional beds of gravel) which is underlain by Marshall Sandstone. The glacial drift is between 100 to 200 feet (ft) thick in the area (ERM, 2017).

Above the glacial drift, portions of Harbor Island were developed by creating land with the use of unconsolidated fill, waste, dredge material, and historical ash fill. Soil borings advanced at the Site indicate a mixture of unconsolidated fine sand fill with intervals of silt and sand, historical ash fill, and solid waste within the first 20 to 40 ft below ground surface (bgs). Materials documented from the former dump during a 2016 investigation consisted of a layer of mixed debris which includes glass, wood, plastic, ceramic, concrete, leather, brick, and metal within a matrix of dark grey to black, fine-grained sand. (ERM, 2016).

1.2.2 Hydrogeology

Groundwater is encountered between 5 and 15 ft bgs within the unconsolidated fill material, which consists of fine sand, ash, and waste, with discontinuous silt and/or clay seams. In 2021, Site aquifer performance testing was conducted and summarized in the *Field Summary Report of Results from Approved Work Plan – Piezometer Installation & Additional Data Collection, Former JB Sims Generating Station, Harbor Island, Michigan* (Golder Associates, USA Inc. [Golder], 2022). This testing provided additional data for understanding the variability of the hydraulic conductivity. Testing was performed at 10 wells, and the average hydraulic conductivity ranged from less than 1 to 242 ft/day. This wide range of variability is the result of the varying fill materials that form Harbor Island. Groundwater flow is influenced by the elevation of the Grand River and the South Channel. In general, localized groundwater flow is radially inward when river levels are high and radially outward when the river levels are low. Localized flow direction and gradients across the Site also are influenced by precipitation and surface infiltration, particularly in wetland areas where the water table is in direct contact with the surface water. The fill material that has been placed on the Island is variable in both thickness and hydraulic conductivity resulting in variable infiltration rates from precipitation. The variation in both hydraulic gradients and hydraulic conductivity results in variable lateral flow rates (Golder, 2022).

Groundwater elevations are monitored as part of CCR compliance following the 2022 Harbor Island Work Plan for CCR Compliance (HDR, 2022). Groundwater elevations measured by HDR indicate that groundwater is discharging to surface water, including the Grand River on the west side of the Island, the South Channel on the south side of the Island, the north wetland area, the interior wetland areas, and Units 1/2 Impoundment. Groundwater flow patterns on the Island are variable and change seasonally; potentiometric surface maps from recent groundwater elevation monitoring are included in **Appendix A**.

1.2.3 Hydrology

Prior to reaching Harbor Island, the Grand River is approximately 3000 feet wide and includes many marshy relatively undisturbed islands. As the river approaches Harbor Island, the river narrows to approximately 500 feet. The configuration of Harbor Island is largely influenced by the water levels on Lake Michigan and the Grand River. Seasonal fluctuations are common and cyclical fluctuations of up to four feet are not unusual. As a result of these fluctuations, the shape and character of the wetlands on Harbor Island vary (ALN&M, 1998). Surface water and wetlands dominate the central portion of Harbor Island, which are classified by the National Wetlands Inventory as freshwater emergent wetland, freshwater pond, and lake (National Wetlands Inventory, 2023).

2.0 Site Background/Previous Investigations

GHBLP initially analyzed groundwater samples at the Site for PFAS to prepare for work associated with the coal ash impoundments where there was a potential for dewatering and discharge of groundwater and ponded stormwater to the Grand River. The following sample collection and PFAS analysis were completed using modified EPA Method 537 with isotope dilution. Sample results in the following section are compared to the EGLE Part 201 Generic Cleanup Criteria dated October 12, 2023.

May 2021

- Groundwater samples were collected for PFAS analysis from 10 monitoring well locations (MW-01R through MW-10) at the Site and analyzed for the Michigan-28 PFAS list compounds (Golder, 2021a).
 - PFAS were detected in the 10 monitoring well samples.
 - Perfluorooctane sulfonic acid (PFOS) was detected in groundwater samples at concentrations that exceeded the Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 201 Groundwater-Surface Water Interface Criteria (GSIC) for surface water used as a drinking water source (11 nanograms per liter [ng/L]) and the EGLE Part 201 Residential & Nonresidential Drinking Water Criteria (DWC; 16 ng/L). The maximum detected concentration was 235.78 ng/L (MW-08).
 - Perfluorooctanoic acid (PFOA) was detected in groundwater samples at concentrations that exceeded the DWC (8 ng/L) but were below the GSIC (66 ng/L). The maximum detected concentration was 19.84 ng/L (MW-08).

June 2021

- Groundwater samples were collected for PFAS analysis from the same 10 monitoring wells (MW-01R through MW-10) at the Site to confirm the detection of PFAS compounds observed in groundwater samples collected during the May 2021 sample collection event (Golder, 2021b).
 - PFAS were detected in groundwater in nine of the 10 monitoring well samples.
 - PFOS was detected in groundwater samples at concentrations that exceeded the GSIC and DWC. The maximum detected concentration was 267.73 ng/L (MW-08).
 - PFOA was detected in groundwater samples at concentrations that exceeded the DWC. The maximum detected concentration was 19.00 ng/L (MW-03).
- Surface water samples were collected for PFAS analysis from five locations (one from the Grand River, two from the north wetland area, and two from interior wetland areas). Additionally, two water samples were collected from Units 1/2 Impoundment near MW-5 and Staff Gauge 2 (Golder, 2021b).
 - PFAS were detected in five surface water samples and both impoundment water samples collected.
 - PFOS was detected in water samples at concentrations that exceeded the EGLE Rule 57 Surface Water Quality Value Human Non-Cancer Value (SWQV-HNV;

11 ng/L). The maximum detected concentration was in the sample collected from the Units 1/2 Impoundment near Staff Gauge 2 (39.15 ng/L).

- PFOA was detected in water samples with a maximum concentration of 14.86 ng/L (from the sample collected from Units 1/2 Impoundment near Staff Gauge 2) but did not exceed the SWQV-HNV (66 ng/L).
- Perfluorohexanesulfonic acid (PFHxS) was detected in water samples with a maximum concentration of 6.60 ng/L (from the sample collected from Units 1/2 Impoundment near MW-5) but did not exceed the SWQV-HNV (59 ng/L).
- Perfluorononanoic acid (PFNA) was detected in one water samples with a concentration of 4.93 ng/L (from the sample collected from Units 1/2 Impoundment near Staff Gauge 2) but did not exceed the SWQV-HNV (19 ng/L).

July 2021

- Two surface water samples were collected (one from the north wetland area and one from an interior wetland area), five water samples were collected from stormwater collection areas (two water samples were collected from the Unit 3A/3B impoundments, and three water samples were collected from the former coal pile stormwater collection area) for PFAS analysis (Golder, 2021c).
 - PFOS was detected in both wetland surface water samples, one of which exceeded the SWQV-HNV (11 ng/L). The maximum detected concentration was from a sample taken from an interior wetland area (11.83 ng/L).
 - PFOS was detected in the five water samples taken from stormwater collection areas at concentrations that exceeded the SWQV-HNV (11 ng/L). The maximum detected concentration was from a sample taken from the former coal pile stormwater collection area (73.20 ng/L).
 - PFOA was detected in both wetland surface water samples but did not exceed the SWQV-HNV (66 ng/L).
 - PFOA was detected in the five water samples taken from stormwater collection areas but did not exceed the SWQV-HNV (66 ng/L).
 - PFHxS was not detected in the wetland surface water samples.
 - PFHxS was detected in the five water samples taken from stormwater collection areas but did not exceed the SWQV-HNV (59 ng/L).
 - PFNA was not detected in the wetland surface water samples.
 - PFNA was detected in two of the five water samples taken from stormwater collection areas but did not exceed the SWQV-HNV (59 ng/L).

August - September 2021

- Three stilling wells were installed (STW-1, STW-2, and STW-3), and 22 soil borings were advanced at the Site and converted to PZ-11 through PZ-32 to update the existing groundwater monitoring network at the Site to address an updated impoundment boundary for the Units 1/2 Impoundment (Golder, 2022).

October 2021

- Samples were collected for PFAS analysis from 10 monitoring wells (MW-01R through MW-10), and 17 piezometers (PZ-13 through PZ-20, PZ-23 through PZ-28, and PZ-30 through PZ-32) (Golder, 2021d).
 - PFAS were detected in groundwater samples from 10 of the monitoring well locations and 17 of the piezometer locations.
 - PFOS was detected in groundwater samples at concentrations that exceeded the GSIC (16 ng/L) and DWC (11 ng/L). The maximum detected concentration was 289.88 ng/L (MW-08).
 - PFOA was detected in groundwater samples at concentrations that exceeded the DWC (8 ng/L). The maximum detected concentration was 48.93 ng/L (PZ-13).
 - PFHxS was detected in groundwater samples at concentrations that exceeded the GSIC (59 ng/L) and DWC (51 ng/L). The maximum detected concentration was 80.47 ng/L (PZ-13).
- Surface water samples were collected for PFAS analysis at seven locations (one from the Grand River, three from the north wetland area, and three from interior wetland areas) (Golder, 2021d).
 - PFAS were detected in surface water samples from seven locations.
 - PFOS was detected in surface water samples at concentrations that exceeded the SWQV-HNV (11 ng/L). The maximum detected concentration was from a sample taken from an interior wetland area (24.25 ng/L).
 - PFOA was detected in surface water samples, but concentrations did not exceed the SWQV-HNV (66 ng/L). The maximum detected concentration was from the sample taken from an interior wetland area (12.35 ng/L).
 - PFHxS was detected in the surface water samples taken from an interior wetland area (10.69 ng/L), which did not exceed the SWQV-HNV (59 ng/L).

January 2022

- Samples were collected for PFAS analysis from 10 monitoring wells (MW-01R through MW-10), and 14 piezometers (PZ-11 through PZ-16, PZ-23 through PZ-28, and PZ-31 and PZ-32) (Golder, 2021e). Surface water samples were not collected during this event due to frozen surface water bodies.
 - PFAS were detected in groundwater samples from nine of the 10 monitoring well locations and 14 of the piezometer locations.
 - PFOS was detected in groundwater samples at concentrations that exceeded the GSIC (16 ng/L) and DWC (11 ng/L). The maximum detected concentration was 282.73 ng/L (MW-08).
 - PFOA was detected in groundwater samples at concentrations that exceeded the GSIC (8 ng/L) and GSIC (66 ng/L). The maximum detected concentration was 134.68 ng/L (PZ-13).
 - PFHxS was detected in groundwater samples at concentrations that exceeded the GSIC (59 ng/L) and DWC (51 ng/L). The maximum detected concentration was 311.33 ng/L (PZ-13).

3.0 Data Gap Investigation

In June 2022, WSP submitted the *Former JB Sims Generating Station-Harbor Island PFAS Data Gap Investigation (DGI) Work Plan* (Wood, 2022) to evaluate PFAS concentrations across Harbor Island, locate potential source areas, evaluate historical conditions and potential links between historical Site and dumping activities and PFAS concentrations, and determine if there is a correlation between PFAS concentrations in the surface water of the Grand River and PFAS concentrations observed on-Site. The DGI Work Plan was reviewed and approved by the EGLE Materials Management Division (MMD). The following sections summarize the activities of the DGI completed at the Site from November 2022 through and May 2023.

Prior to drilling activities, WSP submitted an EGLE/ US Army Corp of Engineers Joint Permit Application in order to install borings and temporary wells within the wetlands.

3.1 Field Activities

The following subsections include summaries of the methods used for temporary and permanent monitoring well installations, the collection of vertical aquifer samples (VAS), and the collection of groundwater, soil, sediment, and surface water samples at the Site. WSP completed the following field activities from November 2022 through May 2023:

- November 29, 2022: WSP performed oversight of the installation of two temporary and two permanent monitoring wells followed by the collection of two groundwater samples from temporary monitoring wells.
- November 29 through December 15, 2022: WSP performed oversight of the installation of 40 VAS locations, and the collection of soil, groundwater, surface water, and sediment samples.
- January 30 through February 2, 2023: WSP performed baseline groundwater sample collection from 38 monitoring well/piezometer locations.
- May 1-3, 2023: WSP performed quarterly sample collection from 18 monitoring well/piezometer locations and at six surface water locations.

The activities performed at the Site were conducted in accordance with the Standard Operating Procedures (SOPs) presented in the October 2022 Quality Assurance Project Plan (QAPP) (WSP, 2022). Prior to conducting subsurface investigation activities, a public utility locate (811 Miss Dig) was performed to identify potential subsurface utilities at the proposed drilling locations. In addition, Job Site Services, Inc. (Job Site) completed a ground penetrating radar survey to verify proposed drilling locations were clear of subsurface utilities. Soil borings were typically hand cleared up to 5 ft bgs prior to drilling.

3.1.1 Temporary Monitoring Well Installation and Sampling

On November 29, 2022, Job Site advanced two soil borings to depths of up to 18 ft bgs and installed temporary monitoring wells (GP-01 [converted to MW-35] and GP-02) to provide sampling locations upgradient of the Site within the Harbor Island Soccer Fields (**Figure 3**). WSP provided oversight during drilling and installation activities. Soil borings were continuously cored (5-foot macro cores) with direct push technology (DPT) using a Geoprobe 7822 DT

drilling rig. Recovered soil cores were visually inspected by a WSP geologist, logged according to the Unified Soil Classification System (USCS) and field screened with a photoionization detector (PID; bagging/head space method); PID screening was generally performed at 1 to 2-foot intervals.

Once the groundwater table was encountered, a temporary monitoring well was constructed (using new 1-inch polyvinyl chloride [PVC] well casing and screen) within the DPT drilling core barrel, the core barrel was raised approximately five feet to expose the well screen, and the groundwater that entered the temporary monitoring well was purged using a peristaltic pump equipped with new high-density polyethylene (HDPE) tubing. The temporary monitoring well was developed prior to sample collection by purging a minimum of three times the volume of water present in the well casing. Once the development was complete, field parameters (depth to water, temperature, pH, specific conductivity, dissolved oxygen, oxidation reduction potential (ORP), and turbidity) were monitored during purging and a groundwater sample was collected once three consecutive field parameter readings demonstrated stability (unless otherwise noted). Groundwater samples were collected directly from the pump discharge into laboratory supplied containers and placed in an ice-packed cooler for transport to the laboratory. Groundwater samples were transported to Merit Laboratories, Inc. (Merit) in East Lansing, Michigan for analysis under chain of custody protocol. Groundwater samples were analyzed for 34 PFAS compounds using modified method ASTM D7979-19 with isotopic dilution. This was based on the 31 PFAS that were included on the EGLE PFAS Recommended Minimum Laboratory Analyte List (EGLE, 2022) at the time the DGI Work Plan was drafted. Additionally, the samples were also analyzed for 3-Perfluoropropyl propanoic acid (3:3 FTCA), 3-Perfluoropentyl propanoic acid (5:3 FTCA), and 3-Perfluoroheptyl propanoic acid (7:3 FTCA) as these compounds are commonly found in landfill leachate. Copies of the soil boring logs from the temporary monitoring well installation and copies of groundwater sample records are included in **Appendix B** and **Appendix C**, respectively.

3.1.2 Vertical Aquifer Sample (VAS) Collection

On November 29 through December 14, 2022, Job Site advanced 40 VAS locations (VAS-01 through VAS-40) at the Site to further assess and characterize the vertical and horizontal extent of PFAS contamination in select areas of the Site (**Figure 4**). WSP provided oversight during drilling and performed visual soil inspection/screening of soil borings using the same methods as described during temporary monitoring well installation.

Once the groundwater table was encountered with the drill rig, an expandable four-foot stainless steel screen was attached to the inner 1.25-inch inside diameter (ID) piston rod and lowered into the drilling core barrel. The four-foot stainless steel screen was advanced to have three feet of screen beneath the water table and one foot above the water table. The outer core barrel was raised to expose the stainless-steel screen and PFAS-free rubber O-ring packer sealed off the sample interval. Groundwater that entered the expandable sampler was purged using a peristaltic pump equipped with HDPE tubing. The sample interval was developed by purging a minimum of three times the volume of drilling water introduced plus three times the volume of water present in the drilling rods. Field parameters were monitored during purging and a vertical aquifer sample was collected once three consecutive field parameter readings demonstrated

stability. Groundwater samples were collected directly from the pump discharge into laboratory supplied containers and placed in an ice-packed cooler for transport to the laboratory.

Once groundwater samples were collected at the water table, the entire screen assembly and packer were removed and decontaminated using a pressure washer and Liquinox® soap. After sample collection and decontamination of the first sample interval, the core barrel was advanced up to a maximum depth of 20 ft bgs where an additional groundwater sample was collected. Groundwater sample collection was completed using the same methods as described for groundwater sample collection from the first sample interval. A total of two samples were collected from each VAS location (only one groundwater sample was collected at VAS01 due to the presence of consolidated soils). During VAS boring groundwater sample collection, the following field duplicates, and matrix spike/matrix spike duplicate (MS/MSD) samples were collected for quality assurance/quality control (QA/QC) purposes:

Field Duplicates and MS/MSD Locations – VAS

| Parent Sample | Field Duplicate |
|------------------|-----------------|
| VAS05-4-9 | DUP-01-01122022 |
| VAS10-2-7 | DUP-02-02122022 |
| VAS18-3-7 | DUP-03-06122022 |
| VAS19-5-9 | DUP-04-07122022 |
| VAS27-4-8 | DUP-05-09122022 |
| VAS31-3-7 | DUP-06-12122022 |
| VAS35-1-5 | DUP-07-13122022 |
| MS/MSD Locations | |
| VAS08-16-20 | |
| VAS19-16-20 | |
| VAS20-5-9 | |
| VAS31-16-20 | |

Groundwater samples and QA/QC samples were transported to Merit for analysis under chain of custody protocol. VAS groundwater samples were analyzed for 34 PFAS compounds using modified method ASTM D7979-19 with isotopic dilution. Additional sampling and analyses were performed at 19 VAS locations where waste materials were encountered. While neither anticipated nor included in the DGI work plan, it was necessary to collect the samples since they were in contact with waste material. At these locations, groundwater samples were also collected and analyzed for volatile organic compounds (VOCs) by USEPA Method 8260C, semi-volatile organic compounds (SVOCs) by USEPA Method 8270D, and “Michigan 10” metals (arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc) by USEPA Method 6020A to evaluate other potential non-CCR impacts. Copies of the soil boring logs from VAS locations and copies of groundwater sample records are included in **Appendix B** and **Appendix C**, respectively.

3.1.3 Soil Sampling

On December 1 through December 14, 2022, WSP collected subsurface soil samples from 11 VAS locations (VAS13, VAS15, VAS19, VAS21, VAS23, VAS26, VAS31, VAS32, VAS33, VAS34, and VAS39) where waste materials (glass, plastic, metal, ceramic, rubber, and concrete) were identified during drilling activities. The soil samples were collected from depths ranging from 2 to 7 ft bgs; waste material was not identified at depths greater than 7 ft bgs in VAS locations. The soil samples were submitted to Merit under chain of custody protocol for analysis of 34 PFAS compounds using modified method ASTM D7968-17 with isotopic dilution. Although not included in the scope of the DGI Work Plan (Wood, 2022), select soil samples also were analyzed for total organic carbon (TOC) by SW846 9060A modified, pH by SW 846 Method 9045D, and grain size analysis (percent gravel, sand, and fines) using the hydrometer method. The TOC analysis was subcontracted to and analyzed by GEL Laboratories LLC. While not included in the DGI work plan, the additional analyses were performed because these physical-chemical properties may provide useful information about PFAS fate and transport.

3.1.4 Surface Water and Sediment Sampling

On December 14, 2022, six surface water samples (SW-01 through SW-06) were collected from the Grand River and the South Channel of the Grand River, and one sediment sample (SED-01) from the South Channel (**Figure 5**). Surface water samples were collected in the following areas:

- SW-01 collected upgradient of the Site in the South Channel of the Grand River. Although not included in the scope of the DGI Work Plan (Wood, 2022), a sediment sample was collected co-located with SW-01.
- SW-02 was collected upgradient of the Site in the Grand River, off of the Harbor Island boat launch docks.
- SW-03 was collected in the north wetland area.
- SW-04 was collected in the Grand River, west of the Site boundary.
- SW-05 was collected in the South Channel of the Grand River at Linear Park.
- SW-06 was collected downgradient of the confluence of the Grand River and the South Channel of the Grand River at the Grand Haven Municipal Marina.

Surface water samples were collected in general accordance with EGLE's Surface Water PFAS Sampling Guidance document (EGLE, 2022). Samples were collected by gently lowering an HDPE container into the surface water bodies, taking care not to disturb the underlying sediment and then transferring the water to the laboratory provided sampling bottles. The sediment sample, SED-01, was collected using a Geoprobe acetate, non-PFAS containing liner. The liner was pushed into the sediment, pulled up to the surface (with the sediment inside), and transferred in the laboratory provided sampling containers. The sediment and surface water samples were submitted to Merit under chain of custody protocol for analysis of 34 PFAS compounds using modified method ASTM D7968-17 with isotopic dilution and modified method ASTM D7979-19 with isotopic dilution, respectively. These laboratory methods and list of compounds analyzed are consistent with the Work Plan.

On May 5, 2023, six surface water samples (SW-01 through SW-06) were collected from the north wetland area, interior wetland areas, and the former coal pile (**Figure 5**). Surface water samples were collected in the following areas during the May sample collection event:

- SW-01 was collected from the north wetland, located to the north of MW-08;
- SW-02 was collected from the water of the interior wetland, located to the southeast of SG-06;
- SW-03 was collected from the waters of the interior wetland, located to the southeast of PZ-28;
- SW-04 was collected from the water of the interior wetland, located to the west of PZ-23;
- SW-05 was collected from the southern bank of the former coal pile; and,
- SW-06 was collected from the South Channel of the Grand River, approximately 50 feet upriver of the 3rd Street Bridge.

In general, surface water samples were collected using the same procedures used to collect samples during the December 2022 sample collection event. However, it was noted that the surface water sample SW-06 was collected by skimming the surface of the water which may overestimate PFAS concentrations as PFAS tend to accumulate along the air-water interface. In addition, foam was identified along the shore at the SW-01 and SW-05 sample locations and WSP collected a sample of the foam from the SW-05 location. The surface water samples, and foam sample were submitted to Merit under chain of custody protocol for analysis of 34 PFAS compounds using modified method ASTM D7979-19 with isotopic dilution.

3.1.5 Groundwater Monitoring Well Installation

On November 28, 2022, and January 30 and 31, 2023, WSP provided oversight for the installation of eight permanent groundwater monitoring wells. During the November/December drilling activities, two monitoring wells (MW-33 and MW-34) were installed in the park located northeast of the Site to support ongoing CCR compliance monitoring activities (**Figure 3**). Six additional groundwater monitoring wells were installed at previous VAS locations in January 2022. The monitoring well locations were chosen based on WSP interpretation of PFAS analytical results from December 2021 VAS/investigative activities. These monitoring wells expanded the spatial distribution of the existing monitoring well network at the Site (**Figure 3**). The following groundwater monitoring wells were installed at respective boring locations:

Monitoring Wells Installed at VAS Locations

| VAS Location | Monitoring Well Installed |
|--------------|---------------------------|
| GP-01 | MW-35 |
| VAS20 | MW-36 |
| VAS21 | MW-37 |
| VAS22 | MW-38 |
| VAS15 | MW-39 |
| VAS16 | MW-40 |

Job Site installed the permanent monitoring wells using DPT with a Geoprobe 7822 DT drill rig. The permanent monitoring wells were constructed with 2-inch ID, flush-threaded schedule 40 PVC casing and pre-packed schedule 40 PVC, 0.010-inch factory-cut mill-slot screens with a threaded bottom cap; the pre-pack screen was wrapped with stainless steel wire mesh that contained size 20-40 mesh sand. Number 2 size well gravel/sand was used as filter pack to fill the annular space to a minimum of 2-ft above the prepacked well screen at monitoring wells MW-33 through MW-38 and sealed with granular bentonite. At monitoring well locations where the water table was close to the surface (MW-39 and MW-40) the filter pack thickness was reduced to accommodate the annular seal of granular bentonite. At each location, the top of each well casing was fit with a water-tight locking cap and completed with a 2-ft by 2-ft, 4-inch-thick concrete pad. Monitoring well locations MW-33 through MW-35 were completed with a flush mount water-tight well cover and MW-36 through MW-40 were finished with a four-foot painted stick-up protective well casing. Monitoring well construction details are located in **Appendix D**.

The monitoring wells were developed a minimum of 24-hours after installation through alternating cycles of surging and purging the well using a clean decontaminated submersible pump and new HDPE tubing. The initial depth to water, total depth of well, development method, pumping rate, cumulative volume removed during well development, and depth to water after development were recorded on the well development form for each well (**Appendix E**). Water quality parameters were not monitored during well development; however, they were monitored as part of groundwater sample collection procedures. Job Site decontaminated the DPT drilling core barrels and submersible pump between each monitoring well installation and development using a pressure washer and Liquinox® soap.

3.1.6 Groundwater Monitoring Well and Piezometer Sample Collection

WSP collected groundwater samples from select Site monitoring wells and piezometers during two quarterly events in January/February 2023 and May 2023. The first quarter groundwater sample collection event was performed from January 30 through February 2, 2023. The scope of the DGI Work Plan (Wood, 2022) included sample collection from the newly installed wells and 10 existing wells/piezometers. In order to determine baseline groundwater conditions, groundwater samples were collected from 38 of the 40 existing monitoring wells/piezometers (PZ-21 and PZ-22 were not sampled due to access issues) (**Figure 3**). The second quarter groundwater sample collection event was completed from May 1 through May 3, 2023. Groundwater samples were collected from eight new monitoring wells and 10 existing monitoring wells/piezometers (MW-01R, MW-03, MW-04, MW-08, MW-10, PZ-13, PZ-14, PZ-23, PZ-28, MW-32, MW-33, MW-34, MW-35, MW-36, MW-37, MW-39, MW-39, and MW-40).

Prior to collection of groundwater samples, WSP measured the static water level at each monitoring well by removing the locking plug and allowing the water level to equilibrate to atmospheric conditions prior to measuring the depth to water. Depth to water was measured using an electronic water level meter to a precision of 0.01 ft below the surveyed top of casing reference point.

WSP collected groundwater samples from monitoring wells using a peristaltic pump and new HDPE tubing, in accordance with low-flow sample collection techniques (e.g., < 500 milliliters/minute). During purging, WSP monitored groundwater drawdown in each well to ensure stability and to optimize flow rate, in accordance with low-flow protocols. WSP used an in-line multi-parameter water quality meter (YSI) to measure geochemical conditions (e.g., pH, specific conductance, dissolved oxygen, ORP, turbidity and temperature) for stabilization during purging. Purging continued until three consecutive readings demonstrated stability, three well volumes had been removed from the monitoring well, or one hour of time had passed since the start of purge. Groundwater samples were then collected directly from the pump discharge into laboratory supplied and preserved containers and placed in an ice-packed cooler for transport to the laboratory. Groundwater samples were transported to Merit for analysis under chain of custody protocol and were analyzed for 34 PFAS compounds using modified method ASTM D7979-19 with isotopic dilution. During each quarterly groundwater sample collection event, the following field duplicates and MS/MSD samples were collected for QA/QC purposes:

Field Duplicates and MS/MSD Locations – January/February 2023 and May 2023

| January/February 2023 | | May 2023 | |
|-----------------------|-----------------|-----------------|-----------------|
| Parent Sample | Field Duplicate | Parent Sample | Field Duplicate |
| MW-27 | DUP-01 | PZ-14 | DUP-01 |
| MW-37 | DUP-02 | MW-34 | DUP-02 |
| MW-35 | DUP-03 | -- | -- |
| MS/MSD Location | | MS/MSD Location | |
| MW-39 | | MW-08 | |

Copies of the monitoring well sampling records from the two quarterly groundwater sample collection events are included in **Appendix C**.

3.2 Quality Assurance/Quality Control

Field quality control samples were collected to confirm sample collection and analytical precision, in addition to assess potential field contamination and sample collection variability. In addition to the QA/QC samples discussed in previous sub-sections (field duplicates and MS/MSD samples), the following samples were obtained during PFAS DGI activities:

- **Equipment Blanks:** Field equipment blanks were collected to ensure there was not cross-contamination between samples from non-disposable sample equipment during the collection process. During PFAS DGI activities, equipment blanks were collected at a rate of five percent and obtained by pouring laboratory provided PFAS-free water over extractable screens and soil sample collection devices and letting it flow directly into sample containers.
- **Field Duplicates:** Field duplicate samples were collected from the same location, using the same methods, immediately following collection of the parent sample. Field duplicates were obtained primarily at a rate of 10 percent for groundwater samples collected during each

sample collection event (see respective sample collection events in previous sub-sections for parent/duplicate associations).

- **MS/MSD:** To evaluate effects of the sample matrix on the preparation and analytical process, MS/MSD samples were collected primarily at a rate of five percent for groundwater samples collected during each sample collection event (see respective sample collection events in previous sub-sections for MS/MSD sample locations).
- **Source Water Assessment:** To identify and limit trace PFAS detections introduced through low-level PFAS contamination in water used for decontamination of drilling and sampling equipment, source water was provided from a hydrant located at the Grand Haven Department of Public Works. A sample from the water supply/hydrant was previously collected by the City of Grand Haven for analysis and WSP determined the water from the hydrant was an acceptable source to use for decontamination purposes during investigative activities.
- **Trip Blanks:** To ensure cross-contamination did not occur from sample collection to laboratory sample receipt, trip blanks accompanied each sample delivery group to the laboratory.
- **Temperature Blanks:** For each cooler delivered to the laboratory, a laboratory provided container filled with water accompanied the samples so the laboratory could ensure field samples collected are maintained at the required temperature until laboratory receipt.

3.3 Data Validation

To ensure data quality objectives were met, WSP performed an EPA Stage 4 data validation on a minimum of 10 percent (%) of the field samples analyzed and Stage 2B data validation on the remaining samples collected during DGI activities. No data was rejected during validation and is considered 100% usable, meeting the QAPP-specified 95% completeness goal. Qualifiers applied during data validation are shown in **Tables 1 through 6**.

3.4 Investigative Derived Waste

Investigation Derived Waste (IDW) consisted of soil cuttings, decontamination water, monitoring well development and purge water, personal protective equipment (PPE), and general refuse. Soil cutting from VAS borings were returned to the borehole after boring completion, excess soil cuttings from monitoring well installation were spread adjacent to the installed monitoring well. Groundwater accumulated from monitoring well development and purge water from groundwater sample collection efforts were poured onto the ground adjacent to the source monitoring well. PPE and general refuse were placed in plastic bags and placed into sanitary trash to be disposed at a sanitary landfill.

4.0 Discussion of Results

The following sections summarize hydrogeologic, soil, groundwater, and surface water related laboratory results collected during the PFAS DGI sample collection events completed at the Site between November 2022 and May 2023. Analytical results from groundwater and soil samples collected at the Site and surrounding areas were compared to EGLE Part 201 Generic Cleanup Criteria, specifically Residential & Nonresidential DWC and GSIC (for surface water used as a drinking water source). Surface water samples were compared to EGLE Rule 57 SWQV-HNV. Copies of laboratory analytical reports for samples collected are included in **Appendix F** and data validation reports are included in **Appendix G**.

4.1 Temporary Monitoring Well Sample Results

WSP installed and collected groundwater samples from two temporary monitoring wells (GP-01 and GP-02) on November 29, 2022, for laboratory analysis. Both temporary wells were installed in the Harbor Island Soccer Fields. Laboratory analytical results for PFAS in groundwater collected from temporary monitoring wells are summarized in **Table 2** and displayed on **Figure 6a**. Analytical results from groundwater samples collected from temporary monitoring wells indicate the following:

- PFOA was detected in the groundwater samples collected from GP-01 and GP-02 at concentrations of 93 ng/L and 37 ng/L, respectively. GP-01 exceeded both the GSIC (66 ng/L) and the DWC (8 ng/L). GP-02 exceeded the DWC.
- PFOS was detected in the groundwater samples collected from GP-01 and GP-02 at concentrations of 92 ng/L and 5.9 ng/L, respectively. GP-01 exceeded both the GSIC (11 ng/L) and the DWC (16 ng/L).

The following PFAS were detected at GP-01 and/or GP-02, but were below the respective criterion (if applicable):

- Perfluorobutane sulfonic acid (PFBS) was detected in both temporary wells with a maximum concentration of 9.0 ng/L (GP-01) and was below the DWC and GSIC (420 ng/L and 8,300 ng/L, respectively).
- PFHxS was detected in both temporary wells with a maximum concentration of 13 ng/L (GP-01) and was below the DWC and GSIC (51 ng/L and 59 ng/L, respectively).
- Perfluorohexanoic acid (PFHxA) was detected in both temporary wells with a maximum concentration of 28 ng/L (GP-02) and was below the DWC (400,000 ng/L).
- PFNA and Hexafluoropropylene oxide dimer acid (HFPO-DA) were not detected in samples collected from temporary wells GP-01 or GP-02.

Summary of Temporary Monitoring Well Results

| PFAS | Total Number of Samples Collected | Number of Samples with Detections | Maximum Detection (Location) | Number of Results > GSIC | Number of Results > DWC |
|---------|-----------------------------------|-----------------------------------|------------------------------|--------------------------|-------------------------|
| PFOA | 2 | 2 | 93 ng/L (GP-01) | 1 | 2 |
| PFOS | 2 | 2 | 92 ng/L (GP-01) | 1 | 1 |
| PFBS | 2 | 2 | 9.0 ng/L (GP-01) | 0 | 0 |
| PFHxS | 2 | 2 | 13 ng/L (GP-01) | 0 | 0 |
| PFHxA | 2 | 2 | 28 ng/L (GP-02) | No GSIC | 0 |
| PFNA | 2 | 0 | Not Detected | 0 | 0 |
| HFPO-DA | 2 | 0 | Not Detected | No GSIC | 0 |

4.2 VAS Groundwater Results

In November/December 2022, WSP collected groundwater samples from 40 VAS locations to further assess the horizontal and vertical extent of PFAS impacts at the Site, to assess the distribution of landfill waste in certain areas of the Site, and to evaluate the soil from select depth intervals for evidence of impacts (see **Section 4.3**). At each VAS location, groundwater samples were collected for PFAS analysis from up to two separate depth intervals (i.e., one at the water table [shallow groundwater] and one at 16-20 ft bgs [deep groundwater]). Laboratory analytical results for PFAS in groundwater collected from VAS locations are summarized in **Table 2** and displayed on **Figure 6a and 6b**. Laboratory analytical results for samples that were collected for additional analysis (VOCs, SVOCs, and metals) are summarized in **Table 3**. PFAS analytical results from groundwater samples collected from VAS locations indicate the following:

Shallow Groundwater Results

- PFAS analytes were detected in 39 of the 40 shallow groundwater samples and 31 of the 39 deeper groundwater samples (16-20 ft bgs) collected from VAS locations.
- Soil boring VAS26 (located near the South Channel) was the only VAS location that did not report concentration(s) of PFAS analytes in groundwater from the shallow or deep sample intervals.
- PFOS concentrations detected in groundwater samples collected from the shallow intervals exceeded the GSIC (11 ng/L) and/or the DWC (16 ng/L) in 17 of the samples collected.
 - PFOS concentrations detected in groundwater samples collected from the shallow intervals that exceeded criteria ranged from 12 to 250 ng/L.
 - The maximum concentration of PFOS (250 ng/L) was collected from boring VAS34 (3-7 ft bgs).
 - PFOS concentrations detected in groundwater samples collected from the shallow intervals exceeded the GSIC (11 ng/L) in 17 of the samples collected and exceeded the DWC (16 ng/L) in 14 of the samples collected.

- PFOA concentrations detected in groundwater samples collected from the shallow intervals exceeded the GSIC (66 ng/L) and/or the DWC (8 ng/L) in 24 of the samples collected.
 - PFOA concentrations detected in samples collected from the shallow intervals that exceeded criteria ranged from 8.4 to 110 ng/L.
 - The maximum concentration of PFOA detected in groundwater samples collected from the shallow intervals (110 ng/L) was collected from boring VAS34 (3-7 ft bgs).
 - PFOA concentrations detected in groundwater samples collected from the shallow intervals exceeded the DWC (8 ng/L) in 24 of the samples collected and exceeded the GSIC (66 ng/L) in four of the samples collected.
- PFHxS exceeded the GSIC (59 ng/L) and the DWC (51 ng/L) at one VAS location with a concentration of 110 ng/L, collected from VAS21 (5-9 ft bgs).
- PFNA exceeded the DWC (6 ng/L) at one VAS location with a concentration of 14 ng/L, collected from VAS14 (1-5 ft bgs).
- PFBS and PFHxA were detected in groundwater samples collected from the shallow interval in most of the VAS locations, but concentrations did not exceed DWC or GSIC (if applicable).
- HFPO-DA was not detected in any groundwater sample collected from any VAS location.

Summary of VAS Shallow Groundwater Results

| PFAS | Total Number of Samples Collected | Number of Samples with Detections | Maximum Detection (Location) | Number of Results > GSIC | Number of Results > DWC |
|---------|-----------------------------------|-----------------------------------|------------------------------|--------------------------|-------------------------|
| PFOA | 40 | 35 | 110 ng/L (VAS34-3-7) | 4 | 24 |
| PFOS | 40 | 36 | 250 ng/L (VAS34-3-7) | 17 | 14 |
| PFBS | 40 | 35 | 95 ng/L (VAS21-5-9) | 0 | 0 |
| PFHxS | 40 | 29 | 110 ng/L (VAS21-5-9) | 1 | 1 |
| PFHxA | 40 | 37 | 890 ng/L (VAS21-5-9) | No GSIC | 0 |
| PFNA | 40 | 13 | 14 ng/L (VAS14-1-5) | 0 | 1 |
| HFPO-DA | 40 | 0 | Not Detected | No GSIC | 0 |

Deep Groundwater Results

- PFOS did not exceed the DWC or GSIC in groundwater samples collected from the deep sample intervals.
- PFOA concentrations detected in groundwater samples collected from the deep sample intervals at VAS locations VAS22 (16-20 ft bgs) and VAS20 (16-20 ft bgs) exceeded the DWC (8 ng/L) with concentrations of 24 ng/L and 34 ng/L, respectively, but were below the GSIC (66 ng/L) in both samples.

- PFBS, PFHxS, PFNA, and PFHxA were detected in groundwater samples collected from the deep interval in many of the VAS locations, but concentrations did not exceed DWC or GSIC (if applicable).
- HFPO-DA was not detected in any groundwater sample collected from any VAS locations.

Summary of VAS Deep Groundwater Results

| PFAS | Total Number of Samples Collected | Number of Samples with Detections | Maximum Detection (Location) | Number of Results > GSIC | Number of Results > DWC |
|---------|-----------------------------------|-----------------------------------|------------------------------|--------------------------|-------------------------|
| PFOA | 38 | 8 | 34 ng/L (VAS20-16-20) | 0 | 2 |
| PFOS | 38 | 4 | 3.9 ng/L (VAS20-16-20) | 0 | 0 |
| PFBS | 38 | 14 | 14 ng/L (VAS20-16-20) | 0 | 0 |
| PFHxS | 38 | 5 | 6.8 ng/L (VAS20-16-20) | 0 | 0 |
| PFHxA | 38 | 27 | 150 ng/L (VAS20-16-20) | No GSIC | 0 |
| PFNA | 38 | 13 | 1.5 ng/L (VAS20-16-20) | 0 | 0 |
| HFPO-DA | 38 | 0 | Not Detected | No GSIC | 0 |

At select VAS locations where samples were collected for additional analysis (VOCs, SVOCs, and metals), concentrations of SVOCs were detected in samples collected from boring VAS17 (3-7 ft bgs), but analytes detected were below EGLE Part 201 Generic Cleanup Criteria. VOC analytes were detected in samples collected from VAS locations, but concentrations of the analytes detected were also below EGLE Part 201 Generic Cleanup Criteria. Select metals were detected in the groundwater samples collected from VAS locations and concentrations of arsenic, cadmium, lead, selenium, and/or silver exceeded the GSIC and/or DWC in samples from select VAS locations (**Table 3**). The metals detected in groundwater are monitored as part of the CCR compliance activities conducted at the Site.

4.3 VAS Soil Results

WSP collected subsurface soil samples from 11 VAS locations (VAS13, VAS15, VAS19, VAS21, VAS23, VAS26, VAS31, VAS32, VAS33, VAS34, and VAS39) where waste materials (glass, plastic, metal, ceramic, rubber, and concrete) were identified during drilling activities. Soil analytical results are summarized in **Table 1**.

Based on observations made in soil borings, soil samples primarily consisted of poorly graded sand where samples were collected. PFOS was detected in 11 soil samples collected during the VAS event. The maximum detection of PFOS in soil was at VAS location VAS32-SB-3-5 with a concentration of 15,000 nanograms per kilogram (ng/kg).

PFOA was detected in three soil samples; concentrations ranged from 45 to 140 ng/kg. The highest concentration of PFOA in soil was also detected at location VAS32-SB-3-5.

4.4 Groundwater Monitoring Well and Piezometer Sample Results

WSP collected groundwater samples from monitoring wells and piezometers during the following events:

- WSP collected groundwater samples from MW-33 and MW-34 for analysis of PFAS and other analytes (VOCs, SVOCs, and metals) after installation on December 1, 2022, and again on December 15, 2022.
- WSP collected groundwater samples for PFAS analysis from eight newly installed monitoring wells and 30 of the 32 existing monitoring wells/piezometers at the Site during the first quarterly sample collection event in January/February 2023.
- WSP collected groundwater samples from the eight newly installed monitoring wells and 10 existing monitoring wells/piezometers at the Site during the second quarterly event in May 2023.

PFAS analytical results obtained during the January/February 2023 and May 2023 quarterly sample collection events are summarized, along with historical PFAS sample analytical results (samples collected in May 2021, October 2021, and January 2022), in **Table 4**. PFAS analytical results obtained during the January/February 2023 and May 2023 events are presented on **Figure 7** and **Figure 8**, respectively. PFAS analytical results from the quarterly groundwater sample collection events are summarized below:

December 2022

- PFAS analytes were detected in groundwater samples collected from both monitoring wells.
- PFOS concentrations detected in groundwater samples collected from both monitoring wells exceeded the GSIC (11 ng/L) and the DWC (16 ng/L).
 - The maximum concentration of PFOS detected in groundwater (160 ng/L) was collected from location MW-34.
- PFOA concentrations detected in groundwater samples collected from both monitoring wells exceeded the DWC (8 ng/L) and the GSIC (66 ng/L).
 - The maximum concentration(s) of PFOA detected in (82 ng/L) was collected from location MW-34.
- PFBS, PFHxS, PFNA, and PFHxA were detected in groundwater one or both samples collected MW-33 and MW-34 but concentrations did not exceed DWC or GSIC (if applicable).
- HFPO-DA was not detected in either groundwater sample.
- Concentrations of VOC and SVOC analytes were detected, with concentrations exceeding applicable DWC and GSIC at MW-34 (**Table 3**). Select metals were detected in both monitoring wells but did not exceed the DWC or GSIC.

Summary of December 2022 Groundwater Results

| PFAS | Total Number of Samples Collected | Number of Samples with Detections | Maximum Detection (Location) | Number of Results > GSIC | Number of Results > DWC |
|---------|-----------------------------------|-----------------------------------|------------------------------|--------------------------|-------------------------|
| PFOA | 2 | 2 | 82 ng/L (MW-34) | 1 | 2 |
| PFOS | 2 | 2 | 160 ng/L (MW-34) | 2 | 2 |
| PFBS | 2 | 2 | 17 ng/L (MW-33) | 0 | 0 |
| PFHxS | 2 | 2 | 19 ng/L (MW-34) | 0 | 0 |
| PFHxA | 2 | 2 | 12 ng/L (MW-34) | No GSIC | 0 |
| PFNA | 2 | 1 | 1.7 J ng/L (MW-33) | 0 | 0 |
| HFPO-DA | 2 | 0 | Not Detected | No GSIC | 0 |

January/February 2023

- PFAS analytes were detected in 38 groundwater samples collected from monitoring wells/piezometers.
- PFAS analytes were detected in groundwater samples collected from monitoring wells/piezometers with concentrations that exceeded the DWC and/or GSIC in 23 of the 38 samples.
- PFOS concentrations detected in groundwater samples collected from monitoring wells/piezometers exceeded the GSIC (11 ng/L) and/or the DWC (16 ng/L) in 22 of the sample locations.
 - PFOS concentrations detected in groundwater samples collected from the monitoring wells/piezometers that exceeded criteria ranged from 12 to 160 ng/L.
 - The maximum concentrations of PFOS detected in groundwater samples collected from the monitoring wells/piezometers (160 ng/L) were from locations MW-08 and PZ-13.
 - PFOS concentrations detected in groundwater samples collected from the monitoring wells/piezometers exceeded the GSIC (11 ng/L) in 22 of the samples collected and exceeded the DWC (16 ng/L) in 15 of the samples collected.
- PFOA concentrations detected in groundwater samples collected from monitoring wells/piezometers exceeded the DWC (8 ng/L) and/or the GSIC (66 ng/L) in 19 of the samples.
 - PFOA concentrations detected in groundwater samples collected from the monitoring wells/piezometers that exceeded criteria ranged from 11 to 82 ng/L.
 - The maximum concentration of PFOA detected in groundwater samples collected from the monitoring wells/piezometers (87 ng/L) was from MW-38.
 - PFOA concentrations detected in groundwater samples collected from the monitoring wells/piezometers exceeded the DWC (8 ng/L) in 20 samples and the GSIC (66 ng/L) in two of the samples.

- PFHxS exceeded the GSIC (59 ng/L) and the DWC (51 ng/L) at one location with a concentration of 110 ng/L, collected from PZ-13.
- PFBS, PFHxA, and PFNA were detected in groundwater samples collected from monitoring wells/piezometers, but concentrations did not exceed DWC or GSIC (if applicable).
- HFPO-DA was not detected from samples collected from monitoring wells/piezometers.

Summary of January/February 2023 Groundwater Results

| PFAS | Total Number of Samples Collected | Number of Samples with Detections | Maximum Detection (Location) | Number of Results > GSIC | Number of Results > DWC |
|---------|-----------------------------------|-----------------------------------|------------------------------|--------------------------|-------------------------|
| PFOA | 38 | 35 | 71 ng/L (MW-35) | 20 | 2 |
| PFOS | 38 | 33 | 160 ng/L (MW-08, PZ-13) | 22 | 15 |
| PFBS | 38 | 34 | 43 ng/L (MW-37) | 0 | 0 |
| PFHxS | 38 | 31 | 110 ng/L (PZ-13) | 1 | 1 |
| PFHxA | 38 | 37 | 710 ng/L (PZ-13) | No GSIC | 0 |
| PFNA | 38 | 22 | 5.9 ng/L (MW-38) | 0 | 0 |
| HFPO-DA | 38 | 0 | Not Detected | No GSIC | 0 |

May 2023

- PFAS analytes were detected in 18 groundwater samples collected from monitoring wells/piezometers.
- PFAS analytes were detected in groundwater samples collected from monitoring wells/piezometers with concentrations that that exceed the DWC and/or GSIC in 15 of the 18 samples.
- PFOS concentrations detected in groundwater samples collected from monitoring wells/piezometers exceeded the GSIC (11 ng/L) and/or the DWC (16 ng/L) in 15 of the samples.
 - PFOS concentrations detected in groundwater samples collected from the monitoring wells/piezometers that exceeded criteria ranged from 12 to 130 ng/L.
 - The maximum concentration(s) of PFOS detected in groundwater samples collected from the monitoring wells/piezometers (130 ng/L) was from MW-34 (which is located in the Harbor Island Soccer Field).
 - PFOS concentrations detected in groundwater samples collected from the monitoring wells/piezometers exceeded the GSIC (11 ng/L) in 12 samples and exceeded the DWC (16 ng/L) in eight of the samples.
- PFOA concentrations detected in groundwater samples collected from monitoring wells/piezometers exceeded the DWC (8 ng/L) and/or the GSIC (66 ng/L) in 14 of the samples. PFOA concentrations detected in groundwater samples collected from the monitoring wells/piezometers that exceeded criteria ranged from 9.9 to 73 ng/L.

- The maximum concentration of PFOA detected in groundwater samples collected from the monitoring wells/piezometers (73 ng/L) was from PZ-13.
- PFOA concentrations detected in groundwater samples collected from the monitoring wells/piezometers exceeded the DWC (8 ng/L) in 13 samples and the GSIC (66 ng/L) in one sample (PZ-13).
- PFHxS exceeded the GSIC (59 ng/L) and DWC (51 ng/L) at one location with a concentration of 140 ng/L, collected from PZ-13.
- Concentrations of PFBS, PFHxA, and PFNA were detected in groundwater samples collected from monitoring wells/piezometers, but concentrations did not exceed DWC or GSIC (if applicable).
- HFPO-DA was not detected in any groundwater samples collected from any monitoring wells/piezometers.

Summary of May 2023 Groundwater Results

| PFAS | Total Number of Samples Collected | Number of Samples with Detections | Maximum Detection (Location) | Number of Results > GSIC | Number of Results > DWC |
|---------|-----------------------------------|-----------------------------------|------------------------------|--------------------------|-------------------------|
| PFOA | 18 | 13 | 73 ng/L (PZ-13) | 1 | 13 |
| PFOS | 18 | 16 | 130 ng/L (MW-34) | 12 | 8 |
| PFBS | 18 | 13 | 50 ng/L (PZ-13) | 0 | 0 |
| PFHxS | 18 | 15 | 140 ng/L (PZ-13) | 1 | 1 |
| PFHxA | 18 | 17 | 1200 ng/L (PZ-13) | No GSIC | 0 |
| PFNA | 18 | 4 | 4.3 J ng/L (MW-38) | 0 | 0 |
| HFPO-DA | 18 | 0 | Not Detected | No GSIC | 0 |

4.5 Surface Water and Sediment Sample Results

WSP collected six surface water samples from the Grand River and the South Chanel of the Grand River on December 14, 2022. Additionally, one sediment sample was collected at the SW-01 sample location on December 14, 2022. WSP collected six surface water samples on May 1, 2023. One foam sample was collected at the SW-05 sample location on May 1, 2023. The surface water sample collected from SW-06 on May 1, 2023, was collected by skimming the surface. According to the EGLE Surface Water PFAS Sampling Guidance (EGLE, 2022), surface water samples should not be taken from the top layer of the water body. PFAS are expected to accumulate at the surface water-air interface, so samples taken at the surface are likely to result in high biased results that are not representative of the bulk surface water and should not be compared to Rule 57 Surface Water Quality Values.

The PFAS analytical results for surface water samples collected during the December 1, 2022, and May 1, 2023, collection events are summarized in **Table 5** and are presented on **Figure 9**. The PFAS analytical results for the sediment sample is summarized in **Table 6**. The foam sample collected was confirmed to contain PFAS, however, an insufficient sample volume was

obtained for complete and accurate PFAS analysis. PFAS analytical results from the surface water and sediment sample collection events are summarized below:

- PFAS analytes were detected in the 12 surface water samples.
- PFOS was detected in the surface water samples; concentrations detected ranged from 1.8 (estimated) to 12 ng/L (for samples collected in accordance with EGLE Surface Water PFAS Sampling Guidance).
 - The surface water sample collected from SW-01 on May 1, 2023 reported a PFOS concentration (12 ng/L) that exceeded the SWQV-HNV (11 ng/L); no other samples reported concentrations of PFOS exceeding the SWQV-HNV.
- PFOA was detected in eight surface water samples; concentrations detected ranged from 1.6 (estimated) to 5.1 ng/L (for samples collected in accordance with EGLE Surface Water PFAS Sampling Guidance).
 - Concentrations of PFOA detected in surface water samples did not exceed the SWQV-HNV (66 ng/L).
- PFBS was detected in the surface water samples concentrations detected ranged from 1.1 (estimated) to 3.8 ng/L (for samples collected in accordance with EGLE Surface Water PFAS Sampling Guidance).
 - Concentrations of PFBS detected in surface water samples did not exceed the SWQV-HNV (8,300 ng/L).
- PFHxS was detected in the surface water samples concentrations detected ranged from 1.6 (estimated) to 2.7 ng/L (for samples collected in accordance with EGLE Surface Water PFAS Sampling Guidance).
 - Concentrations of PFHxS detected in surface water samples did not exceed the SWQV-HNV (59 ng/L).
- PFNA was detected in the surface water samples concentrations detected ranged from 1.0 (estimated) to 3.2 ng/L (for samples collected in accordance with EGLE Surface Water PFAS Sampling Guidance).
 - Concentrations of PFNA detected in surface water samples did not exceed the SWQV-HNV (19 ng/L).
- PFAS analytes were detected in the sediment sample obtained from the SW-01 sample location (December 14, 2022), with PFOS detected at the highest concentration of 610 ng/kg.

5.0 Conclusions

5.1 Groundwater - Relevant Exposure Pathways

As detailed in Section 4.0, groundwater results were compared to Michigan Generic Cleanup Criteria. Groundwater samples exceeded both the Residential and Nonresidential Generic DWC for PFOS, PFOA, PFHxS, and PFNA. Groundwater samples also exceeded the GSIC for PFOS, PFOA, and PFHxS.

5.1.1 Groundwater Surface Water Interface

The GSI pathway is relevant when hazardous substances in groundwater can reasonably be expected to discharge to surface waters of the State. Groundwater elevations measured by HDR indicate that groundwater is discharging to surface water, including the Grand River on the west side of the Island, the South Channel on the south side of the Island, the north wetland area, the interior wetland areas, and Units 1/2 Impoundment. Groundwater flow patterns on the Island are variable and change seasonally. Based on the concentrations of PFOS, PFOA, and PFHxS in monitoring wells located near the groundwater-surface water interface at the Grand River and at Harbor Island wetlands, as well as the groundwater flow directions measured during 2022 and 2023, there is the potential for PFOS, PFOA, PFHxS in groundwater to discharge to surface water at concentrations exceeding the GSIC. Grand Haven's municipal water intake is located in Lake Michigan, just south of the mouth of the Grand River. As such, all groundwater concentrations were compared to the generic GSIC for a drinking water source.

The majority of the monitoring wells located along the western edge of the Island, near the likely GSI of Grand River, have PFOS concentrations that exceed the GSIC. One monitoring well located on the western edge of the Island has PFOA and PFHxS concentrations that exceed the GSIC. Figures showing the consolidated VAS and January/February 2023 PFOS and PFOA results compared to GSIC are included in **Appendix H**.

Wetlands are regulated as surface waters of the State and are subject to GSI statutory provisions.

The wetlands on Harbor Island are not used as a drinking water source, however, are hydraulically connected to the Grand River. The GSIC for PFOS for a non-drinking water source is 12 ng/L. Most locations where groundwater results exceed the PFOS GSIC for a drinking water source also exceed the PFOS GSIC for a non-drinking water source. The GSIC for PFOA for a non-drinking water source is 170 ng/L. No locations where groundwater results exceed the PFOA GSIC for a drinking water source exceeded the PFOA GSIC for a non-drinking water source.

Additionally, surface water samples collected from the north wetland have concentrations of PFOS that indicate that venting groundwater may be impacting the surface water quality in that wetland.

5.1.2 Drinking Water Criteria

In Michigan, the drinking water pathway must be considered for all groundwater in an aquifer but is considered an incomplete exposure pathway where groundwater is not used for consumption. The Generic Residential and Nonresidential DWC are developed based on the ingestion of groundwater for drinking water. In the case of the seven PFAS that have DWC, the criteria are the same for both residential and nonresidential exposure scenarios.

Sampling locations that had PFOS and PFOA DWC exceedances were distributed across the Site, with fewer exceedances along the southern edge of Harbor Island and in the former Shell bulk storage tank location. Exceedances of the PFHxS (one VAS location and one monitoring well) and PFNA (one VAS location) DWC were limited to the former J.B. Sims Generation Station area.

The VAS sampling indicated that the majority of the DWC exceedances are present in the shallow groundwater samples (ranging from 1 to 9 ft bgs). At most of the locations where there were DWC exceedances in the shallow samples, there were no DWC exceedances in the corresponding deeper groundwater sample (16 to 20 ft bgs). At two locations in the former J.B. Sims Generating Plant area (VAS20 and VAS22), both the shallow (5 to 9 ft bgs) and the deeper (16 to 20 ft bgs) groundwater samples had concentrations that exceeded the DWC.

According to the EGLE's Wellogic online database, there are no water wells located on Harbor Island. There are, however, water wells that are located near Harbor Island, both north and south of the Grand River. According to Wellogic, most of the water wells located closest to Harbor Island are not used for drinking water. One water well located northwest of Harbor Island is identified as a household use water well. This well is screened from 38 to 43 ft bgs. Based on the flow of the Grand River, this water well is likely located upgradient of the groundwater impacts on Harbor Island.

Based on the deeper groundwater samples that exceeded the DWC, additional data is needed to evaluate the vertical extent of PFAS in the former J.B. Sims Generating Station location. Assessment of the groundwater vertical gradients is needed to evaluate the potential for PFAS impacted groundwater to migrate deeper and flow under the river to water wells located off of Harbor Island. It should be noted that there were no exceedances of criteria located along the South Channel.

5.2 Potential PFAS Source Areas

Based on limited research to date, no historical information documenting the locations of potential PFAS source areas on Harbor Island has been identified. The widespread detections of certain PFAS in groundwater across Harbor Island suggest they may be associated with historical filling, including municipal and industrial waste dredge materials, and other unknown fill activities, as well as the historical operations of the J.B. Sims Generation Station. A figure showing the consolidated VAS and January/February 2023 total PFAS (the sum of detected PFAS) results is included in **Appendix H**.

Detections of PFAS compounds at Harbor Island that are known to have been manufactured and put in use after the municipal landfill closed suggests that there are likely additional sources

of PFAS beyond the historical fill activities. Comparing the timeline of activities at Harbor Island to the timeline of PFAS development and use may provide information about potential sources. For example, 6:2 fluorotelomer sulfonic acid (6:2 FTS) was detected on the western portion of the Site. The 6:2 FTS compound was developed after the City's dump was closed in 1970, which indicates a newer release of PFAS on the Island not related to the City's dump. A figure showing the consolidated VAS and January/February 2023 6:2 FTS concentrations is included in **Appendix H**.

Limited soil samples were collected at VAS locations along the northern access road (just south of the northern wetland) and in the area of the former J.B. Sims Generation Station. Soil samples had detections of PFAS, however, there is currently no Part 201 Generic Cleanup Criteria for PFAS in soil.

5.3 Groundwater Variability

Due to the extensive fill activities and the groundwater/surface water interaction on Harbor Island, groundwater flow has both temporal and spatial variability. As Harbor Island is surrounded by the Grand River and the South Channel, the rise and fall of the water levels of the Grand River likely influence the groundwater flow rate and direction throughout the Island. Overall, the general direction of flow across Harbor Island is from south to southwest toward Lake Michigan. Historical groundwater level monitoring has shown that localized flow direction and gradients are variable and influenced by surface water levels, precipitation, and surface infiltration, particularly in the wetland areas. Additionally, the varying fill materials, former Site uses (e.g., CCR impoundments and coal storage), and topographic features influence localized groundwater flow and direction. There is also variability in hydraulic conductivity across Harbor Island with no apparent pattern (Golder, 2022). Additional data is required to better understand variable spatial and temporal groundwater discharge to surface water.

Groundwater samples have been collected from existing monitoring wells and analyzed for PFAS in May 2021, October 2021, February 2022, January 2023, and May 2023. In general, the concentrations of PFOS and PFOA have remained generally stable, with some slight reductions in PFOS concentrations during the last two sampling events noted at MW-01R, MW-08, MW-10, and MW-32. As such, EGLE approved the request to forgo the last two quarterly monitoring events that were planned in the DGI Work Plan (Wood, 2022).

5.4 Harbor Island Soccer Fields

During the DGI, temporary and permanent monitoring wells were installed in the Harbor Island Soccer Fields (located northeast of the Site) that were intended to provide upgradient sampling locations to establish background concentrations. During drilling, waste materials were observed in the borings. Concentrations of PFAS (PFOS and PFOA), VOCs, and SVOCs in groundwater exceeded GSIC and/or DWC. Additional investigation is needed to delineate these compounds.

6.0 Recommendations

The following recommendations are provided for consideration based on the DGI results. As remedial alternatives also need to address CCR compliance, further evaluation of recommendations will be required upon the completion of CCR background monitoring events and plume delineation.

- Evaluate results of transducer study proposed by HDR to better understand temporal variation in groundwater and surface water levels.
- Generate new cross sections that incorporate historical and DGI data and other Site data (e.g., subsurface utilities that served the former J.B. Sims Generation Station) that better define subsurface heterogeneity, map identified potential PFAS source areas, assist in predicting preferential pathways, and identify data gaps.
- Resample surface water at the May 2023 SW-06 location to confirm elevated PFAS results.
- If necessary for remedial alternatives, further delineate locations and concentrations of PFOS and PFOA entering the Grand River and Harbor Island wetlands via groundwater discharge; determine whether any areas exceed GSIC and whether any remedial action is required. Due to the high variability of hydraulic conductivity, consider conducting mass flux assessments at GSI locations.
- Investigate PFAS in sediment in areas where groundwater is discharging to surface water and in areas of potential fill activities.
- Complete additional investigation to evaluate the potential for Harbor Island groundwater to flow beneath the Grand River to water wells located on the north and south side of Grand River.
 - Based on the deeper groundwater samples that exceeded the DWC, additional data is needed to evaluate the vertical extent of PFAS in the former J.B. Sims Generating Station location (VAS20 and VAS22).
 - Assess vertical gradients to determine if PFAS has the potential to migrate deeper and potentially underflow the river to impact nearby water wells.
- Prepare a Due Care Plan to address PFAS, VOC, and SVOC detected in groundwater on the Harbor Island Soccer Fields.

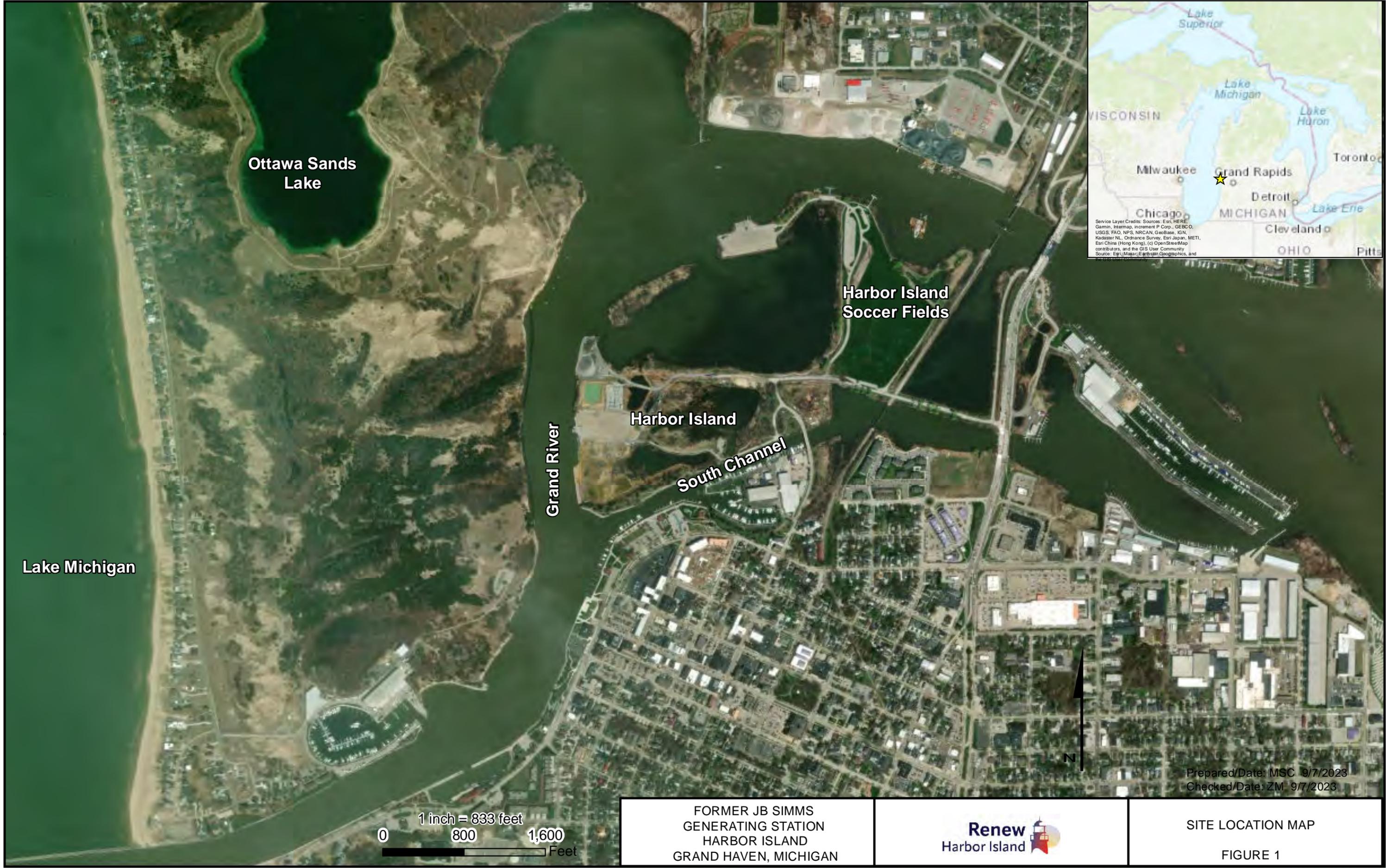
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Figures

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Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeBCO, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
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Prepared/Date: MSC 9/7/2023
 Checked/Date: ZM 9/7/2023

FORMER JB SIMMS
 GENERATING STATION
 HARBOR ISLAND
 GRAND HAVEN, MICHIGAN



SITE LOCATION MAP
 FIGURE 1

DRAFT

Legend

 Approximate Man-Altered Locations*

*From City of Grand Haven, Michigan, Harbor Island Master Plan 1993 Update (Ayers, Lewis, Norris & May)



Prepared/Date: DGJ 8/29/2023
Checked/Date: DH 8/29/2023

FORMER JB SIMMS
GENERATING STATION
HARBOR ISLAND
GRAND HAVEN, MICHIGAN



APPROXIMATE
MAN-ALTERED LOCATIONS

FIGURE 2





- Surface Water Sample Location (May 2023)
- Surface Water Sample Location (Dec 2022)



Monitoring Well (installed 2022 and 2023) ▲ VAS Location

Temp Well

Bold values indicate analyte detection is at or above the Limit of Detection

Analyte detected exceeds Groundwater Surface Water Interface (GSI) Criteria

Analyte detected exceeds Residential/Nonresidential Drinking Water Criteria

Analyte detected exceeds Residential/Nonresidential Drinking Water and GSI Criteria

Values are in nanogram per liter (ng/L)

Only PFAS compounds with established Michigan criteria are displayed.

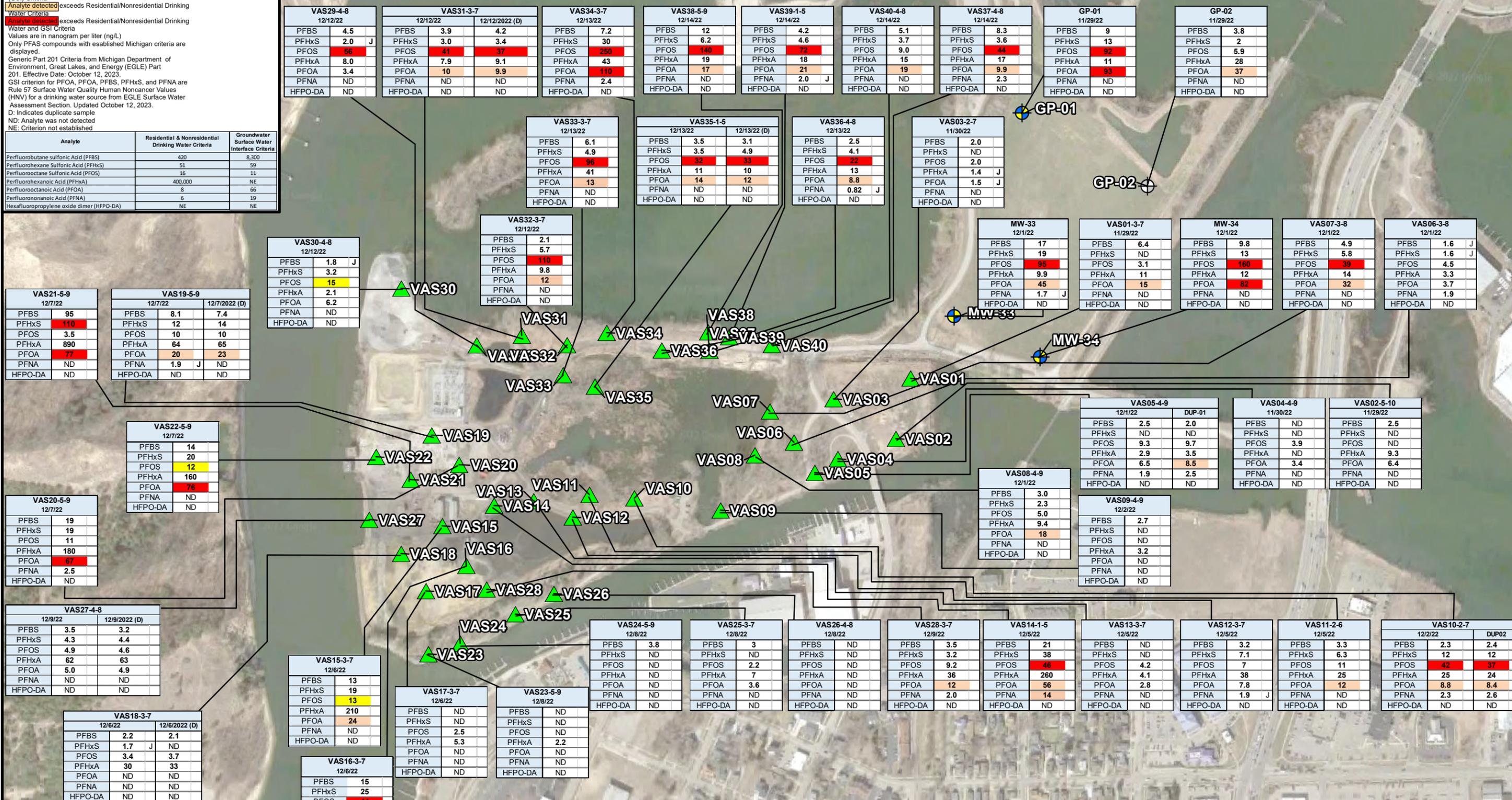
Generic Part 201 Criteria from Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 201, Effective Date: October 12, 2023.
GSI criterion for PFOA, PFOA, PFBS, PFHxS, and PFNA are Rule 57 Surface Water Quality Human Noncancer Values (HNV) for a drinking water source from EGLE Surface Water Assessment Section. Updated October 12, 2023.

D: Indicates duplicate sample

ND: Analyte was not detected

NE: Criterion not established

| Analyte | Residential & Nonresidential Drinking Water Criteria | Groundwater Surface Water Interface Criteria |
|---|--|--|
| Perfluorobutane sulfonic Acid (PFBS) | 420 | 8,300 |
| Perfluorohexane Sulfonic Acid (PFHxS) | 51 | 59 |
| Perfluorooctane Sulfonic Acid (PFOS) | 16 | 11 |
| Perfluorohexanoic Acid (PFHxA) | 400,000 | NE |
| Perfluorooctanoic Acid (PFOA) | 8 | 66 |
| Perfluorononanoic Acid (PFNA) | 6 | 19 |
| Hexafluoropropylene oxide dimer (HFPO-DA) | NE | NE |



FORMER JB SIMS GENERATING STATION HARBOR ISLAND GRAND HAVEN, MICHIGAN



PFAS DETECTED IN SHALLOW GROUNDWATER - VAS

FIGURE 6A

Prepared/Date: DGJ 12/6/2023
Checked/Date: DH 12/6/2023

 VAS Location

Bold values indicate analyte detection is at or above the Limit of Detection

Analyte detected exceeds Groundwater Surface Water Interface (GSI) Criteria

Analyte detected exceeds Residential/Nonresidential Drinking Water Criteria

Analyte detected exceeds Residential/Nonresidential Drinking Water and GSI Criteria

Values are in nanogram per liter (ng/L)

Only PFAS compounds with established Michigan criteria are displayed.

Generic Part 201 Criteria from Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 201, Effective Date: October 12, 2023.

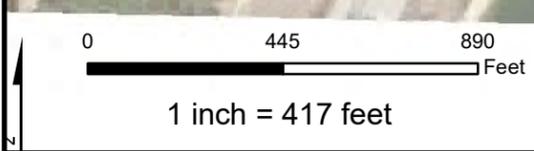
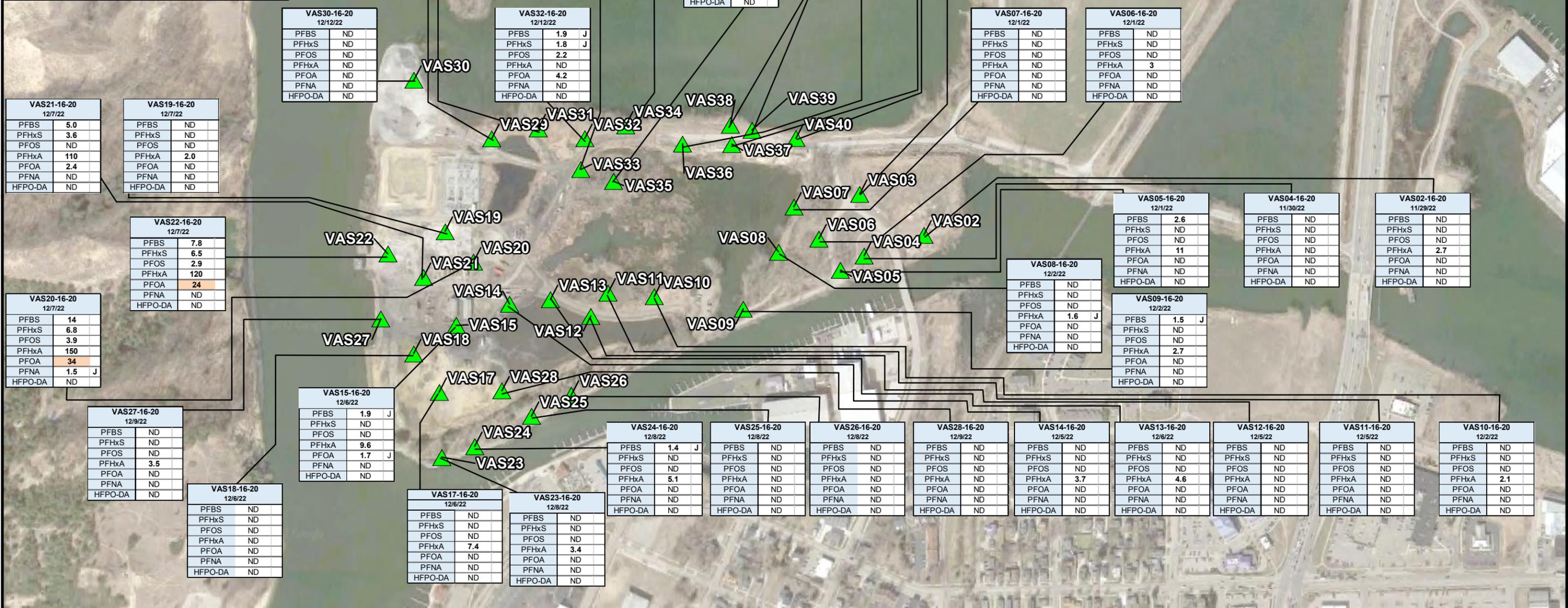
GSI criterion for PFOA, PFOA, PFBS, PFHxS, and PFNA are Rule 57 Surface Water Quality Human Noncancer Values (HNV) for a drinking water source from EGLE Surface Water Assessment Section. Updated October 12, 2023.

D: Indicates duplicate sample

ND: Analyte was not detected

NE: Criterion not established

| Analyte | Residential & Nonresidential Drinking Water Criteria | Groundwater Surface Water Interface Criteria |
|---|--|--|
| Perfluorobutane sulfonic Acid (PFBS) | 420 | 8,300 |
| Perfluorohexane Sulfonic Acid (PFHxS) | 51 | 59 |
| Perfluorooctane Sulfonic Acid (PFOS) | 16 | 11 |
| Perfluorohexanoic Acid (PFHxA) | 400,000 | NE |
| Perfluorooctanoic Acid (PFOA) | 8 | 66 |
| Perfluorononanoic Acid (PFNA) | 6 | 19 |
| Hexafluoropropylene oxide dimer (HFPO-DA) | NE | NE |



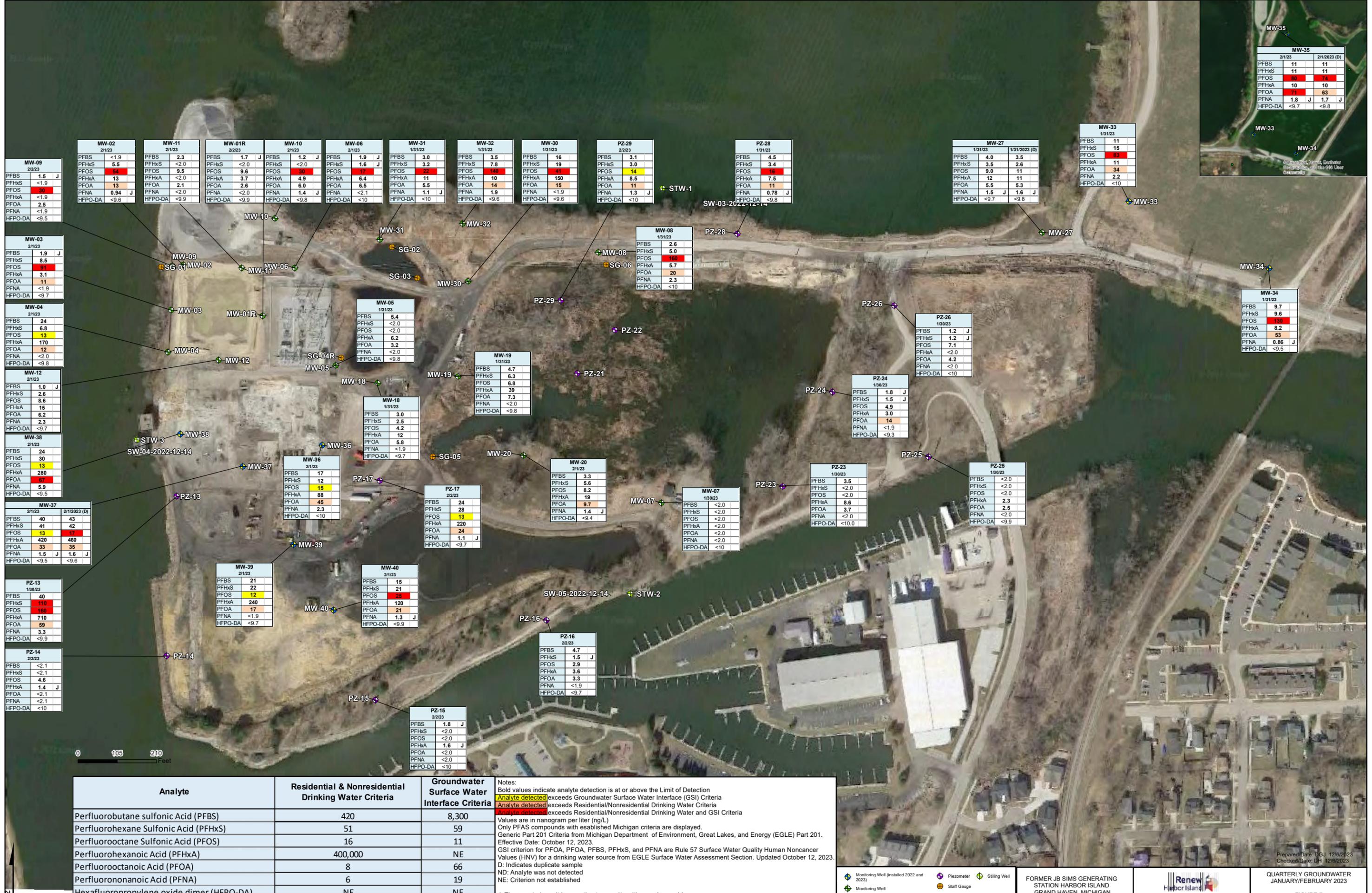
FORMER JB SIMS GENERATING
STATION HARBOR ISLAND
GRAND HAVEN, MICHIGAN



PFAS DETECTED IN
DEEP GROUNDWATER - VAS

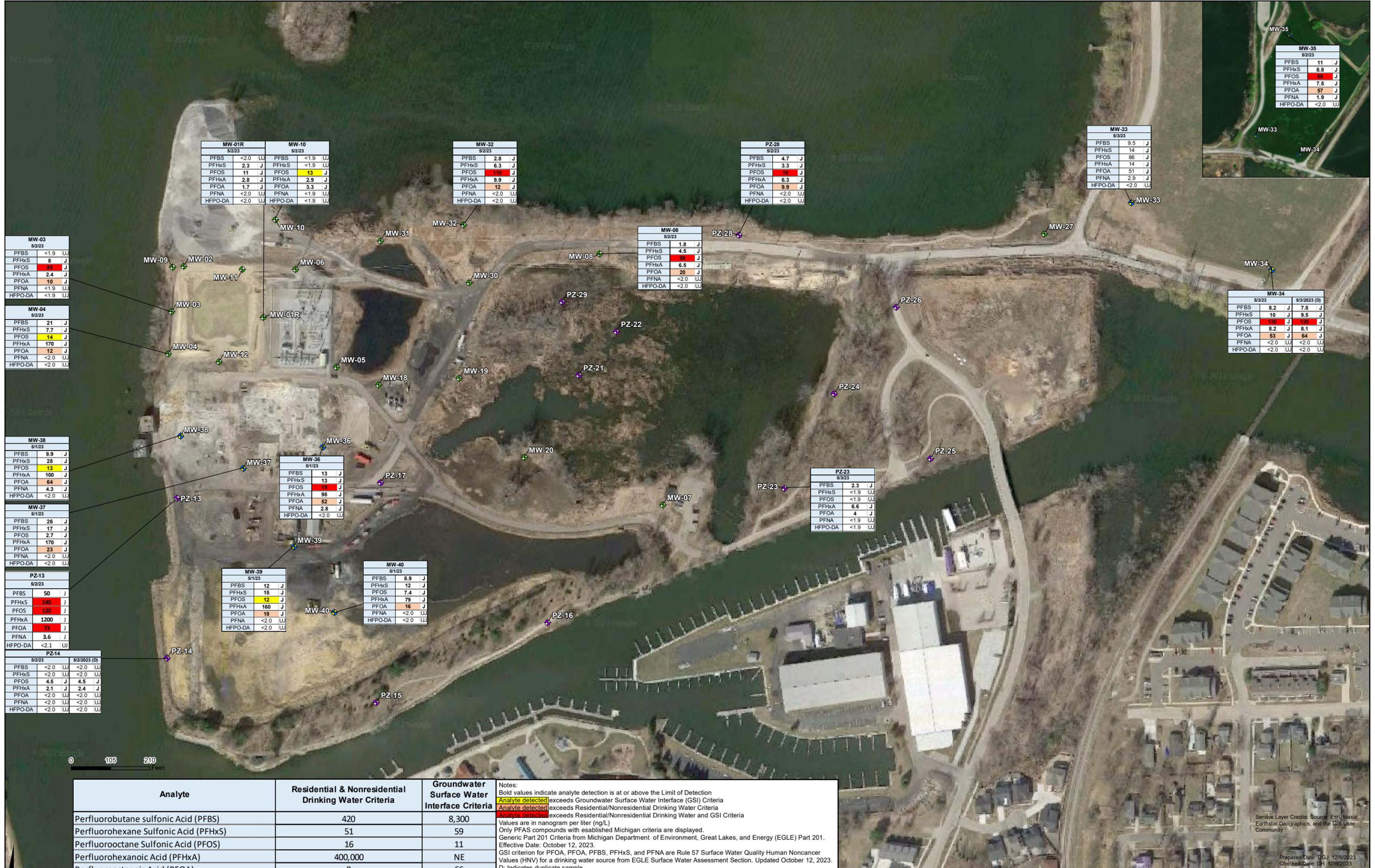
FIGURE 6B

Prepared/Date: DGJ 12/6/2023
Checked/Date: DH 12/6/2023



| MW-35 | | |
|---------|--------|--------------|
| Analyte | 2/1/23 | 2/1/2023 (D) |
| PFBS | 11 | 11 |
| PFHxS | 11 | 11 |
| PFOS | 80 | 74 |
| PFHxA | 10 | 10 |
| PFOA | 14 | 63 |
| PFNA | 1.5 J | 1.7 J |
| HFPO-DA | <9.7 | <9.8 |

| Well ID | Date | PFBS | PFHxS | PFOS | PFHxA | PFOA | PFNA | HFPO-DA |
|---------|---------|-------|-------|------|-------|------|--------|---------|
| MW-02 | 2/1/23 | <1.9 | 5.5 | 54 | 13 | 13 | 0.94 J | <9.6 |
| MW-11 | 2/1/23 | 2.3 | <2.0 | 9.5 | <2.0 | 2.1 | <2.0 | <9.9 |
| MW-01R | 2/2/23 | 1.7 J | <2.0 | 9.6 | 3.7 | 2.6 | <2.0 | <9.9 |
| MW-10 | 2/1/23 | 1.2 J | <2.0 | 30 | 4.9 | 6.0 | 1.4 J | <9.8 |
| MW-06 | 2/1/23 | 1.9 J | 1.6 J | 17 | 6.4 | 6.5 | <2.1 | <10 |
| MW-31 | 1/31/23 | 3.0 | 3.2 | 22 | 11 | 5.5 | 1.1 J | <10 |
| MW-32 | 1/31/23 | 3.5 | 7.8 | 140 | 10 | 14 | 1.9 | <9.6 |
| MW-30 | 1/31/23 | 16 | 19 | 41 | 150 | 15 | <1.9 | <9.6 |
| PZ-29 | 2/2/23 | 3.1 | 3.0 | 14 | 8.5 | 11 | 1.3 J | <10 |
| PZ-28 | 1/31/23 | 4.5 | 3.4 | 16 | 7.5 | 11 | 0.78 J | <9.8 |
| MW-27 | 1/31/23 | 4.0 | 3.5 | 2.6 | 9.0 | 11 | 5.5 | <9.8 |
| MW-33 | 1/31/23 | 11 | 15 | 83 | 11 | 34 | 2.2 | <10 |
| MW-03 | 2/1/23 | 1.9 J | 8.5 | 91 | 3.1 | 11 | <1.9 | <9.7 |
| MW-04 | 2/1/23 | 24 | 6.8 | 13 | 170 | 12 | <2.0 | <9.8 |
| MW-12 | 2/1/23 | 1.0 J | 2.6 | 8.6 | 15 | 6.2 | 2.3 | <9.7 |
| MW-38 | 2/1/23 | 24 | 30 | 13 | 280 | 67 | 5.9 | <9.5 |
| MW-37 | 2/1/23 | 17 | 12 | 15 | 88 | 45 | 2.3 | <10 |
| MW-36 | 2/1/23 | 17 | 12 | 15 | 88 | 45 | 2.3 | <10 |
| MW-39 | 2/1/23 | 21 | 22 | 12 | 240 | 17 | <1.9 | <9.7 |
| MW-40 | 2/1/23 | 15 | 22 | 12 | 240 | 17 | <1.9 | <9.7 |
| MW-05 | 1/31/23 | 5.4 | <2.0 | <2.0 | 6.2 | 3.2 | <2.0 | <9.8 |
| MW-18 | 1/31/23 | 3.0 | 2.5 | 4.2 | 12 | 5.8 | <1.9 | <9.7 |
| MW-19 | 1/31/23 | 4.7 | 6.3 | 6.8 | 39 | 7.3 | <2.0 | <9.8 |
| MW-20 | 2/1/23 | 3.3 | 5.6 | 8.2 | 19 | 9.7 | 1.4 J | <9.4 |
| MW-07 | 1/30/23 | <2.0 | <2.0 | <2.0 | 8.6 | 3.7 | <2.0 | <10.0 |
| MW-08 | 1/31/23 | 2.6 | 5.0 | 160 | 5.7 | 20 | 2.3 | <10 |
| MW-19 | 1/31/23 | 4.7 | 6.3 | 6.8 | 39 | 7.3 | <2.0 | <9.8 |
| MW-20 | 2/1/23 | 3.3 | 5.6 | 8.2 | 19 | 9.7 | 1.4 J | <9.4 |
| MW-07 | 1/30/23 | <2.0 | <2.0 | <2.0 | 8.6 | 3.7 | <2.0 | <10.0 |
| MW-34 | 1/31/23 | 9.7 | 9.6 | 130 | 8.2 | 53 | 0.86 J | <9.5 |
| MW-34 | 1/31/23 | 9.7 | 9.6 | 130 | 8.2 | 53 | 0.86 J | <9.5 |
| MW-09 | 2/2/23 | 1.5 J | <1.9 | 30 | <1.9 | 2.5 | <1.9 | <9.5 |
| MW-03 | 2/1/23 | 1.9 J | 8.5 | 91 | 3.1 | 11 | <1.9 | <9.7 |
| MW-04 | 2/1/23 | 24 | 6.8 | 13 | 170 | 12 | <2.0 | <9.8 |
| MW-12 | 2/1/23 | 1.0 J | 2.6 | 8.6 | 15 | 6.2 | 2.3 | <9.7 |
| MW-38 | 2/1/23 | 24 | 30 | 13 | 280 | 67 | 5.9 | <9.5 |
| MW-37 | 2/1/23 | 17 | 12 | 15 | 88 | 45 | 2.3 | <10 |
| MW-36 | 2/1/23 | 17 | 12 | 15 | 88 | 45 | 2.3 | <10 |
| MW-39 | 2/1/23 | 21 | 22 | 12 | 240 | 17 | <1.9 | <9.7 |
| MW-40 | 2/1/23 | 15 | 22 | 12 | 240 | 17 | <1.9 | <9.7 |
| MW-05 | 1/31/23 | 5.4 | <2.0 | <2.0 | 6.2 | 3.2 | <2.0 | <9.8 |
| MW-18 | 1/31/23 | 3.0 | 2.5 | 4.2 | 12 | 5.8 | <1.9 | <9.7 |
| MW-19 | 1/31/23 | 4.7 | 6.3 | 6.8 | 39 | 7.3 | <2.0 | <9.8 |
| MW-20 | 2/1/23 | 3.3 | 5.6 | 8.2 | 19 | 9.7 | 1.4 J | <9.4 |
| MW-07 | 1/30/23 | <2.0 | <2.0 | <2.0 | 8.6 | 3.7 | <2.0 | <10.0 |
| MW-08 | 1/31/23 | 2.6 | 5.0 | 160 | 5.7 | 20 | 2.3 | <10 |
| MW-19 | 1/31/23 | 4.7 | 6.3 | 6.8 | 39 | 7.3 | <2.0 | <9.8 |
| MW-20 | 2/1/23 | 3.3 | 5.6 | 8.2 | 19 | 9.7 | 1.4 J | <9.4 |
| MW-07 | 1/30/23 | <2.0 | <2.0 | <2.0 | 8.6 | 3.7 | <2.0 | <10.0 |
| MW-34 | 1/31/23 | 9.7 | 9.6 | 130 | 8.2 | 53 | 0.86 J | <9.5 |
| MW-34 | 1/31/23 | 9.7 | 9.6 | 130 | 8.2 | 53 | 0.86 J | <9.5 |
| MW-09 | 2/2/23 | 1.5 J | <1.9 | 30 | <1.9 | 2.5 | <1.9 | <9.5 |
| MW-03 | 2/1/23 | 1.9 J | 8.5 | 91 | 3.1 | 11 | <1.9 | <9.7 |
| MW-04 | 2/1/23 | 24 | 6.8 | 13 | 170 | 12 | <2.0 | <9.8 |
| MW-12 | 2/1/23 | 1.0 J | 2.6 | 8.6 | 15 | 6.2 | 2.3 | <9.7 |
| MW-38 | 2/1/23 | 24 | 30 | 13 | 280 | 67 | 5.9 | <9.5 |
| MW-37 | 2/1/23 | 17 | 12 | 15 | 88 | 45 | 2.3 | <10 |
| MW-36 | 2/1/23 | 17 | 12 | 15 | 88 | 45 | 2.3 | <10 |
| MW-39 | 2/1/23 | 21 | 22 | 12 | 240 | 17 | <1.9 | <9.7 |
| MW-40 | 2/1/23 | 15 | 22 | 12 | 240 | 17 | <1.9 | <9.7 |
| MW-05 | 1/31/23 | 5.4 | <2.0 | <2.0 | 6.2 | 3.2 | <2.0 | <9.8 |
| MW-18 | 1/31/23 | 3.0 | 2.5 | 4.2 | 12 | 5.8 | <1.9 | <9.7 |
| MW-19 | 1/31/23 | 4.7 | 6.3 | 6.8 | 39 | 7.3 | <2.0 | <9.8 |
| MW-20 | 2/1/23 | 3.3 | 5.6 | 8.2 | 19 | 9.7 | 1.4 J | <9.4 |
| MW-07 | 1/30/23 | <2.0 | <2.0 | <2.0 | 8.6 | 3.7 | <2.0 | <10.0 |
| MW-08 | 1/31/23 | 2.6 | 5.0 | 160 | 5.7 | 20 | 2.3 | <10 |
| MW-19 | 1/31/23 | 4.7 | 6.3 | 6.8 | 39 | 7.3 | <2.0 | <9.8 |
| MW-20 | 2/1/23 | 3.3 | 5.6 | 8.2 | 19 | 9.7 | 1.4 J | <9.4 |
| MW-07 | 1/30/23 | <2.0 | <2.0 | <2.0 | 8.6 | 3.7 | <2.0 | <10.0 |
| MW-34 | 1/31/23 | 9.7 | 9.6 | 130 | 8.2 | 53 | 0.86 J | <9.5 |
| MW-34 | 1/31/23 | 9.7 | 9.6 | 130 | 8.2 | 53 | 0.86 J | <9.5 |
| MW-09 | 2/2/23 | 1.5 J | <1.9 | 30 | <1.9 | 2.5 | <1.9 | <9.5 |
| MW-03 | 2/1/23 | 1.9 J | 8.5 | 91 | 3.1 | 11 | <1.9 | <9.7 |
| MW-04 | 2/1/23 | 24 | 6.8 | 13 | 170 | 12 | <2.0 | <9.8 |
| MW-12 | 2/1/23 | 1.0 J | 2.6 | 8.6 | 15 | 6.2 | 2.3 | <9.7 |
| MW-38 | 2/1/23 | 24 | 30 | 13 | 280 | 67 | 5.9 | <9.5 |
| MW-37 | 2/1/23 | 17 | 12 | 15 | 88 | 45 | 2.3 | <10 |
| MW-36 | 2/1/23 | 17 | 12 | 15 | 88 | 45 | 2.3 | <10 |
| MW-39 | 2/1/23 | 21 | 22 | 12 | 240 | 17 | <1.9 | <9.7 |
| MW-40 | 2/1/23 | 15 | 22 | 12 | 240 | 17 | <1.9 | <9.7 |
| MW-05 | 1/31/23 | 5.4 | <2.0 | <2.0 | 6.2 | 3.2 | <2.0 | <9.8 |
| MW-18 | 1/31/23 | 3.0 | 2.5 | 4.2 | 12 | 5.8 | <1.9 | <9.7 |
| MW-19 | 1/31/23 | 4.7 | 6.3 | 6.8 | 39 | 7.3 | <2.0 | <9.8 |
| MW-20 | 2/1/23 | 3.3 | 5.6 | 8.2 | 19 | 9.7 | 1.4 J | <9.4 |
| MW-07 | 1/30/23 | <2.0 | <2.0 | <2.0 | 8.6 | 3.7 | <2.0 | <10.0 |
| MW-08 | 1/31/23 | 2.6 | 5.0 | 160 | 5.7 | 20 | 2.3 | <10 |
| MW-19 | 1/31/23 | 4.7 | 6.3 | 6.8 | 39 | 7.3 | <2.0 | <9.8 |
| MW-20 | 2/1/23 | 3.3 | 5.6 | 8.2 | 19 | 9.7 | 1.4 J | <9.4 |
| MW-07 | 1/30/23 | <2.0 | <2.0 | <2.0 | 8.6 | 3.7 | <2.0 | <10.0 |
| MW-34 | 1/31/23 | 9.7 | 9.6 | 130 | 8.2 | 53 | 0.86 J | <9.5 |
| MW-34 | 1/31/23 | 9.7 | 9.6 | 130 | 8.2 | 53 | 0.86 J | <9.5 |
| MW-09 | 2/2/23 | 1.5 J | <1.9 | 30 | <1.9 | 2.5 | <1.9 | <9.5 |
| MW-03 | 2/1/23 | 1.9 J | 8.5 | 91 | 3.1 | 11 | <1.9 | <9.7 |
| MW-04 | 2/1/23 | 24 | 6.8 | 13 | 170 | 12 | <2.0 | <9.8 |
| MW-12 | 2/1/23 | 1.0 J | 2.6 | 8.6 | 15 | 6.2 | 2.3 | <9.7 |
| MW-38 | 2/1/23 | 24 | 30 | 13 | 280 | 67 | 5.9 | <9.5 |
| MW-37 | 2/1/23 | 17 | 12 | 15 | 88 | 45 | 2.3 | <10 |
| MW-36 | 2/1/23 | 17 | 12 | 15 | 88 | 45 | 2.3 | <10 |
| MW-39 | 2/1/23 | 21 | 22 | 12 | 240 | 17 | <1.9 | <9.7 |
| MW-40 | 2/1/23 | 15 | 22 | 12 | 240 | 17 | <1.9 | <9.7 |
| MW-05 | 1/31/23 | 5.4 | <2.0 | <2.0 | 6.2 | 3.2 | <2.0 | <9.8 |
| MW-18 | 1/31/23 | 3.0 | 2.5 | 4.2 | 12 | 5.8 | <1.9 | <9.7 |
| MW-19 | 1/31/23 | 4.7 | 6.3 | 6.8 | 39 | 7.3 | <2.0 | <9.8 |
| MW-20 | 2/1/23 | 3.3 | 5.6 | 8.2 | 19 | 9.7 | 1.4 J | <9.4 |
| MW-07 | 1/30/23 | <2.0 | <2.0 | <2.0 | 8.6 | 3.7 | <2.0 | <10.0 |
| MW-08 | 1/31/23 | 2.6 | 5.0 | 160 | 5.7 | 20 | 2.3 | <10 |
| MW-19 | 1/31/23 | 4.7 | 6.3 | 6.8 | 39 | 7.3 | <2.0 | <9.8 |
| MW-20 | 2/1/23 | 3.3 | 5.6 | 8.2 | 19 | 9.7 | 1.4 J | <9.4 |
| MW-07 | 1/30/23 | <2.0 | <2.0 | <2.0 | 8.6 | 3.7 | <2.0 | <10.0 |
| MW-34 | 1/31/23 | 9.7 | 9.6 | 130 | 8.2 | 53 | 0.86 J | <9.5 |
| MW-34 | 1/31/23 | 9.7 | 9.6 | 130 | 8.2 | 53 | 0.86 J | <9.5 |
| MW-09 | 2/2/23 | 1.5 J | <1.9 | 30 | <1.9 | 2.5 | <1.9 | <9.5 |
| MW-03 | 2/1/23 | 1.9 J | 8.5 | 91 | 3.1 | 11 | <1.9 | <9.7 |
| MW-04 | 2/1/23 | 24 | 6.8 | 13 | 170 | 12 | <2.0 | <9.8 |
| MW-12 | 2/1/23 | 1.0 J | 2.6 | 8.6 | 15 | 6.2 | 2.3 | <9.7 |
| MW-38 | 2/1/23 | 24 | 30 | 13 | 280 | 67 | 5.9 | <9.5 |
| MW-37 | 2/1/23 | 17 | 12 | 15 | 88 | 45 | 2.3 | <10 |
| MW-36 | 2/1/23 | 17 | 12 | 15 | 88 | 45 | 2.3 | <10 |
| MW-39 | 2/1/23 | 21 | 22 | 12 | 240 | 17 | <1.9 | <9.7 |
| MW-40 | 2/1/23 | 15 | 22 | 12 | 240 | 17 | <1.9 | <9.7 |
| MW-05 | 1/31/23 | 5.4 | <2.0 | <2.0 | 6.2 | 3.2 | <2.0 | <9.8 |
| MW-18 | 1/31/23 | 3.0 | 2.5 | 4.2 | 12 | 5.8 | <1.9 | <9.7 |
| MW-19 | 1/31/23 | 4.7 | 6.3 | 6.8 | 39 | 7.3 | <2.0 | <9.8 |
| MW-20 | | | | | | | | |



| MW-35 5/2/23 | | |
|-----------------|------|----|
| PFBS | 11 | J |
| PFHxS | 8.8 | J |
| PFOS | 69 | J |
| PFHxA | 7.5 | J |
| PFOA | 57 | J |
| PFNA | 1.9 | J |
| HFPO-DA | <2.0 | UU |

| MW-34 5/3/23 | | | 5/3/2023 (D) | | |
|-----------------|------|----|--------------|----|----|
| PFBS | 8.2 | J | 7.8 | J | J |
| PFHxS | 10 | J | 9.5 | J | J |
| PFOS | 130 | J | 120 | J | J |
| PFHxA | 8.2 | J | 8.1 | J | J |
| PFOA | 53 | J | 64 | J | J |
| PFNA | <2.0 | UU | <2.0 | UU | UU |
| HFPO-DA | <2.0 | UU | <2.0 | UU | UU |

| MW-03 5/2/23 | | |
|-----------------|------|----|
| PFBS | <1.9 | UU |
| PFHxS | 8 | J |
| PFOS | 88 | J |
| PFHxA | 2.4 | J |
| PFOA | 10 | J |
| PFNA | <1.9 | UU |
| HFPO-DA | <1.9 | UU |

| MW-04 5/2/23 | | |
|-----------------|------|----|
| PFBS | 21 | J |
| PFHxS | 7.7 | J |
| PFOS | 14 | J |
| PFHxA | 170 | J |
| PFOA | 12 | J |
| PFNA | <2.0 | UU |
| HFPO-DA | <2.0 | UU |

| MW-38 5/1/23 | | |
|-----------------|------|----|
| PFBS | 9.9 | J |
| PFHxS | 28 | J |
| PFOS | 13 | J |
| PFHxA | 100 | J |
| PFOA | 64 | J |
| PFNA | 4.3 | J |
| HFPO-DA | <2.0 | UU |

| MW-37 5/1/23 | | |
|-----------------|------|----|
| PFBS | 26 | J |
| PFHxS | 17 | J |
| PFOS | 2.7 | J |
| PFHxA | 170 | J |
| PFOA | 23 | J |
| PFNA | <2.0 | UU |
| HFPO-DA | <2.0 | UU |

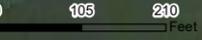
| PZ-13 5/2/23 | | |
|-----------------|------|----|
| PFBS | 50 | J |
| PFHxS | 140 | J |
| PFOS | 120 | J |
| PFHxA | 1200 | J |
| PFOA | 73 | J |
| PFNA | 3.6 | J |
| HFPO-DA | <2.1 | UU |

| PZ-14 5/2/23 | | | 5/2/2023 (D) | | |
|-----------------|------|----|--------------|----|----|
| PFBS | <2.0 | UU | <2.0 | UU | UU |
| PFHxS | <2.0 | UU | <2.0 | UU | UU |
| PFOS | 4.5 | J | 4.5 | J | J |
| PFHxA | 2.1 | J | 2.4 | J | J |
| PFOA | <2.0 | UU | <2.0 | UU | UU |
| PFNA | <2.0 | UU | <2.0 | UU | UU |
| HFPO-DA | <2.0 | UU | <2.0 | UU | UU |

| MW-36 5/1/23 | | |
|-----------------|------|----|
| PFBS | 13 | J |
| PFHxS | 13 | J |
| PFOS | 13 | J |
| PFHxA | 98 | J |
| PFOA | 52 | J |
| PFNA | 2.8 | J |
| HFPO-DA | <2.0 | UU |

| MW-39 5/1/23 | | |
|-----------------|------|----|
| PFBS | 12 | J |
| PFHxS | 15 | J |
| PFOS | 12 | J |
| PFHxA | 160 | J |
| PFOA | 19 | J |
| PFNA | <2.0 | UU |
| HFPO-DA | <2.0 | UU |

| MW-40 5/1/23 | | |
|-----------------|------|----|
| PFBS | 8.9 | J |
| PFHxS | 12 | J |
| PFOS | 7.4 | J |
| PFHxA | 79 | J |
| PFOA | 16 | J |
| PFNA | <2.0 | UU |
| HFPO-DA | <2.0 | UU |



| Analyte | Residential & Nonresidential Drinking Water Criteria | Groundwater Surface Water Interface Criteria |
|---|--|--|
| Perfluorobutane sulfonic Acid (PFBS) | 420 | 8,300 |
| Perfluorohexane Sulfonic Acid (PFHxS) | 51 | 59 |
| Perfluorooctane Sulfonic Acid (PFOS) | 16 | 11 |
| Perfluorooctanoic Acid (PFHxA) | 400,000 | NE |
| Perfluorooctanoic Acid (PFOA) | 8 | 66 |
| Perfluorononanoic Acid (PFNA) | 6 | 19 |
| Hexafluoropropylene oxide dimer (HFPO-DA) | NE | NE |

Notes:
 Bold values indicate analyte detection is at or above the Limit of Detection
 Analyte detected exceeds Groundwater Surface Water Interface (GSI) Criteria
 Analyte detected exceeds Residential/Nonresidential Drinking Water Criteria
 Analyte detected exceeds Residential/Nonresidential Drinking Water and GSI Criteria
 Values are in nanogram per liter (ng/L)
 Only PFAS compounds with established Michigan criteria are displayed.
 Generic Part 201 Criteria from Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 201.
 Effective Date: October 12, 2023.
 GSI criterion for PFOA, PFOA, PFBS, PFHxS, and PFNA are Rule 57 Surface Water Quality Human Noncancer Values (HNW) for a drinking water source from EGLE Surface Water Assessment Section. Updated October 12, 2023.
 D: Indicates duplicate sample
 ND: Analyte was not detected
 NE: Criterion not established
 J: The reported result is an estimate quantity with an unknown bias

Monitoring Well (installed 2022 and 2023)
 Monitoring Well
 Piezometer

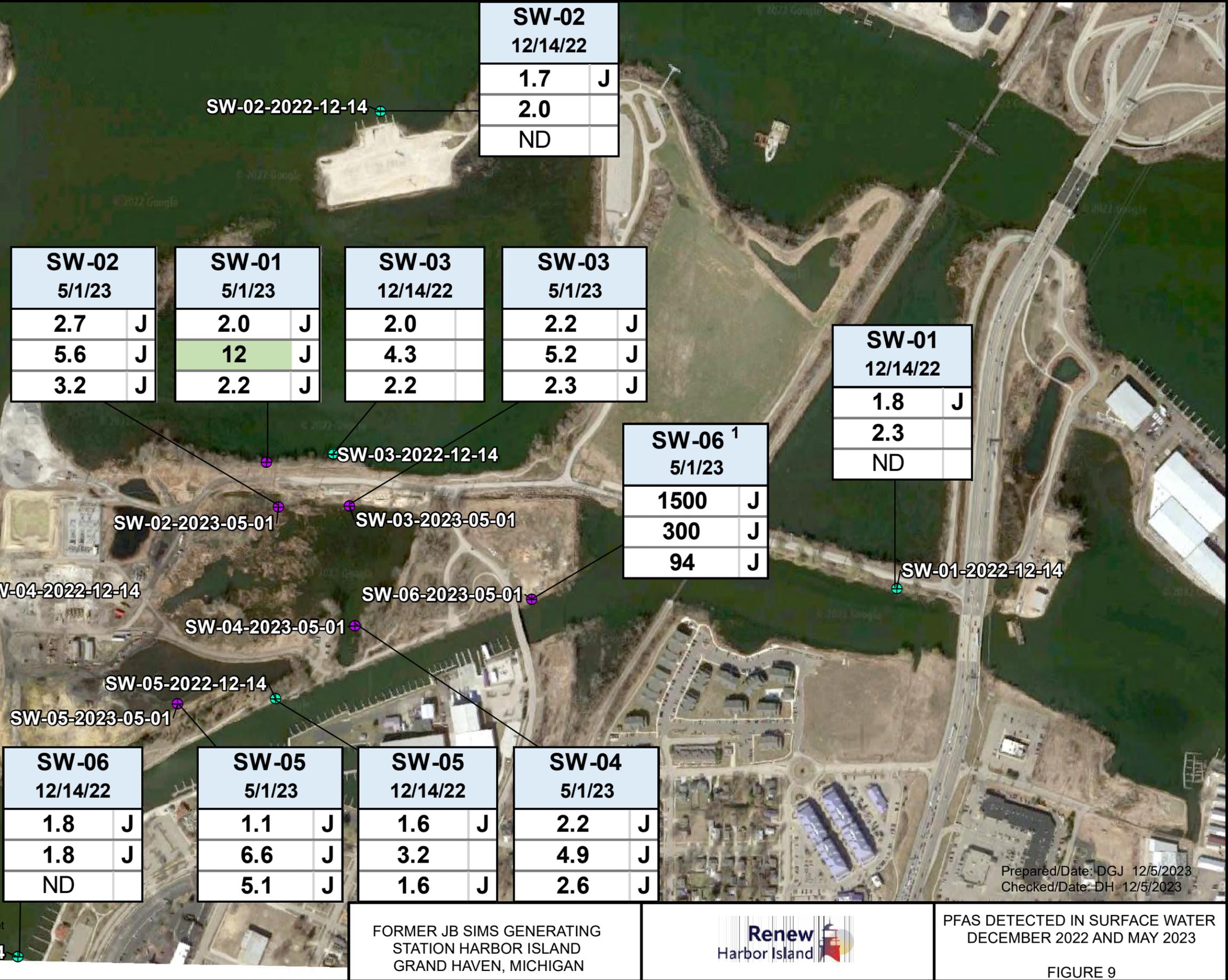
FORMER JB SIMS GENERATING STATION HARBOR ISLAND GRAND HAVEN, MICHIGAN



PFAS DETECTED IN GROUNDWATER - MAY 2023
 FIGURE 8

● Surface Water Sample Location (May 2023)
 ● Surface Water Sample Location (Dec 2022)
 -Values are in ng/L (nanograms per liter).
 -**Bold** values indicate analyte detection is at or above the Limit of Detection
 -Analyte detected exceeds Human Noncancer Value (Drinking)
 -Rule 57 Surface Water Quality Values from Michigan Department of Environment, Great Lakes, and Energy (EGLE) Surface Water Assessment Section. Updated October 12, 2023.
 ND: Analyte was not detected
 NE: Criterion not established
 J : the reported result is an estimate quantity with an unknown bias
 1: Sample was collected by skimming surface water (not collected in general accordance with EGLE Surface Water PFAS Sampling Guidance Document), therefore analytical results were not compared to Rule 57 Surface Water Quality Values.

| Analyte | Human Noncancer Value (Drinking) | Human Noncancer Value (Nondrinking) |
|---------------------------------------|----------------------------------|-------------------------------------|
| Perfluorobutane sulfonic acid (PFBS) | 8,300 | 670,000 |
| Perfluorohexane sulfonic acid (PFHxS) | 59 | 210 |
| Perfluorooctane sulfonic acid (PFOS) | 11 | 12 |
| Perfluorooctanoic acid (PFOA) | 66 | 170 |
| Perfluorononanoic acid (PFNA) | 19 | 30 |



Tables

Table 1
Soil Analytical Results
Former JB Sims Generating Station
Harbor Island, Grand Haven, Michigan

| Sample ID | VAS13-SB-2-3 | VAS15-SB-3-5 | VAS19-SB-5-7 | VAS21-SB-5-7 | VAS23-SB-5-7 | VAS26-SB-4-6 | VAS31-SB-3-5 | VAS32-SB-3-5 | VAS33-SB-3-5 | VAS34-SB-3-5 | VAS39SB-2-5 |
|---|--------------|--------------------|---|------------------------------|--------------------------------|------------------------|------------------------------|--------------------|--------------|---------------------------------------|------------------------------|
| Sample Date | 12/5/2022 | 12/6/2022 | 12/7/2022 | 12/7/2022 | 12/8/2022 | 12/8/2022 | 12/12/2022 | 12/12/2022 | 12/13/2022 | 12/13/2022 | 12/14/2022 |
| PFAS, Method: ASTM7979-19M; (ng/kg) | | | | | | | | | | | |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTSA) | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTSA) | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTSA) | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorobutane sulfonic acid (PFBS) | ND | ND | ND | 13 | J | ND | ND | ND | ND | ND | ND |
| Perfluoropentane sulfonic acid (PFPeS) | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorohexane sulfonic acid (PFHxS) | ND | ND | ND | 41 | J | ND | ND | 29 | J | ND | 17 |
| Perfluoroheptane sulfonic acid (PFHpS) | ND | ND | ND | ND | ND | ND | ND | 59 | J | ND | ND |
| Perfluorooctane sulfonic acid (PFOS) | 65 | J | 93 | 290 | 31 | J | 11 | J | 75 | J | 260 |
| Perfluorononane sulfonic acid (PFNS) | ND | ND | ND | ND | ND | ND | ND | 96 | J | ND | ND |
| Perfluorodecane sulfonic acid (PFDS) | ND | ND | ND | ND | ND | ND | ND | 96 | J | ND | ND |
| 3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA)) | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA)) | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA)) | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorobutanoic acid (PFBA) | ND | ND | ND | 18 | J | ND | ND | 12 | J | ND | ND |
| Perfluoropentanoic acid (PFPeA) | 15 | J | ND | 89 | ND | ND | ND | ND | ND | 15 | J |
| Perfluorohexanoic acid (PFHxA) | ND | 10 | J | 93 | ND | ND | ND | ND | ND | 16 | J |
| Perfluoroheptanoic acid (PFHpA) | ND | ND | ND | 27 | J | ND | ND | ND | ND | ND | ND |
| Perfluorooctanoic acid (PFOA) | ND | ND | ND | 45 | J | ND | ND | 140 | ND | 48 | J |
| Perfluorononanoic acid (PFNA) | ND | ND | ND | ND | ND | ND | ND | 36 | J | ND | ND |
| Perfluorodecanoic acid (PFDA) | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluoroundecanoic acid (PFUnDA) | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorododecanoic acid (PFDoDA) | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorotridecanoic acid (PFTrDA) | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorotetradecanoic acid (PFTeDA) | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| N-methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| N-Ethyl Perfluorooctane Sulfonamidoacetic acid (EtFOSAA) | ND | ND | ND | ND | ND | ND | 7.6 | J | 990 | 27 | J |
| Perfluorobutanesulfonamide (PFBSA) | ND | ND | ND | 9.3 | J | ND | ND | ND | ND | ND | ND |
| Perfluorohexanesulfonamide (PFHxSA) | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorooctane Sulfonamide (FOSA) | ND | ND | ND | ND | ND | ND | ND | 420 | ND | ND | ND |
| Hexafluoropropylene oxide dimer (HFPO-DA) | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 11-chloroicosadecafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluoro-4-ethylcyclohexanesulfonate (PFECHS) | ND | ND | 28 | J | ND | ND | ND | 34 | J | ND | ND |
| Total PFAS | 80 | 103 | 318 | 366.3 | 11 | 75 | 279.6 | 16900 | 357 | 736 | 290 |
| Method: SM2540B | | | | | | | | | | | |
| % Total solids | 75 | 82 | 67 | 84 | 80 | 62 | 80 | 82 | 80 | 78 | 76 |
| SW 846 Method 9045D Revision 4 November 2004 | | | | | | | | | | | |
| pH | 7.27 | 7.70 | 8.09 | 7.86 | 7.74 | 7.45 | 7.65 | 8.02 | 8.15 | 8.03 | 7.87 |
| USCS Soil Classification¹ | | | | | | | | | | | |
| USCS Description | Silty Gravel | Poorly Graded Sand | Poorly Graded Sand with Silt and Gravel | Poorly Graded Sand with Silt | Poorly Graded Sand with Gravel | Silty Sand with Gravel | Poorly Graded Sand with Silt | Poorly Graded Sand | Silty Sand | Well-Graded Sand with Silt and Gravel | Poorly Graded Sand with Silt |
| Sieve Results | | | | | | | | | | | |
| % Gravel | NS | NS | NS | 9.8 | 37.4 | 28.4 | 9.3 | 8.1 | 3.9 | 26.5 | 12.5 |
| % Sand | NS | NS | NS | 84.4 | 58.5 | 49.5 | 80.6 | 88.6 | 69.0 | 61.9 | 80.7 |
| % Fines (-#200) | NS | NS | NS | 5.8 | 4.2 | 22.1 | 10.1 | 3.4 | 27.1 | 11.6 | 6.8 |
| % Plus #200 (-3") | NS | NS | NS | 94.2 | 95.8 | 77.9 | 89.9 | 96.6 | 72.9 | 88.4 | 93.2 |
| SW846 9060A Modified Total Organic Carbon (mg/kg) | | | | | | | | | | | |
| Total Organic Carbon Average | 139,000 | 33,000 | 275,000 | 9,950 | 18,400 | 51,300 | 26,000 | 8,400 | 67,800 | 47,100 | 59,900 |

Notes:
Bold values indicate analyte detection is at or above the Limit of Detection
¹: Corrected for 100% passing a 3" sieve
J : The reported result is an estimate quantity with an unknown bias
mg/kg: milligrams per kilogram
NA: Not applicable or available
ND: Analyte was not detected
NE: Criterion not established
ng/kg: nanograms per kilogram
NS: Analyte was not sampled

Table 2
VAS and Temporary Monitoring Well Groundwater Analytical Results-PFAS
Former JB Sims Generating Station
Harbor Island, Grand Haven, Michigan

| Sample ID | Residential & Nonresidential Drinking Water Criteria | Groundwater Surface Water Interface Criteria | GP-01 | GP-02 | VAS01-3-7 | VAS02-5-10 | VAS02-16-20 | VAS03-2-7 | VAS03-16-20 | VAS04-4-9 | VAS04-16-20 | VAS05-4-9 | | VAS05-16-20 | VAS06-3-8 | VAS06-16-20 | VAS07-3-8 |
|--|--|--|--------------|--------------|-------------|-------------|-------------|--------------|--------------|-------------|-------------|--------------|---------------|-------------|--------------|-------------|--------------|
| | | | 11/29/22 | 11/29/22 | 11/29/22 | 11/29/22 | 11/29/22 | 11/30/22 | 11/30/22 | 11/30/22 | 11/30/22 | 12/1/22 | 12/1/2022 (D) | 12/1/22 | 12/1/22 | 12/1/22 | 12/1/22 |
| PFAS, Method: ASTM D7979-19M; (ng/L) | | | | | | | | | | | | | | | | | |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTSA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTSA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTSA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorobutane sulfonic acid (PFBS) | 420 | 8,300 | 9.0 | 3.8 | 6.4 | 2.5 | ND | 2.0 | ND | ND | ND | 2.5 | 2.0 | 2.6 | 1.6 J | ND | 4.9 |
| Perfluoropentane sulfonic acid (PFPeS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorohexane sulfonic acid (PFHxS) | 51 | 59 | 13 | 2.0 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 1.6 J | ND | 5.8 |
| Perfluoroheptane sulfonic acid (PFHpS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorooctane sulfonic acid (PFOS) | 16 | 11 | 92 | 5.9 | 3.1 | ND | ND | 2.0 | ND | 3.9 | ND | 9.3 | 9.7 | ND | 4.5 | ND | 39 |
| Perfluorononane sulfonic acid (PFNS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorodecane sulfonic acid (PFDS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA)) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA)) | NE | NE | 4.6 J | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA)) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorobutanoic acid (PFBA) | NE | NE | ND | 19 | 15 | 15 | ND | ND | ND | ND | ND | ND | 12 | 40 | ND | ND | 38 |
| Perfluoropentanoic acid (PFPeA) | NE | NE | 5.6 | 29 | 9.5 | 12 | ND | ND | ND | 73 | ND | 1.0 J | 1.8 J | 8.6 | 2.0 J | ND | 9.2 |
| Perfluorohexanoic acid (PFHxA) | 400,000 | NE | 11 | 28 | 11 | 9.3 | 2.7 | 1.4 J | 1.7 J | ND | ND | 2.9 | 3.5 | 11 | 3.3 | 3.0 | 14 |
| Perfluoroheptanoic acid (PFHpA) | NE | NE | 7.3 | 9.9 | 8.0 | 4.6 | ND | ND | ND | ND | ND | 2.0 | 2.5 | 2.0 | 2.0 | ND | 10.0 |
| Perfluorooctanoic acid (PFOA) | 8 | 66 | 93 | 37 | 15 | 6.4 | ND | 1.5 J | ND | 3.4 | ND | 6.5 | 8.5 | ND | 3.7 | ND | 32 |
| Perfluorononanoic acid (PFNA) | 6 | 19 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 1.9 | 2.5 | ND | 1.9 | ND | ND |
| Perfluorodecanoic acid (PFDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluoroundecanoic acid (PFUnDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorododecanoic acid (PFDoDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorotridecanoic acid (PFTrDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorotetradecanoic acid (PFTeDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| N-methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) | NE | NE | 3.5 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| N-Ethyl Perfluorooctane Sulfonamidoacetic acid (EtFOSAA) | NE | NE | 31 | 6.9 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorobutanesulfonamide (PFBSA) | NE | NE | 1.3 J | 2.3 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorohexanesulfonamide (PFHxSA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorooctane Sulfonamide (FOSA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Hexafluoropropylene oxide dimer (HFPO-DA) | 370 | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluoro-4-ethylcyclohexanesulfonate (PFECHS) | NE | NE | 16 | 7.1 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 5.2 |
| Total PFAS | | | 287.3 | 150.9 | 68.0 | 49.8 | 2.7 | 6.9 | 1.7 | 80.3 | 0 | 26.1 | 42.5 | 64.2 | 20.6 | 3.0 | 158.1 |

Notes:
Bold values indicate analyte detection is at or above the Limit of Detection
Analyte detected exceeds Groundwater Surface Water Interface (GSI) Criteria
Analyte detected exceeds Residential/Nonresidential Drinking Water Criteria
Analyte detected exceeds Residential/Nonresidential Drinking Water and GSI Criteria
Generic Part 201 Criteria from Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 201. Effective Date: October 12, 2023.
GSI criterion for PFOA, PFOA, PFBS, PFHxS, and PFNA are Rule 57 Surface Water Quality Human Noncancer Values (HNV) for a drinking water source from EGLE Surface Water Assessment Section. Updated October 12, 2023.
D: Indicates duplicate sample
ND: Analyte was not detected
NE: Criterion not established
ng/L: nanograms per liter
J: The reported result is an estimate quantity with an unknown bias

Table 2
VAS and Temporary Monitoring Well Groundwater Analytical Results-PFAS
Former JB Sims Generating Station
Harbor Island, Grand Haven, Michigan

| Sample ID | Residential & Nonresidential Drinking Water Criteria | Groundwater Surface Water Interface Criteria | VAS07-16-20 | VAS08-4-9 | VAS08-16-20 | VAS09-4-9 | VAS09-16-20 | VAS10-2-7 | | VAS10-16-20 | VAS11-2-6 | VAS11-16-20 | VAS12-3-7 | VAS12-16-20 | VAS13-3-7 | VAS13-16-20 | VAS14-1-5 | | | | |
|--|--|--|-------------|-------------|-------------|-------------|-------------|--------------|--------------|-------------|--------------|-------------|--------------|-------------|-------------|-------------|---------------|---------|-----|-----|-----|
| | | | 12/1/22 | 12/1/22 | 12/2/22 | 12/2/22 | 12/2/22 | 12/2/22 | 12/2/22 | 12/2/22 (D) | 12/2/22 | 12/5/22 | 12/5/22 | 12/5/22 | 12/5/22 | 12/5/22 | 12/6/22 | 12/5/22 | | | |
| PFAS, Method: ASTM D7979-19M; (ng/L) | | | | | | | | | | | | | | | | | | | | | |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTSA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | | | | |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTSA) | NE | NE | ND | ND | ND | ND | ND | 2.4 | 2.3 | ND | 6.3 | ND | 2.3 | ND | ND | ND | 33 | | | | |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTSA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 1.1 | J | ND | ND | ND | | | | |
| Perfluorobutane sulfonic acid (PFBS) | 420 | 8,300 | ND | 3.0 | ND | 2.7 | 1.5 | J | 2.3 | 2.4 | ND | 3.3 | ND | 3.2 | ND | ND | 21 | | | | |
| Perfluoropentane sulfonic acid (PFPeS) | NE | NE | ND | ND | ND | ND | ND | 2.5 | 2.1 | ND | ND | ND | 1.9 | J | ND | ND | 13 | | | | |
| Perfluorohexane sulfonic acid (PFHxS) | 51 | 59 | ND | 2.3 | ND | ND | ND | 12 | 12 | ND | 6.3 | ND | 7.1 | ND | ND | ND | 38 | | | | |
| Perfluoroheptane sulfonic acid (PFHpS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | | | | |
| Perfluorooctane sulfonic acid (PFOS) | 16 | 11 | ND | 5.0 | ND | ND | ND | 42 | 37 | ND | 11 | ND | 7.0 | ND | 4.2 | ND | 46 | | | | |
| Perfluorononane sulfonic acid (PFNS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | | | | |
| Perfluorodecane sulfonic acid (PFDS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | | | | |
| 3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA)) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | | | | |
| 3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA)) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | | | | |
| 3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA)) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | | | | |
| Perfluorobutanoic acid (PFBA) | NE | NE | ND | 23 | ND | 17 | ND | 15 | 14 | ND | 20 | ND | 22 | ND | ND | ND | 140 | | | | |
| Perfluoropentanoic acid (PFPeA) | NE | NE | ND | 8.0 | ND | 3.0 | J | 1.9 | J | 43 | 41 | 2.0 | J | 49 | ND | 66 | 1.6 | J | 5.2 | 8.0 | 480 |
| Perfluorohexanoic acid (PFHxA) | 400,000 | NE | ND | 9.4 | 1.6 | J | 3.2 | 2.7 | 25 | 24 | 2.1 | 25 | ND | 38 | ND | 4.1 | 4.6 | 260 | | | |
| Perfluoroheptanoic acid (PFHpA) | NE | NE | ND | 4.2 | ND | ND | ND | 17 | 19 | ND | 13 | ND | 21 | ND | ND | ND | 72 | | | | |
| Perfluorooctanoic acid (PFOA) | 8 | 66 | ND | 18 | ND | ND | ND | 8.8 | 8.4 | ND | 12 | ND | 7.8 | ND | 2.8 | ND | 56 | | | | |
| Perfluorononanoic acid (PFNA) | 6 | 19 | ND | ND | ND | ND | ND | 2.3 | 2.6 | ND | ND | ND | 1.9 | J | ND | ND | 14 | | | | |
| Perfluorodecanoic acid (PFDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | | | | |
| Perfluoroundecanoic acid (PFUnDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | | | | |
| Perfluorododecanoic acid (PFDoDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | | | | |
| Perfluorotridecanoic acid (PFTrDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | | | | |
| Perfluorotetradecanoic acid (PFTeDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | | | | |
| N-methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | | | | |
| N-Ethyl perfluorooctane Sulfonamidoacetic acid (EtFOSAA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | | | | |
| Perfluorobutanesulfonamide (PFBSA) | NE | NE | ND | ND | ND | ND | ND | 2.1 | 2.3 | ND | 1.9 | J | ND | 2.4 | ND | ND | 6.0 | | | | |
| Perfluorohexanesulfonamide (PFHxSA) | NE | NE | ND | ND | ND | ND | ND | 1.3 | J | 1.5 | J | ND | ND | 1.1 | J | ND | ND | | | | |
| Perfluorooctane Sulfonamide (FOSA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | | | | |
| Hexafluoropropylene oxide dimer (HFPO-DA) | 370 | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | | | | |
| 11-chloroicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | | | | |
| 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | | | | |
| 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | | | | |
| Perfluoro-4-ethylcyclohexanesulfonate (PFECHS) | NE | NE | ND | 2.8 | ND | 1.2 | J | ND | ND | ND | 2.3 | ND | ND | ND | ND | ND | 3.1 | | | | |
| Total PFAS | | | 0 | 75.7 | 1.6 | 27.1 | 6.1 | 175.7 | 168.6 | 4.1 | 150.1 | 0 | 182.8 | 1.6 | 16.3 | 12.6 | 1182.1 | | | | |

Notes:
Bold values indicate analyte detection is at or above the Limit of Detection
Analyte detected exceeds Groundwater Surface Water Interface (GSI) Criteria
Analyte detected exceeds Residential/Nonresidential Drinking Water Criteria
Analyte detected exceeds Residential/Nonresidential Drinking Water and GSI Criteria
Generic Part 201 Criteria from Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 201. Effective Date: October 12, 2023.
GSI criterion for PFOA, PFOA, PFBS, PFHxS, and PFNA are Rule 57 Surface Water Quality Human Noncancer Values (HNV) for a drinking water source from EGLE Surface Water Assessment Section. Updated October 12, 2023.
D: Indicates duplicate sample
ND: Analyte was not detected
NE: Criterion not established
ng/L: nanograms per liter
J: The reported result is an estimate quantity with an unknown bias

Table 2
VAS and Temporary Monitoring Well Groundwater Analytical Results-PFAS
Former JB Sims Generating Station
Harbor Island, Grand Haven, Michigan

| Sample ID | Residential & Nonresidential Drinking Water Criteria | Groundwater Surface Water Interface Criteria | VAS14-16-20 | VAS15-3-7 | VAS15-16-20 | VAS16-3-7 | VAS17-3-7 | VAS17-16-20 | VAS18-3-7 | | VAS18-16-20 | VAS19-5-9 | | VAS19-16-20 | VAS20-5-9 | VAS20-16-20 | VAS21-5-9 | | |
|---|--|--|-------------|--------------|-------------|----------------|-------------|-------------|--------------|--------------|-------------|---------------|--------------|-------------|---------------|---------------|---------------|---------|---------|
| | | | 12/5/22 | 12/6/22 | 12/6/22 | 12/6/22 | 12/6/22 | 12/6/22 | 12/6/22 | 12/6/22 | 12/6/22 | 12/6/2022 (D) | 12/6/22 | 12/7/22 | 12/7/2022 (D) | 12/7/22 | 12/7/22 | 12/7/22 | 12/7/22 |
| PFAS, Method: ASTM D7979-19M; (ng/L) | | | | | | | | | | | | | | | | | | | |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTSA) | NE | NE | ND | ND | ND | 15 | ND | ND | ND | ND | ND | ND | ND | ND | 2.1 | 2.4 | 1.6 | J | |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTSA) | NE | NE | ND | 140 | ND | 760 | 1.9 | 2.0 | 34 | 28 | ND | 13 | 17 | ND | 160 | 98 | 280 | | |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTSA) | NE | NE | ND | ND | ND | 20 | ND | ND | ND | ND | ND | ND | 1.2 | J | ND | 8.0 | 2.7 | ND | |
| Perfluorobutane sulfonic acid (PFBS) | 420 | 8,300 | ND | 13 | 1.9 | J | 15 | ND | ND | 2.2 | 2.1 | ND | 8.1 | 7.4 | ND | 19 | 14 | 95 | |
| Perfluoropentane sulfonic acid (PFPeS) | NE | NE | ND | 9.2 | ND | 6.2 | ND | ND | ND | ND | ND | 5.2 | 4.4 | ND | 5.9 | 3.2 | 47 | | |
| Perfluorohexane sulfonic acid (PFHxS) | 51 | 59 | ND | 19 | ND | 25 | ND | ND | 1.7 | J | ND | ND | 12 | 14 | ND | 19 | 6.8 | 110 | |
| Perfluoroheptane sulfonic acid (PFHpS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| Perfluorooctane sulfonic acid (PFOS) | 16 | 11 | ND | 13 | ND | 44 | 2.5 | ND | 3.4 | 3.7 | ND | 10 | 10 | ND | 11 | 3.9 | 3.5 | | |
| Perfluorononane sulfonic acid (PFNS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| Perfluorodecane sulfonic acid (PFDS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| 3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA)) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 15 | 4.2 | ND | | |
| 3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA)) | NE | NE | ND | ND | ND | 17 | ND | ND | ND | ND | ND | ND | ND | ND | 17 | 34 | ND | | |
| 3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA)) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 2.5 | J | 2.1 | J | |
| Perfluorobutanoic acid (PFBA) | NE | NE | ND | 90 | ND | ND | ND | ND | 25 | 23 | ND | 36 | 39 | ND | 210 | 140 | 420 | | |
| Perfluoropentanoic acid (PFPeA) | NE | NE | 5.4 | 400 | 12 | 100 | 10 | 7.5 | 80 | 72 | 3.1 | J | 110 | 99 | 3.2 | J | 170 | 170 | 1700 |
| Perfluorohexanoic acid (PFHxA) | 400,000 | NE | 3.7 | 210 | 9.6 | 150 | 5.3 | 7.4 | 30 | 33 | ND | 64 | 65 | 2.0 | 180 | 150 | 890 | | |
| Perfluoroheptanoic acid (PFHpA) | NE | NE | ND | 48 | 5.2 | 18 | ND | 1.7 | J | 5.1 | 4.7 | ND | 17 | J | 25 | J | 61 | 34 | 190 |
| Perfluorooctanoic acid (PFOA) | 8 | 66 | ND | 24 | 1.7 | J | 32 | ND | ND | ND | ND | 20 | 23 | ND | 67 | 34 | 77 | | |
| Perfluorononanoic acid (PFNA) | 6 | 19 | ND | ND | ND | 1.9 | ND | ND | ND | ND | ND | 1.9 | J | ND | 2.5 | 1.5 | J | ND | |
| Perfluorodecanoic acid (PFDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 1.1 | J | 0.61 | J | ND |
| Perfluoroundecanoic acid (PFUnDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| Perfluorododecanoic acid (PFDoDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| Perfluorotridecanoic acid (PFTrDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| Perfluorotetradecanoic acid (PFTeDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| N-methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| N-Ethyl Perfluorooctane Sulfonamidoacetic acid (EtFOSAA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 3.2 | J | 7.4 | ND | |
| Perfluorobutanesulfonamide (PFBSA) | NE | NE | ND | 9.4 | ND | 11 | ND | ND | ND | ND | ND | 3.5 | 3.7 | ND | 15 | 5.8 | 33 | | |
| Perfluorohexanesulfonamide (PFHxSA) | NE | NE | ND | ND | ND | 22 | ND | ND | ND | ND | ND | ND | 1.1 | J | ND | 14 | 1.4 | J | |
| Perfluorooctane Sulfonamide (FOSA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 1.3 | J | ND | ND | |
| Hexafluoropropylene oxide dimer (HFPO-DA) | 370 | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| 11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| Perfluoro-4-ethylcyclohexanesulfonate (PFECHS) | NE | NE | ND | 4.8 | ND | 2.5 | 2.0 | ND | ND | ND | ND | 7.1 | 6.3 | ND | 4.3 | 1.8 | J | 3.2 | |
| Total PFAS | | | 9.1 | 980.4 | 30.4 | 1,239.6 | 21.7 | 18.6 | 181.4 | 166.5 | 3.1 | 307.8 | 316.1 | 5.2 | 988.9 | 717.81 | 3850.3 | | |

Notes:
Bold values indicate analyte detection is at or above the Limit of Detection
Analyte detected exceeds Groundwater Surface Water Interface (GSI) Criteria
Analyte detected exceeds Residential/Nonresidential Drinking Water Criteria
Analyte detected exceeds Residential/Nonresidential Drinking Water and GSI Criteria
Generic Part 201 Criteria from Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 201. Effective Date: October 12, 2023.
GSI criterion for PFOA, PFOA, PFBS, PFHxS, and PFNA are Rule 57 Surface Water Quality Human Noncancer Values (HNV) for a drinking water source from EGLE Surface Water Assessment Section. Updated October 12, 2023.
D: Indicates duplicate sample
ND: Analyte was not detected
NE: Criterion not established
ng/L: nanograms per liter
J: The reported result is an estimate quantity with an unknown bias

Table 2
VAS and Temporary Monitoring Well Groundwater Analytical Results-PFAS
Former JB Sims Generating Station
Harbor Island, Grand Haven, Michigan

| Sample ID | Residential & Nonresidential Drinking Water Criteria | Groundwater Surface Water Interface Criteria | VAS21-16-20 | VAS22-5-9 | VAS22-16-20 | VAS23-5-9 | VAS23-16-20 | VAS24-5-9 | VAS24-16-20 | VAS25-3-7 | VAS25-16-20 | VAS26-4-8 | VAS26-16-20 | VAS27-4-8 | | VAS27-16-20 | VAS28-3-7 |
|---|--|--|--------------|--------------|--------------|------------|-------------|------------|-------------|-------------|-------------|-----------|-------------|--------------|--------------|-------------|---------------|
| | | | 12/7/22 | 12/7/22 | 12/7/22 | 12/8/22 | 12/8/22 | 12/8/22 | 12/8/22 | 12/8/22 | 12/8/22 | 12/8/22 | 12/8/22 | 12/8/22 | 12/8/22 | 12/9/22 | 12/9/2022 (D) |
| PFAS, Method: ASTM D7979-19M; (ng/L) | | | | | | | | | | | | | | | | | |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTSA) | NE | NE | 2.4 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTSA) | NE | NE | 47 | 63 | 49 | ND | 4.7 | ND | ND | ND | ND | ND | ND | 39 | 34 | ND | 6.9 |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTSA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorobutane sulfonic acid (PFBS) | 420 | 8,300 | 5.0 | 14 | 7.8 | ND | ND | 3.8 | 1.4 J | 3.0 | ND | ND | ND | 3.5 | 3.2 | ND | 3.5 |
| Perfluoropentane sulfonic acid (PFPeS) | NE | NE | ND | 6.2 | 3.5 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorohexane sulfonic acid (PFHxS) | 51 | 59 | 3.6 | 20 | 6.5 | ND | ND | ND | ND | ND | ND | ND | ND | 4.3 | 4.4 | ND | 3.2 |
| Perfluoroheptane sulfonic acid (PFHpS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorooctane sulfonic acid (PFOS) | 16 | 11 | ND | 12 | 2.9 | ND | ND | ND | ND | 2.2 | ND | ND | ND | 4.9 | 4.6 | ND | 9.2 |
| Perfluorononane sulfonic acid (PFNS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorodecane sulfonic acid (PFDS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA)) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA)) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA)) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorobutanoic acid (PFBA) | NE | NE | 75 | 74 | 61 | ND | ND | ND | ND | ND | ND | ND | ND | 35 | 39 | ND | 22 |
| Perfluoropentanoic acid (PFPeA) | NE | NE | 260 | 220 | 220 | 2.2 J | 2.2 J | ND | 4.9 | 13 | ND | ND | ND | 96 | 100 | 6.4 | 69 |
| Perfluorohexanoic acid (PFHxA) | 400,000 | NE | 110 | 160 | 120 | 2.2 | 3.4 | ND | 5.1 | 7.0 | ND | ND | ND | 62 | 63 | 3.5 | 36 |
| Perfluoroheptanoic acid (PFHpA) | NE | NE | 8.1 | 48 | 23 | ND | ND | ND | 2.7 | 3.0 | ND | ND | ND | 8.4 | 8.4 | ND | 11 |
| Perfluorooctanoic acid (PFOA) | 8 | 66 | 2.4 | 76 | 24 | ND | ND | ND | ND | 3.6 | ND | ND | ND | 5.0 | 4.9 | ND | 12 |
| Perfluorononanoic acid (PFNA) | 6 | 19 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 2.0 |
| Perfluorodecanoic acid (PFDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluoroundecanoic acid (PFUnDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorododecanoic acid (PFDoDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorotridecanoic acid (PFTrDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorotetradecanoic acid (PFTeDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| N-methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| N-Ethyl perfluorooctane Sulfonamidoacetic acid (EtFOSAA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorobutanesulfonamide (PFBSA) | NE | NE | 2.9 | 9.6 | 9.1 | ND | ND | ND | ND | ND | ND | ND | ND | 2.1 | 2.5 | ND | 1.6 J |
| Perfluorohexanesulfonamide (PFHxSA) | NE | NE | ND | 2.9 | 2.7 | ND | ND | ND | ND | ND | ND | ND | ND | 1.4 J | 1.2 J | ND | ND |
| Perfluorooctane Sulfonamide (FOSA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Hexafluoropropylene oxide dimer (HFPO-DA) | 370 | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluoro-4-ethylcyclohexanesulfonate (PFECHS) | NE | NE | ND | 8.8 | 2.4 | ND | ND | 1.5 J | ND | 1.3 J | ND | ND | ND | 3.3 | 3.9 | ND | 2.0 |
| Total PFAS | | | 516.4 | 714.5 | 531.9 | 4.4 | 10.3 | 5.3 | 14.1 | 33.1 | 0 | 0 | 0 | 264.9 | 269.1 | 9.9 | 178.4 |

Notes:
Bold values indicate analyte detection is at or above the Limit of Detection
Analyte detected exceeds Groundwater Surface Water Interface (GSI) Criteria
Analyte detected exceeds Residential/Nonresidential Drinking Water Criteria
Analyte detected exceeds Residential/Nonresidential Drinking Water and GSI Criteria
Generic Part 201 Criteria from Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 201. Effective Date: October 12, 2023.
GSI criterion for PFOA, PFOA, PFBS, PFHxS, and PFNA are Rule 57 Surface Water Quality Human Noncancer Values (HNV) for a drinking water source from EGLE Surface Water Assessment Section. Updated October 12, 2023.
D: Indicates duplicate sample
ND: Analyte was not detected
NE: Criterion not established
ng/L: nanograms per liter
J: The reported result is an estimate quantity with an unknown bias

Table 2
VAS and Temporary Monitoring Well Groundwater Analytical Results-PFAS
Former JB Sims Generating Station
Harbor Island, Grand Haven, Michigan

| Sample ID | Residential & Nonresidential Drinking Water Criteria | Groundwater Surface Water Interface Criteria | VAS28-16-20 | VAS29-4-8 | VAS29-16-20 | VAS30-4-8 | VAS30-16-20 | VAS31-3-7 | | VAS31-16-20 | VAS32-3-7 | VAS32-16-20 | VAS33-3-7 | VAS33-16-20 | VAS34-3-7 | VAS34-16-20 |
|--|--|--|-------------|--------------|-------------|-------------|-------------|--------------|--------------|----------------|--------------|-------------|------------|-------------|--------------|-------------|
| | | | 12/9/22 | 12/12/22 | 12/12/22 | 12/12/22 | 12/12/22 | 12/12/22 | 12/12/22 | 12/12/2022 (D) | 12/12/22 | 12/12/22 | 12/12/22 | 12/13/22 | 12/13/22 | 12/13/22 |
| PFAS, Method: ASTM D7979-19M; (ng/L) | | | | | | | | | | | | | | | | |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTSA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTSA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | 4.2 | ND | 3.9 | ND | 2.7 | ND |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTSA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorobutane sulfonic acid (PFBS) | 420 | 8,300 | ND | 4.5 | 1.6 J | 1.8 J | ND | 3.9 | 4.2 | 2.7 | 2.1 | 1.9 J | 6.1 | 3.1 | 7.2 | 2.1 |
| Perfluoropentane sulfonic acid (PFPeS) | NE | NE | ND | 2.6 | ND | ND | ND | ND | ND | ND | ND | ND | 2.1 | ND | 7 | 1.3 J |
| Perfluorohexane sulfonic acid (PFHxS) | 51 | 59 | ND | 2.0 J | ND | 3.2 | ND | 3.0 | 3.4 | ND | 5.7 | 1.8 J | 4.9 | ND | 30 | 1.4 J |
| Perfluoroheptane sulfonic acid (PFHpS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 12 | ND |
| Perfluorooctane sulfonic acid (PFOS) | 16 | 11 | ND | 56 | ND | 15 | ND | 41 | 37 | ND | 110 | 2.2 | 96 | ND | 250 | 1.7 J |
| Perfluorononane sulfonic acid (PFNS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorodecane sulfonic acid (PFDS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA)) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | 2.2 J | ND | ND | ND | ND |
| 3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA)) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA)) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorobutanoic acid (PFBA) | NE | NE | ND | 14 | ND | ND | ND | 14 | 15 | ND | ND | ND | 34 | ND | 30 | 5.8 J |
| Perfluoropentanoic acid (PFPeA) | NE | NE | 3.5 J | 13 | 1.9 J | 1.7 J | ND | 12 | 12 | 1.6 J | 17 | ND | 72 | 1.7 J | 62 | 2.2 J |
| Perfluorohexanoic acid (PFHxA) | 400,000 | NE | ND | 8.0 | 1.8 J | 2.1 | ND | 7.9 | 9.1 | 1.8 J | 9.8 | ND | 41 | 2.1 | 43 | 2.2 |
| Perfluoroheptanoic acid (PFHpA) | NE | NE | ND | 4.1 | ND | 1.6 J | ND | 6.4 | 6.8 | ND | 4.8 | ND | 12 | ND | 26 | 1.0 J |
| Perfluorooctanoic acid (PFOA) | 8 | 66 | ND | 3.4 | ND | 6.2 | ND | 10 | 9.9 | 2.5 | 12 | 4.2 | 13 | 4.8 | 110 | 5.8 |
| Perfluorononanoic acid (PFNA) | 6 | 19 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 2.4 | ND |
| Perfluorodecanoic acid (PFDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluoroundecanoic acid (PFUnDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorododecanoic acid (PFDoDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorotridecanoic acid (PFTrDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorotetradecanoic acid (PFTeDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| N-methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| N-Ethyl Perfluorooctane Sulfonamidoacetic acid (EtFOSAA) | NE | NE | ND | 8.0 | ND | ND | ND | 14 | 11 | ND | ND | ND | 60 | ND | 16 | ND |
| Perfluorobutanesulfonamide (PFBSA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | 1.2 J | ND | ND | ND | 2.5 | ND |
| Perfluorohexanesulfonamide (PFHxSA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 1.1 J | ND |
| Perfluorooctane Sulfonamide (FOSA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Hexafluoropropylene oxide dimer (HFPO-DA) | 370 | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluoro-4-ethylcyclohexanesulfonate (PFECHS) | NE | NE | ND | 3.5 | ND | 1.3 J | ND | 2.6 | 2.5 | ND | 3.0 | 2.2 | 14 | 2.1 | 7.8 | 8.3 |
| Total PFAS | | | 3.5 | 119.1 | 5.3 | 32.9 | 0 | 114.8 | 110.9 | 8.6 | 169.8 | 14.5 | 359 | 13.8 | 609.7 | 31.8 |

Notes:
Bold values indicate analyte detection is at or above the Limit of Detection
Analyte detected exceeds Groundwater Surface Water Interface (GSI) Criteria
Analyte detected exceeds Residential/Nonresidential Drinking Water Criteria
Analyte detected exceeds Residential/Nonresidential Drinking Water and GSI Criteria
Generic Part 201 Criteria from Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 201. Effective Date: October 12, 2023.
GSI criterion for PFOA, PFOA, PFBS, PFHxS, and PFNA are Rule 57 Surface Water Quality Human Noncancer Values (HNV) for a drinking water source from EGLE Surface Water Assessment Section. Updated October 12, 2023.
D: Indicates duplicate sample
ND: Analyte was not detected
NE: Criterion not established
ng/L: nanograms per liter
J: The reported result is an estimate quantity with an unknown bias

Table 2
VAS and Temporary Monitoring Well Groundwater Analytical Results-PFAS
Former JB Sims Generating Station
Harbor Island, Grand Haven, Michigan

| Sample ID | Residential & Nonresidential Drinking Water Criteria | Groundwater Surface Water Interface Criteria | VAS35-1-5 | | VAS35-16-20 | VAS36-4-8 | VAS36-16-20 | VAS37-4-8 | VAS37-16-20 | VAS38-5-9 | VAS38-16-20 | VAS39-1-5 | VAS39-16-20 | VAS40-4-8 | VAS40-16-20 |
|---|--|--|--------------|--------------|-------------|--------------|--------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|
| | | | 12/13/22 | 12/13/22 (D) | 12/13/22 | 12/13/22 | 12/13/22 | 12/14/22 | 12/14/22 | 12/14/22 | 12/14/22 | 12/14/22 | 12/14/22 | 12/14/22 | 12/14/22 |
| PFAS, Method: ASTM D7979-19M; (ng/L) | | | | | | | | | | | | | | | |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTSA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTSA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTSA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorobutane sulfonic acid (PFBS) | 420 | 8,300 | 3.5 | 3.1 | 2.4 | 2.5 | 1.8 | J | 8.3 | ND | 12 | ND | 4.2 | ND | 5.1 |
| Perfluoropentane sulfonic acid (PFPeS) | NE | NE | ND | ND | 1.4 | J | 1.5 | J | ND | ND | ND | ND | ND | 1.8 | J |
| Perfluorohexane sulfonic acid (PFHxS) | 51 | 59 | 3.5 | 4.9 | ND | 4.1 | ND | 3.6 | ND | 6.2 | ND | 4.6 | ND | 3.7 | ND |
| Perfluoroheptane sulfonic acid (PFHpS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorooctane sulfonic acid (PFOS) | 16 | 11 | 32 | 33 | ND | 22 | ND | 44 | ND | 140 | ND | 72 | ND | 9.0 | ND |
| Perfluorononane sulfonic acid (PFNS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorodecane sulfonic acid (PFDS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA)) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA)) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA)) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorobutanoic acid (PFBA) | NE | NE | 13 | 16 | 6.5 | J | 12 | 3.6 | J | 18 | 2.5 | J | 14 | ND | 12 |
| Perfluoropentanoic acid (PFPeA) | NE | NE | 9.0 | 11 | 2.9 | J | 21 | 4.7 | 24 | 3.4 | J | 35 | ND | 21 | 0.84 |
| Perfluorohexanoic acid (PFHxA) | 400,000 | NE | 11 | 10 | 2.7 | 13 | 3.2 | 17 | 2.6 | 19 | ND | 18 | 0.80 | J | 15 |
| Perfluoroheptanoic acid (PFHpA) | NE | NE | 7.1 | 6.5 | ND | 6.3 | ND | 6.0 | ND | 10 | ND | 6.8 | ND | 6.3 | ND |
| Perfluorooctanoic acid (PFOA) | 8 | 66 | 14 | 12 | ND | 8.8 | ND | 9.9 | ND | 17 | ND | 21 | ND | 19 | ND |
| Perfluorononanoic acid (PFNA) | 6 | 19 | ND | ND | ND | 0.82 | J | 2.3 | ND | ND | ND | 2.0 | J | ND | ND |
| Perfluorodecanoic acid (PFDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluoroundecanoic acid (PFUnDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorododecanoic acid (PFDoDA) | NE | NE | ND | ND | ND | ND | 0.56 | J | ND | ND | ND | ND | ND | 0.71 | J |
| Perfluorotridecanoic acid (PFTrDA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluorotetradecanoic acid (PFTeDA) | NE | NE | ND | ND | ND | ND | 1.1 | J | ND | ND | ND | ND | ND | ND | ND |
| N-methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| N-Ethyl Perfluorooctane Sulfonamidoacetic acid (EtFOSAA) | NE | NE | ND | ND | ND | 4.9 | ND | 7.2 | ND | 3.6 | J | ND | 7.8 | ND | ND |
| Perfluorobutanesulfonamide (PFBSA) | NE | NE | ND | ND | ND | ND | ND | 4.2 | ND | 2.4 | ND | 1.3 | J | ND | ND |
| Perfluorohexanesulfonamide (PFHxSA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | 1.1 | J | ND | ND | ND | ND |
| Perfluorooctane Sulfonamide (FOSA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Hexafluoropropylene oxide dimer (HFPO-DA) | 370 | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 11-chloroicosafafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | NE | NE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Perfluoro-4-ethylcyclohexanesulfonate (PFECHS) | NE | NE | 8.3 | 9.2 | 2.3 | 2.7 | ND | 2.9 | ND | 5.0 | ND | 6.1 | ND | 4.4 | ND |
| Total PFAS | | | 101.4 | 105.7 | 18.2 | 99.62 | 14.96 | 147.4 | 8.5 | 265.3 | 0 | 176.8 | 1.64 | 97.01 | 8.8 |

Notes:
Bold values indicate analyte detection is at or above the Limit of Detection
Analyte detected exceeds Groundwater Surface Water Interface (GSI) Criteria
Analyte detected exceeds Residential/Nonresidential Drinking Water Criteria
Analyte detected exceeds Residential/Nonresidential Drinking Water and GSI Criteria
Generic Part 201 Criteria from Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 201. Effective Date: October 12, 2023.
GSI criterion for PFOA, PFOA, PFBS, PFHxS, and PFNA are Rule 57 Surface Water Quality Human Noncancer Values (HNV) for a drinking water source from EGLE Surface Water Assessment Section. Updated October 12, 2023.
D: Indicates duplicate sample
ND: Analyte was not detected
NE: Criterion not established
ng/L: nanograms per liter
J: The reported result is an estimate quantity with an unknown bias

Table 3
Groundwater Analytical Results - SVOCs, VOCs, and Metals
Former JB Sims Generating Station
Harbor Island, Grand Haven, Michigan

| Sample ID | Residential Drinking Water Criteria | Nonresidential Drinking Water Criteria | Groundwater Surface Water (GSI) Interface Criteria | MW-33 | MW-34 | | VAS05-4-9 | VAS13-3-7 | VAS15-3-7 | VAS17-3-7 | VAS19-5-9 | VAS21-5-9 | VAS23-5-9 | VAS26-4-8 | VAS28-3-7 |
|--|-------------------------------------|--|--|------------|-----------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | | | | 12/15/2022 | 12/1/2022 | 12/15/2022 | 12/1/2022 | 12/5/2022 | 12/6/2022 | 12/6/2022 | 12/7/2022 | 12/7/2022 | 12/8/2022 | 12/8/2022 | 12/9/2022 |
| SVOCs by USEPA Method 8270D (µg/L) | | | | | | | | | | | | | | | |
| 2,4-Dimethylphenol | 370 | 1000 | 380 | ND | NS | 670 | ND |
| 2-Methylphenol | NA | NA | NA | ND | NS | 166 | ND |
| Acenaphthene | 1300 | 3800 | 38 | ND | NS | 9.4 J | ND | ND | ND | 0.6 J | ND | ND | ND | ND | ND |
| m & p Cresol | NA | NA | NA | ND | NS | 483 | ND |
| Naphthalene | 520 | 1500 | 11 | ND | NS | 190 | ND | ND | ND | 1.51 J | ND | ND | ND | ND | ND |
| Phenanthrene | 52 | 150 | 2 (M);1.4 | ND | NS | ND | ND | ND | ND | 1.05 J | ND | ND | ND | ND | ND |
| Phenol | 4400 | 13000 | 450 | ND | NS | 50 | ND |
| VOCs by USEPA Method 8260C (µg/L) | | | | | | | | | | | | | | | |
| 1,2,3-Trimethylbenzene | NE | NE | NE | ND | NS | 12 | ND |
| 1,2,4-Trimethylbenzene | 63 (E) | 63 (E) | 17 | ND | NS | 19 | ND |
| 1,3,5-Trimethylbenzene | 72 (E) | 72 (E) | 45 | ND | NS | 4.6 J | ND |
| 2-Methylnaphthalene | 260 | 750 | 19 | ND | NS | 18.6 J | ND | ND | ND | 0.32 B | ND | ND | ND | ND | ND |
| 4-Methyl-2-pentanone | 1800 | 5200 | ID | ND | NS | 14 J | ND |
| Acetone | 730 | 2100 | 1700 | 5.57 J | NS | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Benzene | 5 (A) | 5 (A) | 12 (*) | ND | NS | 380 | ND |
| Carbon disulfide | 800 | 2300 | ID | ND | NS | 0.85 B | ND | 0.15 B | ND | 0.18 B | 0.18 B | ND | ND | ND | ND |
| Chlorobenzene | 100 (A) | 100 (A) | 25 | ND | NS | 1.3 J | ND |
| Chloroform | 80 (A,W) | 80 (A,W) | 350 | ND | NS | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chloromethane | 260 | 1100 | ID | ND | NS | ND | ND | 0.27 J | ND |
| cis-1,2-Dichloroethene | 70 (A) | 70 (A) | 620 | ND | NS | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Diethyl Ether | 10 (E) | 10 (E) | ID | ND | NS | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Ethylbenzene | 74 (E) | 74 (E) | 18 | ND | NS | 35 | ND |
| Isopropylbenzene | 800 | 2300 | 28 | ND | NS | 5.25 J | ND |
| m,p-Xylene | NE | NE | NE | ND | NS | 70 | ND |
| Naphthalene | 520 | 1500 | 11 | ND | NS | 290 | 0.43 J | ND | ND | 2.17 J | ND | ND | ND | ND | ND |
| n-Propylbenzene | 8 | 23 | ID | ND | NS | 0.95 J | ND |
| o-Xylene | NE | NE | NE | ND | NS | 46 | ND |
| Styrene | 100 (A) | 100 (A) | 20 (*) | ND | NS | 11 | ND |
| Tetrahydrofuran | 95 | 270 | 350 (*) | ND | NS | 9.3 J | ND | ND | ND | ND | 1.9 J | ND | ND | ND | ND |
| Toluene | 790 (E) | 790 (E) | 270 | ND | NS | 124 | ND | ND | ND | ND | 0.19 J | ND | ND | ND | ND |
| Trichloroethene | 5 (A) | 5 (A) | 29 (*) | ND | NS | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Vinyl chloride | 2 (A) | 2 (A) | 0.25 (*) | ND | NS | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Xylenes, Total | 280 (E) | 280 (E) | 49 | ND | NS | 116 | ND |
| METALS by USEPA Method 6020A (µg/L) | | | | | | | | | | | | | | | |
| Arsenic | 10 (A) | 10 (A) | 10 | 2 | NS | 2 | 27 | 9 | 3 | 2 | 2 | 8 | 4 | 1.4 J | 4 |
| Barium | 2000 (A) | 2000 (A) | 1900 (G) | 81 | NS | 525 | 1120 | 333 | 453 | 20 | 795 | 217 | 34 | 259 | 38 |
| Cadmium | 5 (A) | 5 (A) | 2.5 (G,X) | ND | NS | ND | 0.6 | 4.2 | ND | ND | 1.2 | ND | ND | ND | ND |
| Chromium | 100 (A) | 100 (A) | 120 (G) | 2.41 J | NS | 21 | 10 | 7 | 2.53 J | 2.36 J | 4.656 J | 0.639 J | 2.08 J | 1.64 J | 0.834 J |
| Copper | 1000 (E) | 1000 (E) | 470 (G) | 20 | NS | 2.47 | 43 | 48 | 1.32 J | 3.8 J | 10 | 4.01 J | 6 | 2.02 J | 2.74 J |
| Lead | 4 (L) | 4 (L) | 14 (G;X) | ND | NS | 3 | 248 | 234 | 2.09 J | 0.993 J | 26 | 1.78 J | 2.39 J | 1.37 J | 4 |
| Mercury (total) | 2 (A) | 2 (A) | 0.0013 | ND | NS | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Selenium | 50 (A) | 50 (A) | 5 | 3.45 J | NS | ND | 4.32 J | ND | ND | 10 | 2.62 J | 4.56 J | 2.38 J | 2.74 J | 3.77 J |
| Silver | 34 | 98 | 0.2 (M); 0.06 | ND | NS | ND | ND | 0.112 J | ND | ND | 0.103 J | 0.136 J | ND | ND | ND |
| Zinc | 2400 | 5000 (E) | 3300 (G) | 6 | NS | 5 | 107 | 382 | 5 | 15 | 31 | 42 | 13 | 17 | 21 |

Notes:
Bold values indicate analyte is detected.
Analyte detected exceeds GSI Criteria
Analyte detected exceeds Residential and/or Nonresidential Drinking Water Criteria
Analyte detected exceeds Residential, Nonresidential and GSI Criteria
 Generic Part 201 Criteria from Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 201. Effective Date: October 12, 2023.
 -Footnotes for generic cleanup criteria tables can be found in R299.49 Footnotes For Generic Cleanup Criteria Tables, Michigan Department of Environment, Great Lakes and Energy (EGLE), Effective December 30, 2013, October 12, 2023
 (*) indicates most restrictive Rule 57 Water Quality Value for a drinking water source from EGLE Surface Water Assessment Section. Updated October 12, 2023.
 - Only analytes with detections displayed.
 (D): Indicates duplicate sample
 ID: Insufficient data to develop criterion.
 ND: Analyte was not detected.
 NE: Criterion not established.
 B: The analyte was detected in the associated blank at a concentration greater than 1/10 the concentration detected in the sample.
 J: The reported result is an estimate quantity with an unknown bias
 SVOCs: Semi-volatile organic compounds
 µg/L: micrograms per liter
 VOCs: Volatile organic compounds

Table 3
Groundwater Analytical Results - SVOCs, VOCs, and Metals
Former JB Sims Generating Station
Harbor Island, Grand Haven, Michigan

| Sample ID | Residential Drinking Water Criteria | Nonresidential Drinking Water Criteria | Groundwater Surface Water (GSI) Interface Criteria | VAS31-3-7 | VAS32-3-7 | VAS33-3-7 | VAS34-3-7 | VAS35-1-5 | | VAS37-4-8 | VAS38-5-9 | VAS39-1-5 |
|--|-------------------------------------|--|--|------------|------------|------------|------------|------------|----------------|------------|------------|------------|
| | | | | 12/12/2022 | 12/12/2022 | 12/13/2022 | 12/13/2022 | 12/13/2022 | 12/13/2022 (D) | 12/14/2022 | 12/14/2022 | 12/14/2022 |
| SVOCs by USEPA Method 8270D (µg/L) | | | | | | | | | | | | |
| 2,4-Dimethylphenol | 370 | 1000 | 380 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2-Methylphenol | NA | NA | NA | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthene | 1300 | 3800 | 38 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| m & p Cresol | NA | NA | NA | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Naphthalene | 520 | 1500 | 11 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenanthrene | 52 | 150 | 2 (M);1.4 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenol | 4400 | 13000 | 450 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| VOCs by USEPA Method 8260C (µg/L) | | | | | | | | | | | | |
| 1,2,3-Trimethylbenzene | NE | NE | NE | ND | ND | 0.15 J | ND | ND | ND | 0.39 J | ND | ND |
| 1,2,4-Trimethylbenzene | 63 (E) | 63 (E) | 17 | ND | ND | ND | ND | ND | ND | 1 | ND | ND |
| 1,3,5-Trimethylbenzene | 72 (E) | 72 (E) | 45 | ND | ND | ND | ND | ND | ND | 0.3 J | ND | ND |
| 2-Methylnaphthalene | 260 | 750 | 19 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 4-Methyl-2-pentanone | 1800 | 5200 | ID | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acetone | 730 | 2100 | 1700 | 2.95 J | 2.54 J | 2.34 J | 2.99 J | 2.6 J | 2.96 J | 1.53 J | 3.03 J | 2.96 J |
| Benzene | 5 (A) | 5 (A) | 12 (*) | ND | ND | 0.52 J | ND | ND | ND | ND | ND | ND |
| Carbon disulfide | 800 | 2300 | ID | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chlorobenzene | 100 (A) | 100 (A) | 25 | 0.28 J | ND | ND | ND | ND | ND | 1 | 0.53 J | ND |
| Chloroform | 80 (A,W) | 80 (A,W) | 350 | ND | ND | ND | ND | 0.57 J | 0.58 J | ND | ND | ND |
| Chloromethane | 260 | 1100 | ID | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| cis-1,2-Dichloroethene | 70 (A) | 70 (A) | 620 | 0.26 J | 1 | 0.38 J | ND | ND | ND | ND | ND | ND |
| Diethyl Ether | 10 (E) | 10 (E) | ID | ND | 6.34 J | ND | 1.47 J | ND | ND | ND | ND | ND |
| Ethylbenzene | 74 (E) | 74 (E) | 18 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Isopropylbenzene | 800 | 2300 | 28 | ND | ND | 0.35 J | ND | ND | ND | ND | ND | ND |
| m,p-Xylene | NE | NE | NE | ND | ND | ND | ND | ND | ND | 0.69 J | ND | ND |
| Naphthalene | 520 | 1500 | 11 | ND | ND | ND | ND | ND | ND | ND | ND | 0.36 J |
| n-Propylbenzene | 8 | 23 | ID | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| o-Xylene | NE | NE | NE | ND | ND | 0.42 J | ND | ND | ND | 0.3 J | ND | ND |
| Styrene | 100 (A) | 100 (A) | 20 (*) | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Tetrahydrofuran | 95 | 270 | 350 (*) | ND | ND | 32 J | ND | 2.1 J | 2 J | 1.9 J | ND | 4 J |
| Toluene | 790 (E) | 790 (E) | 270 | ND | ND | ND | ND | ND | ND | 1 | ND | ND |
| Trichloroethene | 5 (A) | 5 (A) | 29 (*) | ND | ND | 0.32 J | ND | ND | ND | ND | ND | ND |
| Vinyl chloride | 2 (A) | 2 (A) | 0.25 (*) | ND | 0.38 J | ND | ND | ND | ND | ND | ND | ND |
| Xylenes, Total | 280 (E) | 280 (E) | 49 | ND | ND | 0.42 | ND | ND | ND | 0.99 J | ND | ND |
| METALS by USEPA Method 6020A (µg/L) | | | | | | | | | | | | |
| Arsenic | 10 (A) | 10 (A) | 10 | 1.86 | 2 | 5 | 114 | 3 | 3 | 4 | 1.71 J | 3 |
| Barium | 2000 (A) | 2000 (A) | 1900 (G) | 134 | 970 | 947 | 760 | 1030 | 1030 | 659 | 594 | 784 |
| Cadmium | 5 (A) | 5 (A) | 2.5 (G,X) | ND | 0.442 | 12.2 | 1 | 0.7 | 0.7 | 8.3 | ND | 0.334 J |
| Chromium | 100 (A) | 100 (A) | 120 (G) | 1.16 | 1.53 | 41 | 6 | 2.52 | 2.45 | 23 | 0.34 J | 4.01 J |
| Copper | 1000 (E) | 1000 (E) | 470 (G) | 3.55 | 6 | 30 | 16 | 7 | 7 | 17 | 3.13 J | 16 |
| Lead | 4 (L) | 4 (L) | 14 (G;X) | 10 | 9 | 119 | 332 | 20 | 21 | 41 | 14 | 53 |
| Mercury (total) | 2 (A) | 2 (A) | 0.0013 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Selenium | 50 (A) | 50 (A) | 5 | 3.37 | ND | 4.6 | 2.34 | ND | ND | ND | 2.15 J | ND |
| Silver | 34 | 98 | 0.2 (M); 0.06 | 0.184 | 0.076 | 0.434 | 0.156 | 0.098 | ND | 0.075 J | ND | 0.159 J |
| Zinc | 2400 | 5000 (E) | 3300 (G) | 21 | 100 | 240 | 655 | 124 | 122 | 102 | 9 | 119 |

Notes:

Bold values indicate analyte is detected.

Analyte detected exceeds GSI Criteria

Analyte detected exceeds Residential and/or Nonresidential Drinking Water Criteria

Analyte detected exceeds Residential, Nonresidential and GSI Criteria

Generic Part 201 Criteria from Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 201. Effective Date: October 12, 2023.

-Footnotes for generic cleanup criteria tables can be found in R299.49 Footnotes For Generic Cleanup Criteria Tables, Michigan Department of Environment, Great Lakes and Energy (EGLE), Effective December 30, 2013, October 12, 2023

(*) indicates most restrictive Rule 57 Water Quality Value for a drinking water source from EGLE Surface Water Assessment Section. Updated October 12, 2023.

- Only analytes with detections displayed.

(D): Indicates duplicate sample

ID: Insufficient data to develop criterion.

ND: Analyte was not detected.

NE: Criterion not established.

B: The analyte was detected in the associated blank at a concentration greater than 1/10 the concentration detected in the sample.

J: The reported result is an estimate quantity with an unknown bias

SVOCs: Semi-volatile organic compounds

µg/L: micrograms per liter

VOCs: Volatile organic compounds

Table 4
Monitoring Well and Piezometer Groundwater Analytical Results-PFAS
Former JB Sims Generating Station
Harbor Island, Grand Haven, Michigan

| Sample ID | Residential & Nonresidential Drinking Water Criteria | Groundwater Surface Water Interface Criteria | Maximum Detection | MW-01R | MW-01R | MW-01R | MW-01R | MW-01R | MW-02 | MW-02 | MW-02 | MW-02 | MW-03 | MW-03 | MW-03 | MW-03 | MW-03 |
|--|--|--|-------------------|----------------|---------------|----------------|--------------|----------------|-----------------|---------------|----------------|----------------|-----------------|----------------|---------------|--------------|--------------|
| | | | | 5/21/21 | 10/26/21 | 1/11/22 | 2/2/23 | 5/2/23 | 5/21/21 | 10/26/21 | 1/11/22 | 2/1/23 | 5/21/21 | 10/26/21 | 1/11/22 | 2/1/23 | 5/2/23 |
| PFAS, Method: ASTM D7979-19M: (ng/L)*****VARIES**** | | | | | | | | | | | | | | | | | |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTSA) | NE | NE | 30.63 | <2 | <2 | <2 | <2.0 UJ | <2.0 UJ | <2 | <2 | <2 | <1.9 UJ | <2 | <2 | <2 | <1.9 UJ | <1.9 UJ |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTSA) | NE | NE | 2149.54 | 1.79 JB | <20 | <20 | <2.0 UJ | <2.0 UJ | 2.54 JB | <20 | <20 | <1.9 UJ | 4.41 JIB | <20 | <20 | <1.9 UJ | <1.9 UJ |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTSA) | NE | NE | 25 | <2 | <2 | <2 | <2.0 UJ | <2.0 UJ | 0.1 J | <2 | <2 | <1.9 UJ | 0.14 J | <2 | <2 | <1.9 UJ | <1.9 UJ |
| Perfluorobutane sulfonic acid (PFBS) | 420 | 8,300 | 66.14 | 2.51 B | 2.24 I | 2.48 | 1.7 J | <2.0 UJ | 1.43 JB | <2 | <2 | <1.9 UJ | 2.24 B | 2.03 | 2.58 | 1.9 J | <1.9 UJ |
| Perfluoropentane sulfonic acid (PFPeS) | NE | NE | 124.01 | 1.64 JB | <2 | <2 | <2.0 UJ | <2.0 UJ | <2 | <2 | 5.05 I | 1.7 J | <2 | 5.34 I | 4.34 I | 1.7 J | <1.9 UJ |
| Perfluorohexane sulfonic acid (PFHxS) | 51 | 59 | 311.33 | 1.08 J | <2 | 2.36 | <2.0 UJ | 2.3 J | 3.19 | 3.1 | 3.57 | 5.5 | 8.71 | 6.48 | 9.37 | 8.5 | 8.0 J |
| Perfluoroheptane sulfonic acid (PFHpS) | NE | NE | 18.82 | 0.22 J | <2 | <2 | <2.0 UJ | 0.99 J | <2 | <2 | <1.9 UJ | 3.29 | 3.82 I | 5.47 I | 2.1 | <1.9 UJ | J |
| Perfluorooctane sulfonic acid (PFOS) | 16 | 11 | 289.88 | 23.87 B | 30.73 | 44.44 I | 9.6 | 11 J | 41.85 B | 38.27 | 73.45 I | 54 | 84.66 IB | 54.81 | 104.32 | 91 | 88 J |
| Perfluorononane sulfonic acid (PFNS) | NE | NE | 0.44 | 0.24 JB | <2 | <2 | <2.0 UJ | 0.3 JB | <2 | <2 | <1.9 UJ | 0.27 JB | <2 | <2 | <1.9 UJ | <1.9 UJ | J |
| Perfluorodecane sulfonic acid (PFDS) | NE | NE | 1.1 | 0.69 JB | <2 | <2 | <2.0 UJ | 0.85 JB | <2 | <2 | <1.9 UJ | 0.75 JB | <2 | <2 | <1.9 UJ | <1.9 UJ | J |
| 3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA)) | NE | NE | 3 | NA | NA | NA | <4.0 UJ | <4.0 UJ | NA | NA | NA | <3.8 NA | NA | NA | NA | <3.9 UJ | <3.9 UJ |
| 3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA)) | NE | NE | 15 | NA | NA | NA | <4.0 UJ | <4.0 UJ | NA | NA | NA | <3.8 NA | NA | NA | NA | <3.9 UJ | <3.9 UJ |
| 3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA)) | NE | NE | 3.2 | NA | NA | NA | <4.0 UJ | <4.0 UJ | NA | NA | NA | <3.8 NA | NA | NA | NA | <3.9 UJ | <3.9 UJ |
| Perfluorobutanoic acid (PFBA) | NE | NE | 400 | <2 | <2 | <2 | <2.0 UJ | <1.1 UJ | <2 | <2 | <2 | <58 | <2 | 9.37 I | <2 | 13 | <9.7 UJ |
| Perfluoropentanoic acid (PFPeA) | NE | NE | 1900 | <2 | <2 | <2 | 6.3 | 3.3 J | <2 | <2 | <2 | <29 | <2 | <2 | <2 | 4.7 | 2.4 J |
| Perfluorohexanoic acid (PFHxA) | 400,000 | NE | 1200 | <2 | 3.56 I | <2 | 3.7 | 2.8 J | <2 | <2 | <2 | 13 | 4.21 B | <2 | 3.7 I | 3.1 | 2.4 J |
| Perfluoroheptanoic acid (PFHpA) | NE | NE | 180 | 0.55 JB | <2 | <2 | 1.1 J | <2.0 UJ | 2.01 JB | <2 | <2 | 2.0 | 1.75 JB | <2 | <2 | 1.9 J | <1.9 UJ |
| Perfluorooctanoic acid (PFOA) | 8 | 66 | 134.68 | <2 | 3.14 I | 3.55 I | 2.6 | 1.7 J | 13.23 IB | 9.39 I | 14.75 I | 13 | 18.29 B | 12.13 I | 16.59 | 11 | 10 J |
| Perfluorononanoic acid (PFNA) | 6 | 19 | 5.9 | <2 | <2 | <2 | <2.0 UJ | 0.25 JB | <2 | <2 | <2 | 0.94 J | 0.16 JB | <2 | <2 | <1.9 UJ | <1.9 UJ |
| Perfluorodecanoic acid (PFDA) | NE | NE | 1 | <2 | <2 | <2 | <2.0 UJ | <2 | <2 | <2 | <2 | <1.9 UJ | <2 | <2 | <2 | <1.9 UJ | <1.9 UJ |
| Perfluoroundecanoic acid (PFUnDA) | NE | NE | 1.19 | <2 | <2 | <2 | <2.0 UJ | <2 | <2 | <2 | <2 | <1.9 UJ | <2 | <2 | <2 | <1.9 UJ | <1.9 UJ |
| Perfluorododecanoic acid (PFDoDA) | NE | NE | 0 | <2 | <2 | <2 | <2.0 UJ | <2 | <2 | <2 | <2 | <1.9 UJ | <2 | <2 | <2 | <1.9 UJ | <1.9 UJ |
| Perfluorotridecanoic acid (PFTrDA) | NE | NE | 1.04 | 0.7 JB | <2 | <2 | <2.0 UJ | 0.76 JB | <2 | <2 | <2 | <1.9 UJ | 0.74 JB | <2 | <2 | <1.9 UJ | <1.9 UJ |
| Perfluorotetradecanoic acid (PFTeDA) | NE | NE | 0.68 | 0.4 JB | NA | <2 | <4.0 UJ | 0.54 JB | NA | <2 | <2 | <3.8 NA | 0.51 JB | NA | <2 | <3.9 UJ | <3.9 UJ |
| N-methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) | NE | NE | 3.4 | 0.19 JB | <10 | <10 | <2.0 UJ | <2.0 UJ | 0.26 JB | <10 | <10 | <1.9 UJ | 0.19 JB | <10 | <10 | <1.9 UJ | <1.9 UJ |
| N-Ethyl Perfluorooctane Sulfonamidoacetic acid (EtFOSAA) | NE | NE | 38.29 | 0.63 J | <10 | <10 | <4.0 UJ | <4.0 UJ | 0.1 J | <10 | <10 | <3.8 NA | 2.18 J | <10 | <10 | <3.9 UJ | 5.5 J |
| Perfluorobutanesulfonamide (PFBSA) | NE | NE | 100 | NA | NA | NA | <2.0 UJ | <2.0 UJ | NA | NA | NA | <1.9 UJ | NA | NA | NA | <1.9 UJ | <1.9 UJ |
| Perfluorohexanesulfonamide (PFHxSA) | NE | NE | 93 | NA | NA | NA | <2.0 UJ | <2.0 UJ | NA | NA | NA | <1.9 UJ | NA | NA | NA | 1.9 | 1.5 J |
| Perfluorooctane Sulfonamide (FOSA) | NE | NE | 1.1 | 0.88 JB | <10 | <10 | <2.0 UJ | 0.6 JB | <10 | <10 | <1.9 UJ | 0.31 JB | <10 | <10 | <1.9 UJ | <1.9 UJ | J |
| Hexafluoropropylene oxide dimer (HFPO-DA) | 370 | NE | 1.29 | 0.66 J | <2 | <2 | <9.9 UJ | <2.0 UJ | 1.29 J | <2 | <2 | <9.6 UJ | 0.06 J | <2 | <2 | <9.7 UJ | <1.9 UJ |
| 11-chloroicosafauro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | NE | NE | 0.3 | 0.18 JB | <2 | <2 | <2.0 UJ | <2.0 UJ | 0.23 JB | <2 | <2 | <1.9 UJ | 0.24 JB | <2 | <2 | <1.9 UJ | <1.9 UJ |
| 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS) | NE | NE | 0.19 | 0.11 JB | <2 | <2 | <2.0 UJ | <2.0 UJ | 0.14 JB | <2 | <2 | <1.9 UJ | 0.17 JB | <2 | <2 | <1.9 UJ | <1.9 UJ |
| 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | NE | NE | 0 | <2 | <2 | <2 | <2.0 UJ | <2 | <2 | <2 | <2 | <1.9 UJ | <2 | <2 | <2 | <1.9 UJ | <1.9 UJ |
| Perfluoro-4-ethylcyclohexanesulfonate (PFECBS) | NE | NE | 24 | 0.11 JB | NA | NA | 4.1 | 4.7 J | NA | NA | NA | 18 | NA | NA | NA | 14 | 9.2 J |
| Total PFAS | | | | 36.45 | 39.67 | 52.83 | 29.1 | 25.8 | 70.66 | 50.76 | 96.82 | 108.14 | 133.28 | 93.98 | 146.37 | 154.8 | 127 |

Notes:

Bold values indicate analyte detection is at or above the Limit of Detection

Analyte detected exceeds Groundwater Surface Water Interface (GSI) Criteria

Analyte detected exceeds Residential/Nonresidential Drinking Water Criteria

Analyte detected exceeds Residential/Nonresidential Drinking Water and GSI Criteria

Generic Part 201 Criteria from Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 201. Effective Date: October 12, 2023.

GSI criterion for PFOA, PFOA, PFBS, PFHxS, and PFNA are Rule 57 Surface Water Quality Human Noncancer Values (HNV) for a drinking water source from EGLE Surface Water Assessment Section. Updated October 12, 2023.

-MW-11, MW-12, MW-18, MW-19, MW-20, MW-27, MW-30, MW-31 and MW-32 have had a change in designation since installation. The monitoring wells are referred to as piezometers, as designated by the prefix "PZ" in the analytical report for these results and soil boring logs.

-Samples collected by Golder Associates, USA Inc. from May 2021 through January 2022

<: Analyte was not detected above the associated limit of detection.

B: Sample result is an estimate due to contamination in the blank.

(D): Indicates duplicate sample

I: Sample result is an estimate due to low internal standard recovery

J: The reported result is an estimate quantity with an unknown bias

NA: Not analyzed

ND: Analyte was not detected

NE: Criterion not established

ng/L: nanograms per liter

UJ: The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Table 4
Monitoring Well and Piezometer Groundwater Analytical Results-PFAS
Former JB Sims Generating Station
Harbor Island, Grand Haven, Michigan

| Sample ID | Residential & Nonresidential Drinking Water Criteria | Groundwater Surface Water Interface Criteria | MW-04 | MW-04 | MW-04 | MW-04 | MW-04 | MW-05 | MW-05 | MW-05 | MW-05 | MW-06 | MW-06 | MW-06 | MW-06 | MW-07 | MW-07 | MW-07 | MW-07 |
|---|--|--|--------------|-------------|---------------|--------------|--------------|--------------|--------------|--------------|-----------|--------------|--------------|--------------|--------------|-------------|-------------|----------|----------|
| | | | 5/21/21 | 10/26/21 | 1/11/22 | 2/1/23 | 5/2/23 | 5/21/21 | 10/26/21 | 1/11/22 | 1/31/23 | 5/21/21 | 10/26/21 | 1/11/22 | 2/1/23 | 5/21/21 | 10/26/21 | 1/11/22 | 1/30/23 |
| PFAS, Method: ASTM D7979-19M: (ng/L)*****VARIABLES***** | | | | | | | | | | | | | | | | | | | |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTSA) | NE | NE | <2 | <2 | <2 | 1.8 J | <2.0 UJ | <2 | <2 | <2 | <2.0 UJ | <2 | <2 | <2 | <2.1 UJ | <2 | <2 | <2 | <2.0 UJ |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTSA) | NE | NE | 3.88 JB | <20 | <20 | 9.7 | 7.1 J | 0.59 JB | <20 | <20 | <2.0 | 1.5 JB | <20 | <20 | <2.1 | 1.08 JB | <20 | <20 | <2.0 |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTSA) | NE | NE | <2 | <2 | <2 | <2.0 | <2.0 UJ | <2 | <2 | <2.0 | <2 | <2 | <2 | <2 | <2.1 | <2 | <2 | <2 | <2.0 |
| Perfluorobutane sulfonic acid (PFBS) | 420 | 8,300 | <2 | 3.12 | 4.32 | 24 | 21 J | 5.92 B | 8.27 | 8.15 | 5.4 | 2.06 JB | 2.2 | 2.11 | 1.9 J | 0.64 JB | <2 | <2 | <2.0 |
| Perfluoropentane sulfonic acid (PFPeS) | NE | NE | 2.05 JB | 4.26 I | 2.83 | 5.1 | 4.3 J | 1.13 JB | <2 | <2 | 1.1 J | 1.31 JB | <2 | <2 | 0.87 J | 0.17 JB | <2 | <2 | <2.0 |
| Perfluorohexane sulfonic acid (PFHxS) | 51 | 59 | 1.77 J | 3.44 | 4.21 | 6.8 | 7.7 J | 0.92 J | 2.34 | 2.19 | <2.0 | 0.41 J | <2 | <2 | 1.6 J | <2 | <2 | <2 | <2.0 |
| Perfluoroheptane sulfonic acid (PFHpS) | NE | NE | <2 | <2 | <2 | <2.0 | <2.0 UJ | <2 | <2 | <2.0 | <2 | 0.09 J | <2 | <2 | <2.1 | <2 | <2 | <2 | <2.0 |
| Perfluorooctane sulfonic acid (PFOS) | 16 | 11 | 11.7 B | 14.15 | 16.87 | 13 | 14 J | 0.07 JB | 4.28 | <2 | <2.0 | 17.26 B | 19.22 | 18.23 | 17 | 0.03 JB | <2 | <2 | <2.0 |
| Perfluorononane sulfonic acid (PFNS) | NE | NE | 0.44 JB | <2 | <2 | <2.0 | <2.0 UJ | 0.38 JB | <2 | <2 | <2.0 | 0.33 JB | <2 | <2 | <2.1 | 0.36 JB | <2 | <2 | <2.0 |
| Perfluorodecane sulfonic acid (PFDS) | NE | NE | 0.81 JB | <2 | <2 | <2.0 | <2.0 UJ | 1.08 JB | <2 | <2 | <2.0 | 0.93 JB | <2 | <2 | <2.1 | 1.01 JB | <2 | <2 | <2.0 |
| 3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA)) | NE | NE | NA | NA | NA | <3.9 | <4.0 UJ | NA | NA | NA | <3.9 | NA | NA | NA | <4.1 | NA | NA | NA | <4.0 |
| 3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA)) | NE | NE | NA | NA | NA | <3.9 | <4.0 UJ | NA | NA | NA | <3.9 | NA | NA | NA | <4.1 | NA | NA | NA | <4.0 |
| 3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA)) | NE | NE | NA | NA | NA | <3.9 | <4.0 UJ | NA | NA | NA | <3.9 | NA | NA | NA | <4.1 | NA | NA | NA | <4.0 |
| Perfluorobutanoic acid (PFBA) | NE | NE | <2 | <2 | 18.95 | 100 | 140 J | 15.58 B | 17.02 I | 21.67 | 16 | <2 | <2 | <2 | 24 | 1.9 JB | 2.29 I | <2 | <10 |
| Perfluoropentanoic acid (PFPeA) | NE | NE | <2 | <2 | 26.7 | 390 | 490 J | 31.5 B | 23.96 | 28.69 | 10 | <2 | <2 | <2 | 14 | 1.08 JB | <2 | <2 | <4.0 |
| Perfluorohexanoic acid (PFHxA) | 400,000 | NE | 20.37 B | 13.54 I | 16.75 | 170 | 170 J | 18.86 B | 14.46 | 14.31 | 6.2 | 2.18 JB | 3.03 I | 3.16 | 6.4 | <2 | <2 | <2 | <2.0 |
| Perfluoroheptanoic acid (PFHpA) | NE | NE | <2 | 2.09 I | 4.45 | 11 | 9.9 J | 6.91 B | <2 | 5.04 | 2.9 | 1.02 JB | <2 | <2 | 1.5 J | 0.05 JB | <2 | <2 | <2.0 |
| Perfluorooctanoic acid (PFOA) | 8 | 66 | 8.78 B | 6.3 I | 9.03 | 12 | 12 J | 5.3 B | 5.42 | 4.23 | 3.2 | 9.42 B | 6.94 | 7.28 | 6.5 | <2 | <2 | <2 | <2.0 |
| Perfluorononanoic acid (PFNA) | 6 | 19 | <2 | <2 | <2 | <2.0 | <2.0 UJ | <2 | <2 | <2 | <2.0 | <2 | <2 | <2 | <2.1 | <2 | <2 | <2 | <2.0 |
| Perfluorodecanoic acid (PFDA) | NE | NE | <2 | <2 | <2 | <2.0 | <2.0 UJ | <2 | <2 | <2 | <2.0 | <2 | <2 | <2 | <2.1 | <2 | <2 | <2 | <2.0 |
| Perfluoroundecanoic acid (PFUnDA) | NE | NE | 0.06 JB | <2 | <2 | <2.0 | <2.0 UJ | <2 | <2 | <2 | <2.0 | <2 | <2 | <2 | <2.1 | <2 | <2 | <2 | <2.0 |
| Perfluorododecanoic acid (PFDoDA) | NE | NE | <2 | <2 | <2 | <2.0 | <2.0 UJ | <2 | <2 | <2 | <2.0 | <2 | <2 | <2 | <2.1 | <2 | <2 | <2 | <2.0 |
| Perfluorotridecanoic acid (PFTrDA) | NE | NE | 0.76 JB | <2 | <2 | <2.0 | <2.0 UJ | 1.04 JB | <2 | <2 | <2.0 | 0.9 JB | <2 | <2 | <2.1 | 0.94 JB | <2 | <2 | <2.0 |
| Perfluorotetradecanoic acid (PFTeDA) | NE | NE | 0.48 JB | NA | <2 | <3.9 | <4.0 UJ | 0.65 JB | NA | <2 | <3.9 | 0.56 JB | NA | <2 | <4.1 | 0.63 JB | NA | <2 | <4.0 |
| N-methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) | NE | NE | 0.15 JB | <10 | <10 | <2.0 | <2.0 UJ | 0.16 JB | <10 | <10 | <2.0 | 0.14 JB | <10 | <10 | <2.1 | 0.18 JB | <10 | <10 | <2.0 |
| N-Ethyl Perfluorooctane Sulfonamidoacetic acid (EtFOSAA) | NE | NE | <10 | <10 | <10 | <3.9 | <4.0 UJ | <10 | <10 | <10 | <3.9 | 0.06 J | <10 | <10 | 4.0 J | <10 | <10 | <10 | <4.0 |
| Perfluorobutanesulfonamide (PFBSA) | NE | NE | NA | NA | NA | 5.1 | 4.6 J | NA | NA | NA | <2.0 | NA | NA | NA | <2.1 | NA | NA | NA | <2.0 |
| Perfluorohexanesulfonamide (PFHxSA) | NE | NE | NA | NA | NA | <2.0 | <2.0 UJ | NA | NA | NA | <2.0 | NA | NA | NA | <2.1 | NA | NA | NA | <2.0 |
| Perfluorooctane Sulfonamide (FOSA) | NE | NE | 0.37 JB | <10 | <10 | <2.0 | <2.0 UJ | 0.34 JB | <10 | <10 | <2.0 | 0.2 JB | <10 | <10 | <2.1 | 0.04 JB | <10 | <10 | <2.0 |
| Hexafluoropropylene oxide dimer (HFPO-DA) | 370 | NE | 0.25 J | <2 | <2 | <9.8 | <2.0 UJ | <2 | <2 | <2 | <9.8 | <2 | <2 | <2 | <10 | <2 | <2 | <2 | <10 |
| 11-chloroicosafafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | NE | NE | 0.23 JB | <2 | <2 | <2.0 | <2.0 UJ | 0.29 JB | <2 | <2 | <2.0 | 0.26 JB | <2 | <2 | <2.1 | 0.28 JB | <2 | <2 | <2.0 |
| 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS) | NE | NE | 0.14 JB | <2 | <2 | <2.0 UJ | <2.0 UJ | 0.19 JB | <2 | <2 | <2.0 | 0.16 JB | <2 | <2 | <2.1 UJ | 0.17 JB | <2 | <2 | <2.0 |
| 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | NE | NE | <2 | <2 | <2 | <2.0 | <2.0 UJ | <2 | <2 | <2 | <2.0 | <2 | <2 | <2 | <2.1 | <2 | <2 | <2 | <2.0 |
| Perfluoro-4-ethylcyclohexanesulfonate (PFECBS) | NE | NE | NA | NA | NA | 7.4 | 4.6 J | NA | NA | NA | 4.2 | NA | NA | NA | 6.4 | NA | NA | NA | <2.0 |
| Total PFAS | | | 52.24 | 46.9 | 104.11 | 755.9 | 885.2 | 90.91 | 75.75 | 84.28 | 49 | 38.79 | 31.39 | 30.78 | 84.17 | 8.56 | 2.29 | 0 | 0 |

Notes:
Bold values indicate analyte detection is at or above the Limit of Detection
Analyte detected exceeds Groundwater Surface Water Interface (GSI) Criteria
Analyte detected exceeds Residential/Nonresidential Drinking Water Criteria
Analyte detected exceeds Residential/Nonresidential Drinking Water and GSI Criteria
Generic Part 201 Criteria from Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 201. Effective Date: October 12, 2023.
GSI criterion for PFOA, PFOA, PFBS, PFHxS, and PFNA are Rule 57 Surface Water Quality Human Noncancer Values (HNV) for a drinking water source from EGLE Surface Water Assessment Section. Updated October 12, 2023.
-MW-11, MW-12, MW-18, MW-19, MW-20, MW-27, MW-30, MW-31 and MW-32 have had a change in designation since installation. The monitoring wells are referred to as piezometers, as designated by the prefix "PZ" in the analytical report for these results and soil boring logs.
-Samples collected by Golder Associates, USA Inc. from May 2021 through January 2022
<: Analyte was not detected above the associated limit of detection.
B: Sample result is an estimate due to contamination in the blank.
(D): Indicates duplicate sample
I: Sample result is an estimate due to low internal standard recovery
J: The reported result is an estimate quantity with an unknown bias
NA: Not analyzed
ND: Analyte was not detected
NE: Criterion not established
ng/L: nanograms per liter
UJ: The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Table 4
Monitoring Well and Piezometer Groundwater Analytical Results-PFAS
Former JB Sims Generating Station
Harbor Island, Grand Haven, Michigan

| Sample ID | Residential & Nonresidential Drinking Water Criteria | Groundwater Surface Water Interface Criteria | MW-08 | MW-08 | MW-08 | MW-08 | MW-08 | MW-09 | MW-09 | MW-09 | MW-09 | MW-10 | MW-10 | MW-10 | MW-10 | MW-10 | PZ-11 | MW-11 | PZ-12 | MW-12 |
|---|--|--|-----------------|---------------|---------------|--------------|--------------|----------------|---------------|-------------|--------------|----------------|--------------|---------------|--------------|--------------|---------------|--------------|---------------|---------------|
| | | | 5/21/21 | 10/26/21 | 1/11/22 | 1/31/23 | 5/2/23 | 5/21/21 | 10/26/21 | 1/11/22 | 2/2/23 | 5/21/21 | 10/26/21 | 1/6/22 | 2/1/23 | 5/2/23 | 1/12/22 | 2/1/23 | 1/12/22 | 2/1/23 |
| PFAS, Method: ASTM D7979-19M: (ng/L)*****VARIES**** | | | | | | | | | | | | | | | | | | | | |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTSA) | NE | NE | <2 | <2 | <2 | <2.0 UJ | <2.0 UJ | <2 | <2 | <2 | <1.9 UJ | <2 | <2 | <2 | <2.0 UJ | <1.9 UJ | <2 | <2.0 UJ | <2 | <1.9 UJ |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTSA) | NE | NE | 3.52 JB | <20 | <20 | <2.0 | <2.0 UJ | 1.35 JB | <20 | <20 | <1.9 | 1.55 JB | <20 | <20 | <2.0 UJ | <1.9 UJ | <20 | <2.0 UJ | <20 | <1.9 UJ |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTSA) | NE | NE | <2 | <2 | <2 | <2.0 | <2.0 UJ | <2 | <2 | <2 | <1.9 | <2 | <2 | <2 | <2.0 UJ | <1.9 UJ | <2 | <2.0 UJ | <2 | <1.9 UJ |
| Perfluorobutane sulfonic acid (PFBS) | 420 | 8,300 | 2.47 JB | 3.01 | 2.47 | 2.6 | 1.8 J | 0.39 JB | <2 | <2 | 1.5 J | 1.78 JB | 2.08 | 2.09 | 1.2 J | <1.9 UJ | 2.38 | 2.3 | <2 | 1.0 J |
| Perfluoropentane sulfonic acid (PFPeS) | NE | NE | 1.88 JB | 5.21 I | 2.72 | 1.3 J | <2.0 UJ | 0.45 JB | <2 | <2 | <1.9 | 1.35 JB | <2 | <2 | <2.0 UJ | <1.9 UJ | <2 | <2.0 UJ | <2 | <1.9 UJ |
| Perfluorohexane sulfonic acid (PFHxS) | 51 | 59 | 3.77 | 6.64 | 5.75 | 5.0 | 4.5 J | 0.43 J | <2 | <2 | <1.9 | 2.11 J | 3.26 | 2.81 | <2.0 | <1.9 UJ | <2 | <2.0 UJ | 7.17 | 2.6 |
| Perfluoroheptane sulfonic acid (PFHpS) | NE | NE | 1.75 J | 5.89 I | 3.49 | 1.7 J | <2.0 UJ | 0.16 J | <2 | <2 | <1.9 | 0.89 J | <2 | <2 | <2.0 UJ | <1.9 UJ | <2 | <2.0 UJ | <2 | <1.9 UJ |
| Perfluorooctane sulfonic acid (PFOS) | 16 | 11 | 235.78 B | 289.88 | 282.73 | 160 | 99 J | 42.7 B | 38.13 | 37.2 | 30 | 77.34 B | 84.97 | 83.56 | 30 | 13 J | 23.92 | 9.5 | 18.99 | 8.6 |
| Perfluorononane sulfonic acid (PFNS) | NE | NE | 0.4 JB | <2 | <2 | <2.0 | <2.0 UJ | 0.38 JB | <2 | <2 | <1.9 | 0.44 JB | <2 | <2 | <2.0 UJ | <1.9 UJ | <2 | <2.0 UJ | <2 | <1.9 UJ |
| Perfluorodecane sulfonic acid (PFDS) | NE | NE | 1.1 JB | <2 | <2 | <2.0 | <2.0 UJ | 1.04 JB | <2 | <2 | <1.9 | 1.1 JB | <2 | <2 | <2.0 UJ | <1.9 UJ | <2 | <2.0 UJ | <2 | <1.9 UJ |
| 3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA)) | NE | NE | NA | NA | NA | <4.0 | <4.0 UJ | NA | NA | NA | <3.8 | NA | NA | NA | <3.9 | <3.9 UJ | NA | <3.9 | NA | <3.9 |
| 3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA)) | NE | NE | NA | NA | NA | <4.0 | <4.0 UJ | NA | NA | NA | <3.8 | NA | NA | NA | <3.9 | <3.9 UJ | NA | <3.9 | NA | <3.9 |
| 3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA)) | NE | NE | NA | NA | NA | <4.0 | <4.0 UJ | NA | NA | NA | <3.8 | NA | NA | NA | <3.9 | <3.9 UJ | NA | <3.9 | NA | <3.9 |
| Perfluorobutanoic acid (PFBA) | NE | NE | <2 | <2 | 7.95 | 10 J | <10 UJ | <2 | 2.31 I | <2 | 6.5 J | <2 | <2 | 10.14 | 13 | <13 UJ | <2 | 6.9 J | 16.08 | 13 |
| Perfluoropentanoic acid (PFPeA) | NE | NE | <2 | <2 | 7.47 | 6.6 | 7.0 J | <2 | <2 | <2 | <3.8 | <2 | <2 | <2 | 6.7 | 4.0 J | <2 | <3.9 | 55.83 | 25 |
| Perfluorohexanoic acid (PFHxA) | 400,000 | NE | 12 B | 7.81 I | <2 | 5.7 | 6.5 J | <2 | <2 | <2 | <1.9 | <2 | <2 | 6.66 I | 4.9 | 2.9 J | <2 | <2.0 | 28.98 | 15 |
| Perfluoroheptanoic acid (PFHpA) | NE | NE | <2 | 5.48 I | 5.74 | 5.2 | 5.3 J | 0.21 JB | <2 | <2 | <1.9 | <2 | <2 | 4.23 | 3.4 | 1.7 J | <2 | <2.0 | 17.72 | 10 |
| Perfluorooctanoic acid (PFOA) | 8 | 66 | 19.84 B | 17.97 | 18.5 | 20 | 20 J | 1.66 JB | <2 | <2 | 2.5 | 11.18 B | 8.64 | 10.7 I | 6.0 | 3.3 J | 4.69 I | 2.1 | 15.69 | 6.2 |
| Perfluorononanoic acid (PFNA) | 6 | 19 | 2.36 JB | 2.55 I | 3.23 | 2.3 | <2.0 UJ | <2 | <2 | <2 | <1.9 | 0.48 JB | <2 | <2 | 1.4 J | <1.9 UJ | <2 | <2.0 UJ | <2 | 2.3 |
| Perfluorodecanoic acid (PFDA) | NE | NE | <2 | <2 | <2 | <2.0 | <2.0 UJ | <2 | <2 | <2 | <1.9 | <2 | <2 | <2 | <2.0 UJ | <1.9 UJ | <2 | <2.0 UJ | <2 | <1.9 UJ |
| Perfluoroundecanoic acid (PFUnDA) | NE | NE | <2 | <2 | <2 | <2.0 | <2.0 UJ | 1.19 JB | <2 | <2 | <1.9 | <2 | <2 | <2 | <2.0 UJ | <1.9 UJ | <2 | <2.0 UJ | <2 | <1.9 UJ |
| Perfluorododecanoic acid (PFDoDA) | NE | NE | <2 | <2 | <2 | <2.0 | <2.0 UJ | <2 | <2 | <2 | <1.9 | <2 | <2 | <2 | <2.0 UJ | <1.9 UJ | <2 | <2.0 UJ | <2 | <1.9 UJ |
| Perfluorotridecanoic acid (PFTrDA) | NE | NE | 1.01 JB | <2 | <2 | <2.0 | <2.0 UJ | 0.91 JB | <2 | <2 | <1.9 | 1.03 JB | <2 | <2 | <2.0 UJ | <1.9 UJ | <2 | <2.0 UJ | <2 | <1.9 UJ |
| Perfluorotetradecanoic acid (PFTeDA) | NE | NE | 0.67 JB | NA | <2 | <4.0 | <4.0 UJ | 0.59 JB | NA | <2 | <3.8 | 0.68 JB | NA | <2 | <3.9 | <3.9 UJ | <2 | <3.9 | <2 | <3.9 |
| N-methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) | NE | NE | 0.22 JB | <10 | <10 | <2.0 | <2.0 UJ | 0.14 JB | <10 | <10 | <1.9 | 0.2 JB | <10 | <10 | <2.0 | <1.9 UJ | <10 | <2.0 | <10 | <1.9 UJ |
| N-Ethyl Perfluorooctane Sulfonamidoacetic acid (EtFOSAA) | NE | NE | 0.23 J | <10 | <10 | <4.0 | 5.9 J | <10 | <10 | <10 | <3.8 | 2.91 J | <10 | 10.05 | 5.3 | 3.1 J | <10 | <3.9 | <10 | <3.9 |
| Perfluorobutanesulfonamide (PFBSA) | NE | NE | NA | NA | NA | <2.0 | <2.0 UJ | NA | NA | NA | <1.9 | NA | NA | NA | <2.0 | <1.9 UJ | NA | <2.0 | NA | 2.0 |
| Perfluorohexanesulfonamide (PFHxSA) | NE | NE | NA | NA | NA | 1.1 J | <2.0 UJ | NA | NA | NA | <1.9 | NA | NA | NA | <2.0 | <1.9 UJ | NA | <2.0 | NA | 0.89 J |
| Perfluorooctane Sulfonamide (FOSA) | NE | NE | 0.4 JB | <10 | <10 | <2.0 | <2.0 UJ | 0.18 JB | <10 | <10 | <1.9 | 0.12 JB | <10 | <10 | <2.0 | <1.9 UJ | <10 | <2.0 | <10 | <1.9 UJ |
| Hexafluoropropylene oxide dimer (HFPO-DA) | 370 | NE | <2 | <2 | <2 | <10 | <2.0 UJ | <2 | <2 | <2 | <9.5 | <2 | <2 | <2 | <9.8 | <1.9 UJ | <2 | <9.9 | <2 | <9.7 |
| 11-chloroicosafafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | NE | NE | 0.3 JB | <2 | <2 | <2.0 | <2.0 UJ | 0.27 JB | <2 | <2 | <1.9 | 0.3 JB | <2 | <2 | <2.0 UJ | <1.9 UJ | <2 | <2.0 UJ | <2 | <1.9 UJ |
| 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS) | NE | NE | 0.18 JB | <2 | <2 | <2.0 | <2.0 UJ | 0.18 JB | <2 | <2 | <1.9 UJ | 0.19 JB | <2 | <2 | <2.0 UJ | <1.9 UJ | <2 | <2.0 UJ | <2 | <1.9 UJ |
| 4,8-dioxo-3H-perfluorononanoic acid (ADONA) | NE | NE | <2 | <2 | <2 | <2.0 | <2.0 UJ | <2 | <2 | <2 | <1.9 | <2 | <2 | <2 | <2.0 UJ | <1.9 UJ | <2 | <2.0 UJ | <2 | <1.9 UJ |
| Perfluoro-4-ethylcyclohexanesulfonate (PFECBS) | NE | NE | NA | NA | NA | 7.2 | 6.4 J | NA | NA | NA | 2.7 | NA | NA | NA | 1.2 J | <1.9 UJ | NA | 3.1 | NA | <1.9 UJ |
| Total PFAS | | | 287.88 | 344.44 | 340.05 | 228.7 | 156.4 | 52.23 | 40.44 | 37.2 | 43.2 | 103.65 | 98.95 | 130.24 | 73.1 | 28.0 | 30.99 | 23.9 | 160.46 | 86.59 |

Notes:
Bold values indicate analyte detection is at or above the Limit of Detection
Analyte detected exceeds Groundwater Surface Water Interface (GSI) Criteria
Analyte detected exceeds Residential/Nonresidential Drinking Water Criteria
Analyte detected exceeds Residential/Nonresidential Drinking Water and GSI Criteria
Generic Part 201 Criteria from Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 201. Effective Date: October 12, 2023.
GSI criterion for PFOA, PFOA, PFBS, PFHxS, and PFNA are Rule 57 Surface Water Quality Human Noncancer Values (HNV) for a drinking water source from EGLE Surface Water Assessment Section. Updated October 12, 2023.
-MW-11, MW-12, MW-18, MW-19, MW-20, MW-27, MW-30, MW-31 and MW-32 have had a change in designation since installation. The monitoring wells are referred to as piezometers, as designated by the prefix "PZ" in the analytical report for these results and soil boring logs.
-Samples collected by Golder Associates, USA Inc. from May 2021 through January 2022
<: Analyte was not detected above the associated limit of detection.
B: Sample result is an estimate due to contamination in the blank.
(D): Indicates duplicate sample
I: Sample result is an estimate due to low internal standard recovery
J: The reported result is an estimate quantity with an unknown bias
NA: Not analyzed
ND: Analyte was not detected
NE: Criterion not established
ng/L: nanograms per liter
UJ: The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Table 4
Monitoring Well and Piezometer Groundwater Analytical Results-PFAS
Former JB Sims Generating Station
Harbor Island, Grand Haven, Michigan

| Sample ID | Residential & Nonresidential Drinking Water Criteria | Groundwater Surface Water Interface Criteria | PZ-13 | PZ-13 | PZ-13 | PZ-13 | PZ-14 | PZ-14 | PZ-14 | PZ-14 | | PZ-15 | PZ-15 | PZ-15 | PZ-16 | PZ-16 | PZ-16 | PZ-17 | PZ-17 | | | | | | | | | |
|--|--|--|---------------|---------------|---------------|---------------|-------------|-------------|-------------|------------|--------------|-------------|-------------|-------------|--------------|--------------|--------------|---------------|---------------|------|------|--------|-------|------|-------|------|--------|------|
| | | | 10/27/21 | 1/12/22 | 1/30/23 | 5/2/23 | 10/27/21 | 1/12/22 | 2/2/23 | 5/2/23 | 5/2/2023 (D) | 10/27/21 | 1/12/22 | 2/2/23 | 10/27/21 | 1/12/22 | 2/2/23 | 10/27/21 | 2/2/23 | | | | | | | | | |
| PFAS, Method: ASTM D7979-19M: (ng/L)*****VARIABLES***** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTSA) | NE | NE | 7.71 | 30.63 | 8.7 | J | 13 | J | <2 | <2 | <2.1 | UJ | <2.0 | UJ | <2.0 | UJ | <2 | <2 | <2.0 | <2 | <1.9 | UJ | <2 | 3.3 | J | | | |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTSA) | NE | NE | 600.1 | 2149.54 | 1200 | J | 1500 | J | <20 | <20 | <2.1 | UJ | <2.0 | UJ | <2.0 | UJ | <20 | <20 | <2.0 | <20 | <2.0 | <20 | <2.0 | <20 | <1.9 | UJ | 123.36 | 93 |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTSA) | NE | NE | 8.79 | 17.83 | 14 | J | 9.6 | J | <2 | <2 | <2.1 | UJ | <2.0 | UJ | <2.0 | UJ | <2 | <2 | <2.0 | <2 | <2.0 | <2 | <2.0 | <2 | <1.9 | UJ | <2 | <1.9 |
| Perfluorobutane sulfonic acid (PFBS) | 420 | 8,300 | 20.62 | 66.14 | 40 | J | 50 | J | <2 | <2 | <2.1 | UJ | <2.0 | UJ | <2.0 | UJ | <2 | <2 | 2.28 | 1.8 | J | 3.36 | 3.98 | 4.7 | 17.12 | 24 | | |
| Perfluoropentane sulfonic acid (PFPeS) | NE | NE | <2 | 124.01 | 31 | J | 37 | J | <2 | <2 | <2.1 | UJ | <2.0 | UJ | <2.0 | UJ | <2 | <2 | <2.0 | <2 | J | <2 | 0.95 | J | 33.99 | 12 | | |
| Perfluorohexane sulfonic acid (PFHxS) | 51 | 59 | 80.47 | 311.33 | 110 | J | 140 | J | <2 | <2 | <2.1 | UJ | <2.0 | UJ | <2.0 | UJ | <2 | <2 | <2.0 | <2 | J | <2 | 1.5 | J | 23.73 | 28 | | |
| Perfluoroheptane sulfonic acid (PFHpS) | NE | NE | 5.64 | 18.82 | 4.5 | J | 5.8 | J | <2 | <2 | <2.1 | UJ | <2.0 | UJ | <2.0 | UJ | <2 | <2 | <2.0 | <2 | <2 | <2 | <2.0 | <2 | <1.9 | UJ | <2 | <1.9 |
| Perfluorooctane sulfonic acid (PFOS) | 16 | 11 | 92.67 | 272.92 | 160 | J | 120 | J | 7.97 | 8.35 | 4.6 | 4.5 | J | 4.5 | J | <2 | <2 | <2.0 | 4.73 | 4.34 | 2.9 | 19.69 | 13 | | | | | |
| Perfluorononane sulfonic acid (PFNS) | NE | NE | <2 | <2 | <2.0 | UJ | <2 | <2 | <2.1 | <2.1 | <2.0 | UJ | <2.0 | UJ | <2 | <2 | <2.0 | <2 | <2.0 | <2 | <2 | <2.0 | <2 | <2 | <1.9 | <2 | <1.9 | |
| Perfluorodecane sulfonic acid (PFDS) | NE | NE | <2 | <2 | <2.0 | UJ | <2 | <2 | <2.1 | <2.1 | <2.0 | UJ | <2.0 | UJ | <2 | <2 | <2.0 | <2 | <2.0 | <2 | <2 | <2.0 | <2 | <2 | <1.9 | <2 | <1.9 | |
| 3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA)) | NE | NE | NA | NA | <3.9 | <4.1 | UJ | NA | NA | <4.1 | <4.0 | UJ | <4.0 | UJ | NA | NA | <4.0 | NA | NA | NA | <3.9 | NA | <3.9 | NA | <3.9 | | | |
| 3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA)) | NE | NE | NA | NA | 4.4 | 13 | J | NA | NA | <4.1 | <4.0 | UJ | <4.0 | UJ | NA | NA | <4.0 | NA | NA | NA | <3.9 | NA | <3.9 | NA | <3.9 | | | |
| 3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA)) | NE | NE | NA | NA | <3.9 | <4.1 | UJ | NA | NA | <4.1 | <4.0 | UJ | <4.0 | UJ | NA | NA | <4.0 | NA | NA | NA | <3.9 | NA | <3.9 | NA | <3.9 | | | |
| Perfluorobutanoic acid (PFBA) | NE | NE | 100.29 | 254.93 | 300 | 400 | J | <2 | <2 | 4.4 | J | <9.9 | UJ | <9.9 | UJ | 2.79 | <2 | 6.0 | J | <2 | 9.34 | 12 | 85.46 | 120 | | | | |
| Perfluoropentanoic acid (PFPeA) | NE | NE | 393.52 | 1467.65 | 1400 | 1900 | J | <2 | <2 | 2.8 | J | 2.4 | J | 2.1 | J | <2 | <2 | <4.0 | <2 | 7.21 | 4.8 | 365.98 | 390 | | | | | |
| Perfluorohexanoic acid (PFHxA) | 400,000 | NE | 263.37 | 889.62 | 710 | 1200 | J | <2 | <2 | 1.4 | J | 2.1 | J | 2.4 | J | <2 | <2 | 1.6 | J | <2 | 5.4 | 3.6 | 204.6 | 220 | | | | |
| Perfluoroheptanoic acid (PFHpA) | NE | NE | <2 | 158.72 | 140 | 180 | J | <2 | <2 | 1.0 | J | <2.0 | UJ | <2.0 | UJ | <2 | <2 | 1.2 | J | <2 | 4.0 | 3.8 | <2 | 43 | | | | |
| Perfluorooctanoic acid (PFOA) | 8 | 66 | 48.93 | 134.68 | 59 | 73 | J | <2 | <2 | <2.1 | UJ | <2.0 | UJ | <2.0 | UJ | <2 | <2 | <2.0 | 4.2 | 5.39 | 3.3 | 24.44 | 24 | | | | | |
| Perfluorononanoic acid (PFNA) | 6 | 19 | 2.69 | 5.38 | 3.3 | 3.6 | J | <2 | <2 | <2.1 | UJ | <2.0 | UJ | <2.0 | UJ | <2 | <2 | <2.0 | <2 | <2 | <2.0 | <2 | <2 | <1.9 | <2 | 1.1 | J | |
| Perfluorodecanoic acid (PFDA) | NE | NE | <2 | <2 | <2.0 | <2.1 | UJ | <2 | <2 | <2.1 | UJ | <2.0 | UJ | <2.0 | UJ | <2 | <2 | <2.0 | <2 | <2 | <2.0 | <2 | <2 | <1.9 | <2 | 0.85 | J | |
| Perfluoroundecanoic acid (PFUnDA) | NE | NE | <2 | <2 | <2.0 | <2.1 | UJ | <2 | <2 | <2.1 | UJ | <2.0 | UJ | <2.0 | UJ | <2 | <2 | <2.0 | <2 | <2 | <2.0 | <2 | <2 | <1.9 | <2 | <1.9 | | |
| Perfluorododecanoic acid (PFDoDA) | NE | NE | <2 | <2 | <2.0 | <2.1 | UJ | <2 | <2 | <2.1 | UJ | <2.0 | UJ | <2.0 | UJ | <2 | <2 | <2.0 | <2 | <2 | <2.0 | <2 | <2 | <1.9 | <2 | <1.9 | | |
| Perfluorotridecanoic acid (PFTeDA) | NE | NE | <2 | <2 | <2.0 | <2.1 | UJ | <2 | <2 | <2.1 | UJ | <2.0 | UJ | <2.0 | UJ | <2 | <2 | <2.0 | <2 | <2 | <2.0 | <2 | <2 | <1.9 | <2 | <1.9 | | |
| Perfluorotetradecanoic acid (PFTeDA) | NE | NE | NA | <2 | <3.9 | <4.1 | UJ | NA | NA | <4.1 | <4.0 | UJ | <4.0 | UJ | NA | NA | <4.0 | NA | <2 | <3.9 | NA | <3.9 | NA | <3.9 | | | | |
| N-methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) | NE | NE | <10 | <10 | <2.0 | <2.1 | UJ | <10 | <10 | <2.1 | UJ | <2.0 | UJ | <2.0 | UJ | <10 | <10 | <2.0 | <10 | <10 | <1.9 | <10 | <1.9 | <10 | <1.9 | | | |
| N-Ethyl Perfluorooctane Sulfonamidoacetic acid (EtFOSAA) | NE | NE | <10 | <10 | <3.9 | <4.1 | UJ | <10 | <10 | <4.1 | <4.0 | UJ | <4.0 | UJ | <10 | <10 | <4.0 | <10 | <10 | <10 | <3.9 | <10 | <3.9 | <10 | <3.9 | | | |
| Perfluorobutanesulfonamide (PFBSA) | NE | NE | NA | NA | 76 | 100 | J | NA | NA | <2.1 | <2.0 | UJ | <2.0 | UJ | NA | NA | <2.0 | NA | NA | NA | <1.9 | NA | <1.9 | NA | 10 | | | |
| Perfluorohexanesulfonamide (PFHxSA) | NE | NE | NA | NA | 71 | 93 | J | NA | NA | <2.1 | <2.0 | UJ | <2.0 | UJ | NA | NA | <2.0 | NA | NA | NA | <1.9 | NA | <1.9 | NA | 2.2 | | | |
| Perfluorooctane Sulfonamide (FOSA) | NE | NE | <10 | <10 | <2.0 | <2.1 | UJ | <10 | <10 | <2.1 | UJ | <2.0 | UJ | <2.0 | UJ | <10 | <10 | <2.0 | <10 | <10 | <1.9 | <10 | <1.9 | <10 | <1.9 | | | |
| Hexafluoropropylene oxide dimer (HFPO-DA) | 370 | NE | <2 | <2 | <9.9 | <2.1 | UJ | <2 | <2 | <10 | <2.0 | UJ | <2.0 | UJ | <2 | <2 | <10 | <2 | <2 | <2 | <2 | <2 | <2 | <9.7 | <2 | <9.7 | | |
| 11-chloroicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | NE | NE | <2 | <2 | <2.0 | <2.1 | UJ | <2 | <2 | <2.1 | UJ | <2.0 | UJ | <2.0 | UJ | <2 | <2 | <2.0 | <2 | <2 | <2.0 | <2 | <2 | <1.9 | <2 | <1.9 | | |
| 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS) | NE | NE | <2 | <2 | <2.0 | <2.1 | UJ | <2 | <2 | <2.1 | UJ | <2.0 | UJ | <2.0 | UJ | <2 | <2 | <2.0 | <2 | <2 | <2.0 | <2 | <2 | <1.9 | UJ | <2 | <1.9 | |
| 4,8-dioxo-3H-perfluorononanoic acid (ADONA) | NE | NE | <2 | <2 | <2.0 | <2.1 | UJ | <2 | <2 | <2.1 | UJ | <2.0 | UJ | <2.0 | UJ | <2 | <2 | <2.0 | <2 | <2 | <2.0 | <2 | <2 | <1.9 | <2 | <1.9 | | |
| Perfluoro-4-ethylcyclohexanesulfonate (PFECBS) | NE | NE | NA | NA | 1.7 | J | 1.7 | J | NA | NA | <2.1 | <2.0 | UJ | <2.0 | UJ | NA | NA | <2.0 | NA | J | NA | 1.7 | J | NA | 3.2 | | | |
| Total PFAS | | | 1624.8 | 5902.2 | 4333.6 | 5839.7 | 7.97 | 8.35 | 14.2 | 9.0 | 9.0 | 2.79 | 2.28 | 10.6 | 12.29 | 39.66 | 39.25 | 898.37 | 987.65 | | | | | | | | | |

Notes:
Bold values indicate analyte detection is at or above the Limit of Detection
Analyte detected exceeds Groundwater Surface Water Interface (GSI) Criteria
Analyte detected exceeds Residential/Nonresidential Drinking Water Criteria
Analyte detected exceeds Residential/Nonresidential Drinking Water and GSI Criteria
Generic Part 201 Criteria from Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 201. Effective Date: October 12, 2023.
GSI criterion for PFOA, PFOA, PFBS, PFHxS, and PFNA are Rule 57 Surface Water Quality Human Noncancer Values (HNV) for a drinking water source from EGLE Surface Water Assessment Section. Updated October 12, 2023.
-MW-11, MW-12, MW-18, MW-19, MW-20, MW-27, MW-30, MW-31 and MW-32 have had a change in designation since installation. The monitoring wells are referred to as piezometers, as designated by the prefix "PZ" in the analytical report for these results and soil boring logs.
-Samples collected by Golder Associates, USA Inc. from May 2021 through January 2022
<: Analyte was not detected above the associated limit of detection.
B: Sample result is an estimate due to contamination in the blank.
(D): Indicates duplicate sample
I: Sample result is an estimate due to low internal standard recovery
J: The reported result is an estimate quantity with an unknown bias
NA: Not analyzed
ND: Analyte was not detected
NE: Criterion not established
ng/L: nanograms per liter
UJ: The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Table 4
Monitoring Well and Piezometer Groundwater Analytical Results-PFAS
Former JB Sims Generating Station
Harbor Island, Grand Haven, Michigan

| Sample ID | Residential & Nonresidential Drinking Water Criteria | Groundwater Surface Water Interface Criteria | PZ-18 | MW-18 | PZ-19 | MW-19 | PZ-20 | MW-20 | PZ-23 | PZ-23 | PZ-23 | PZ-23 | PZ-24 | PZ-24 | PZ-24 | PZ-25 | PZ-25 | PZ-25 |
|--|--|--|---------------|-------------|---------------|--------------|---------------|--------------|--------------|--------------|-------------|-------------|-------------|--------------|-----------|--------------|--------------|----------|
| | | | 10/27/21 | 1/31/23 | 10/28/21 | 1/31/23 | 10/28/21 | 1/31/23 | 10/28/21 | 2/1/23 | 10/27/21 | 1/12/22 | 1/30/23 | 5/3/23 | 10/27/21 | 1/12/22 | 1/30/23 | 10/27/21 |
| PFAS, Method: ASTM D7979-19M: (ng/L)*****VARIES**** | | | | | | | | | | | | | | | | | | |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTSA) | NE | NE | <2 | <1.9 UJ | <2 | <2.0 | <2 | <2.0 UJ | <2 | <2 | <2.0 UJ | <1.9 UJ | <2 | <2 | <1.9 UJ | <2 | <2 | <2.0 UJ |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTSA) | NE | NE | <20 | 1.9 J | <20 | 1.9 J | <20 | 1.9 J | <20 | <20 | <2.0 | <1.9 UJ | <20 | <20 | <1.9 UJ | <20 | <20 | <2.0 |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTSA) | NE | NE | <2 | <1.9 | <2 | <2.0 | <2 | <2.0 | <2 | <2 | <2.0 | <1.9 UJ | <2 | <2 | <1.9 UJ | <2 | <2 | <2.0 |
| Perfluorobutane sulfonic acid (PFBS) | 420 | 8,300 | 3.97 | 3.0 | 4.9 | 4.7 | 11.23 | 4.7 | <2 | 3.25 | 3.5 | 2.3 J | <2 | <2 | 1.8 J | 2.83 | 2.46 | <2.0 |
| Perfluoropentane sulfonic acid (PFPeS) | NE | NE | 2.95 I | <1.9 | 3.08 | 2.4 | 9.35 | 2.4 | <2 | <2 | <2.0 | <1.9 UJ | <2 | <2 | <1.9 UJ | <2 | <2 | <2.0 |
| Perfluorohexane sulfonic acid (PFHxS) | 51 | 59 | 5.9 | 2.5 | 4.37 | 6.3 | 13.07 | 6.3 | <2 | <2 | <2.0 | <1.9 UJ | <2 | 2.13 | 1.5 J | <2 | <2 | <2.0 |
| Perfluoroheptane sulfonic acid (PFHpS) | NE | NE | <2 | <1.9 | <2 | <2.0 | <2 | <2.0 | <2 | <2 | <2.0 | <1.9 UJ | <2 | <2 | <1.9 UJ | <2 | <2 | <2.0 |
| Perfluorooctane sulfonic acid (PFOS) | 16 | 11 | 18.29 | 4.2 | 6.22 | 6.8 | 11.95 | 6.8 | 11.4 | 4.09 | <2.0 | <1.9 UJ | 2.88 | 5.62 | 4.9 | 5.26 | 3.05 | <2.0 |
| Perfluorononane sulfonic acid (PFNS) | NE | NE | <2 | <1.9 | <2 | <2.0 | <2 | <2.0 | <2 | <2 | <2.0 | <1.9 UJ | <2 | <2 | <1.9 UJ | <2 | <2 | <2.0 |
| Perfluorodecane sulfonic acid (PFDS) | NE | NE | <2 | <1.9 | <2 | <2.0 | <2 | <2.0 | <2 | <2 | <2.0 | <1.9 UJ | <2 | <2 | <1.9 UJ | <2 | <2 | <2.0 |
| 3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA)) | NE | NE | NA | <3.9 | NA | <3.9 | NA | <3.9 | NA | NA | <4.0 | <3.9 UJ | NA | NA | <3.7 | NA | NA | <3.9 |
| 3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA)) | NE | NE | NA | <3.9 | NA | <3.9 | NA | <3.9 | NA | NA | <4.0 | <3.9 UJ | NA | NA | <3.7 | NA | NA | <3.9 |
| 3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA)) | NE | NE | NA | <3.9 | NA | <3.9 | NA | <3.9 | NA | NA | <4.0 | <3.9 UJ | NA | NA | <3.7 | NA | NA | <3.9 |
| Perfluorobutanoic acid (PFBA) | NE | NE | 18.82 I | 16 | 31.22 I | 26 | 41 I | 26 | 5.08 I | 15.67 | 20 | 14 J | 9.32 I | <2 | <1.9 | 13.05 I | <2 | <3.9 |
| Perfluoropentanoic acid (PFPeA) | NE | NE | 28.95 I | 23 | 78.26 | 75 | 148.93 | 75 | <2 | 6.12 | 7.9 | 5.2 J | <2 | <2 | <3.7 | <2 | 4.8 I | <4.9 |
| Perfluorohexanoic acid (PFHxA) | 400,000 | NE | 21.1 | 12 | 39.21 | 39 | 67.09 | 39 | 4.22 | 8.66 | 8.6 | 6.6 J | <2 | 2.29 I | 3.0 | 6.31 I | 6.85 | 2.3 |
| Perfluoroheptanoic acid (PFHpA) | NE | NE | 11.66 | 7.2 | 10.29 | 12 | 22.86 | 12 | 2.53 | 3.91 | 3.4 | 2.5 J | <2 | <2 | 1.8 J | 2.18 | 4.6 | 1.2 J |
| Perfluorooctanoic acid (PFOA) | 8 | 66 | 17.69 | 5.8 | 5.4 | 7.3 | 11.01 | 7.3 | 22.24 | 12.85 | 3.7 | 4.0 J | 6.6 I | 18.57 | 14 | 6.99 | 10.83 | 2.5 |
| Perfluorononanoic acid (PFNA) | 6 | 19 | <2 | <1.9 | <2 | <2.0 | <2 | <2.0 | <2 | <2 | <2.0 | <1.9 UJ | <2 | <2 | <1.9 UJ | <2 | <2 | <2.0 |
| Perfluorodecanoic acid (PFDA) | NE | NE | <2 | <1.9 | <2 | <2.0 | <2 | <2.0 | <2 | <2 | <2.0 | <1.9 UJ | <2 | <2 | <1.9 UJ | <2 | <2 | <2.0 |
| Perfluoroundecanoic acid (PFUnDA) | NE | NE | <2 | <1.9 | <2 | <2.0 | <2 | <2.0 | <2 | <2 | <2.0 | <1.9 UJ | <2 | <2 | <1.9 UJ | <2 | <2 | <2.0 |
| Perfluorododecanoic acid (PFDoDA) | NE | NE | <2 | <1.9 | <2 | <2.0 | <2 | <2.0 | <2 | <2 | <2.0 | <1.9 UJ | <2 | <2 | <1.9 UJ | <2 | <2 | <2.0 |
| Perfluorotridecanoic acid (PFTrDA) | NE | NE | <2 | <1.9 | <2 | <2.0 | <2 | <2.0 | <2 | <2 | <2.0 | <1.9 UJ | <2 | <2 | <1.9 UJ | <2 | <2 | <2.0 |
| Perfluorotetradecanoic acid (PFTeDA) | NE | NE | NA | <3.9 | NA | <3.9 | NA | <3.9 | NA | <2 | <4.0 | <3.9 UJ | NA | <2 | <3.7 | NA | <2 | <3.9 |
| N-methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) | NE | NE | <10 | <1.9 | <10 | <2.0 | <10 | <2.0 | <10 | <10 | <2.0 | <1.9 UJ | <10 | <10 | <1.9 | <10 | <10 | <2.0 |
| N-Ethyl Perfluorooctane Sulfonamidoacetic acid (EtFOSAA) | NE | NE | <10 | <3.9 | <10 | <3.9 | <10 | <3.9 | <10 | <10 | <4.0 | <3.9 UJ | <10 | <10 | <3.7 | <10 | <10 | <3.9 |
| Perfluorobutanesulfonamide (PFBSA) | NE | NE | NA | 1.2 J | NA | 1.2 J | NA | 1.2 J | NA | NA | <2.0 | <1.9 UJ | NA | NA | <1.9 | NA | NA | <2.0 |
| Perfluorohexanesulfonamide (PFHxSA) | NE | NE | NA | <1.9 | NA | <2.0 | NA | <2.0 | NA | NA | <2.0 | <1.9 UJ | NA | NA | <1.9 | NA | NA | <2.0 |
| Perfluorooctane Sulfonamide (FOSA) | NE | NE | <10 | <1.9 | <10 | <2.0 | <10 | <2.0 | <10 | <10 | <2.0 | <1.9 UJ | <10 | <10 | <1.9 | <10 | <10 | <2.0 |
| Hexafluoropropylene oxide dimer (HFPO-DA) | 370 | NE | <2 | <9.7 | <2 | <9.8 | <2 | <9.8 | <2 | <2 | <10.0 | <1.9 UJ | <2 | <2 | <9.3 | <2 | <2 | <9.9 |
| 11-chloroicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | NE | NE | <2 | <1.9 | <2 | <2.0 | <2 | <2.0 | <2 | <2 | <2.0 | <1.9 UJ | <2 | <2 | <1.9 | <2 | <2 | <2.0 |
| 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS) | NE | NE | <2 | <1.9 | <2 | <2.0 | <2 | <2.0 | <2 | <2 | <2.0 | <1.9 UJ | <2 | <2 | <1.9 | <2 | <2 | <2.0 |
| 4,8-dioxo-3H-perfluorononanoic acid (ADONA) | NE | NE | <2 | <1.9 | <2 | <2.0 | <2 | <2.0 | <2 | <2 | <2.0 | <1.9 UJ | <2 | <2 | <1.9 | <2 | <2 | <2.0 |
| Perfluoro-4-ethylcyclohexanesulfonate (PFECHS) | NE | NE | NA | 2.5 | NA | 9.5 | NA | 9.5 | NA | NA | <2.0 | 1.2 J | NA | NA | <1.9 | NA | NA | <2.0 |
| Total PFAS | | | 129.33 | 79.3 | 182.95 | 192.1 | 336.49 | 192.1 | 45.47 | 54.55 | 47.1 | 35.8 | 18.8 | 28.61 | 27 | 36.62 | 32.59 | 6 |

Notes:
Bold values indicate analyte detection is at or above the Limit of Detection
Analyte detected exceeds Groundwater Surface Water Interface (GSI) Criteria
Analyte detected exceeds Residential/Nonresidential Drinking Water Criteria
Analyte detected exceeds Residential/Nonresidential Drinking Water and GSI Criteria
Generic Part 201 Criteria from Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 201. Effective Date: October 12, 2023.
GSI criterion for PFOA, PFOA, PFBS, PFHxS, and PFNA are Rule 57 Surface Water Quality Human Noncancer Values (HNV) for a drinking water source from EGLE Surface Water Assessment Section. Updated October 12, 2023.
-MW-11, MW-12, MW-18, MW-19, MW-20, MW-27, MW-30, MW-31 and MW-32 have had a change in designation since installation. The monitoring wells are referred to as piezometers, as designated by the prefix "PZ" in the analytical report for these results and soil boring logs.
-Samples collected by Golder Associates, USA Inc. from May 2021 through January 2022
<: Analyte was not detected above the associated limit of detection.
B: Sample result is an estimate due to contamination in the blank.
(D): Indicates duplicate sample
I: Sample result is an estimate due to low internal standard recovery
J: The reported result is an estimate quantity with an unknown bias
NA: Not analyzed
ND: Analyte was not detected
NE: Criterion not established
ng/L: nanograms per liter
UJ: The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Table 4
Monitoring Well and Piezometer Groundwater Analytical Results-PFAS
Former JB Sims Generating Station
Harbor Island, Grand Haven, Michigan

| Sample ID | Residential & Nonresidential Drinking Water Criteria | Groundwater Surface Water Interface Criteria | PZ-26 | PZ-26 | PZ-26 | PZ-27 | PZ-27 | MW-27 | | PZ-28 | PZ-28 | PZ-28 | PZ-28 | PZ-29 | PZ-30 | MW-30 | PZ-31 | PZ-31 | MW-31 |
|---|--|--|--------------|--------------|-------------|--------------|--------------|-------------|---------------|---------------|---------------|--------------|-------------|-----------|---------------|--------------|--------------|---------------|------------|
| | | | 10/27/21 | 1/12/22 | 1/30/23 | 10/27/21 | 1/13/22 | 1/31/23 | 1/31/2023 (D) | 1/13/22 | 10/27/21 | 1/31/23 | 5/2/23 | 2/2/23 | 10/28/21 | 1/31/23 | 10/27/21 | 1/13/22 | 1/31/23 |
| PFAS, Method: ASTM D7979-19M: (ng/L)*****VARIABLES***** | | | | | | | | | | | | | | | | | | | |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTSA) | NE | NE | <2 | <2 | <2.0 UJ | <2 | <2 | <1.9 UJ | <2.0 UJ | <2 | <2 | <2.0 UJ | <2.0 UJ | <2.0 UJ | <2 | <1.9 UJ | <2 | <2 | <2.0 UJ |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTSA) | NE | NE | <20 | <20 | <2.0 | <20 | <20 | <1.9 | <2.0 | <20 | <20 | <2.0 | <2.0 UJ | <2.0 UJ | <20 | 5.2 | <20 | <20 | <2.0 |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTSA) | NE | NE | <2 | <2 | <2.0 | <2 | <2 | <1.9 | <2.0 | <2 | <2 | <2.0 UJ | <2.0 UJ | <2 | <1.9 | <2 | <2 | <2 | <2.0 |
| Perfluorobutane sulfonic acid (PFBS) | 420 | 8,300 | 2.21 | 2.13 | 1.2 J | 3.56 | 3.78 | 4.0 | 3.5 | 4.56 | 5.24 | 4.5 | 4.7 J | 3.1 | 14.52 | 16 | 2.81 | 2.95 | 3.0 |
| Perfluoropentane sulfonic acid (PFPeS) | NE | NE | <2 | <2 | <2.0 | <2 | <2 | <1.9 | <2.0 | <2 | 4.34 I | <2.0 | <2.0 UJ | 0.90 J | 24.00 I | 8.7 | <2 | <2 | <2.0 |
| Perfluorohexane sulfonic acid (PFHxS) | 51 | 59 | <2 | <2 | 1.2 J | 3.0 | 2.32 | 3.5 | 2.6 | 4.3 | 5.23 | 3.4 | 3.3 J | 3.0 | 16.34 | 19 | 3.81 | 2.38 | 3.2 |
| Perfluoroheptane sulfonic acid (PFHpS) | NE | NE | <2 | <2 | <2.0 | <2 | <2 | <1.9 | <2.0 | <2 | <2 | <2.0 | <2.0 UJ | <2.0 | <2 | <1.9 | <2 | <2 | <2.0 |
| Perfluorooctane sulfonic acid (PFOS) | 16 | 11 | 20.29 | 18.05 | 7.1 | 12.97 | 11.86 | 9.0 | 11 | 34.23 | 39.58 | 16 | 19 J | 14 | 49.41 | 41 | 28.58 | 25.7 | 22 |
| Perfluorononane sulfonic acid (PFNS) | NE | NE | <2 | <2 | <2.0 | <2 | <2 | <1.9 | <2.0 | <2 | <2 | <2.0 | <2.0 UJ | <2.0 | <2 | <1.9 | <2 | <2 | <2.0 |
| Perfluorodecane sulfonic acid (PFDS) | NE | NE | <2 | <2 | <2.0 | <2 | <2 | <1.9 | <2.0 | <2 | <2 | <2.0 | <2.0 UJ | <2.0 | <2 | <1.9 | <2 | <2 | <2.0 |
| 3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA)) | NE | NE | NA | NA | <4.0 | NA | NA | <3.9 | <3.9 | NA | NA | <3.9 | <4.0 UJ | <4.0 | NA | <3.8 | NA | NA | <4.1 |
| 3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA)) | NE | NE | NA | NA | <4.0 | NA | NA | <3.9 | <3.9 | NA | NA | <3.9 | <4.0 UJ | <4.0 | NA | <3.8 | NA | NA | <4.1 |
| 3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA)) | NE | NE | NA | NA | <4.0 | NA | NA | <3.9 | <3.9 | NA | NA | <3.9 | <4.0 UJ | <4.0 | NA | <3.8 | NA | NA | <4.1 |
| Perfluorobutanoic acid (PFBA) | NE | NE | 16.85 I | 16.19 | 4.0 J | 11.69 I | 13.41 | 16 | 17 | 14.77 | 17.97 I | 17 | 10 J | 23 | 111.18 I | 83 | <2 | <2 | 19 |
| Perfluoropentanoic acid (PFPeA) | NE | NE | <2 | <2 | 1.3 J | <2 | 20.43 I | 25 | 22 | 34.71 | 45.66 I | 12 | 7.0 J | 11 | 418.14 I | 390 | <2 | 21.33 | 20 |
| Perfluorohexanoic acid (PFHxA) | 400,000 | NE | 3.47 | 2.79 | <2.0 | 8.22 I | 10.32 | 12 | 11 | 21.42 | 27.61 I | 7.5 | 6.3 J | 8.5 | 166.9 I | 150 | 10.43 | 13.51 | 11 |
| Perfluoroheptanoic acid (PFHpA) | NE | NE | <2 | <2 | <2.0 | 3.96 | 6.72 | 7.7 | 6.2 | 9.72 | 6.64 | 3.4 | 3.4 J | 5.6 | 44.89 | 46 | 8.78 | 12.32 | 9.0 |
| Perfluorooctanoic acid (PFOA) | 8 | 66 | 8.53 | 5.38 | 4.2 | 6.58 | 7.07 | 5.5 | 5.3 | 12.66 | 11.96 | 11 | 9.9 J | 11 | 16.14 | 15 | 6.42 | 7.0 | 5.5 |
| Perfluorononanoic acid (PFNA) | 6 | 19 | 2.11 | <2 | <2.0 | <2 | 2.05 | 1.5 J | 1.6 J | <2 | <2 | 0.78 J | <2.0 UJ | 1.3 J | <2 | <1.9 | <2 | <2 | 1.1 J |
| Perfluorodecanoic acid (PFDA) | NE | NE | <2 | <2 | <2.0 | <2 | <2 | <1.9 | <2.0 | <2 | <2 | <2.0 | <2.0 UJ | <2.0 | <2 | <1.9 | <2 | <2 | <2.0 |
| Perfluoroundecanoic acid (PFUnDA) | NE | NE | <2 | <2 | <2.0 | <2 | <2 | <1.9 | <2.0 | <2 | <2 | <2.0 | <2.0 UJ | <2.0 | <2 | <1.9 | <2 | <2 | <2.0 |
| Perfluorododecanoic acid (PFDoDA) | NE | NE | <2 | <2 | <2.0 | <2 | <2 | <1.9 | <2.0 | <2 | <2 | <2.0 | <2.0 UJ | <2.0 | <2 | <1.9 | <2 | <2 | <2.0 |
| Perfluorotridecanoic acid (PFTrDA) | NE | NE | <2 | <2 | <2.0 | <2 | <2 | <1.9 | <2.0 | <2 | <2 | <2.0 | <2.0 UJ | <2.0 | <2 | <1.9 | <2 | <2 | <2.0 |
| Perfluorotetradecanoic acid (PFTeDA) | NE | NE | NA | <2 | <4.0 | NA | <2 | <3.9 | <3.9 | <2 | NA | <3.9 | <4.0 UJ | <4.0 | NA | <3.8 | NA | <2 | <4.1 |
| N-methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) | NE | NE | <10 | <10 | <2.0 | <10 | <10 | <1.9 | <2.0 | <10 | <10 | <2.0 | <2.0 UJ | <2.0 | <10 | <1.9 | <10 | <10 | <2.0 |
| N-Ethyl Perfluorooctane Sulfonamidoacetic acid (EtFOSAA) | NE | NE | <10 | <10 | <4.0 | <10 | <10 | <3.9 | <3.9 | <10 | <10 | <3.9 | <4.0 UJ | <4.0 | <10 | 14 | 23.65 | 38.29 | 30 |
| Perfluorobutanesulfonamide (PFBSA) | NE | NE | NA | NA | <2.0 | NA | NA | 1.2 J | 1.8 J | NA | NA | <2.0 | 1.2 J | <2.0 | NA | 2.3 | NA | NA | 1.3 J |
| Perfluorohexanesulfonamide (PFHxSA) | NE | NE | NA | NA | <2.0 | NA | NA | <1.9 | <2.0 | NA | NA | <2.0 | <2.0 UJ | <2.0 | NA | <1.9 | NA | NA | <2.0 |
| Perfluorooctane Sulfonamide (FOSA) | NE | NE | <10 | <10 | <2.0 | <10 | <10 | <1.9 | <2.0 | <10 | <10 | <2.0 | <2.0 UJ | <2.0 | <10 | <1.9 | <10 | <10 | 1.1 J |
| Hexafluoropropylene oxide dimer (HFPO-DA) | 370 | NE | <2 | <2 | <10 | <2 | <2 | <9.7 | <9.8 | <2 | <2 | <9.8 | <2.0 UJ | <10 | <2 | <9.6 | <2 | <2 | <10 |
| 11-chloroicosafafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | NE | NE | <2 | <2 | <2.0 | <2 | <2 | <1.9 | <2.0 | <2 | <2 | <2.0 | <2.0 UJ | <2.0 | <2 | <1.9 | <2 | <2 | <2.0 |
| 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS) | NE | NE | <2 | <2 | <2.0 | <2 | <2 | <1.9 | <2.0 | <2 | <2 | <2.0 | <2.0 UJ | <2.0 | <2 | <1.9 | <2 | <2 | <2.0 |
| 4,8-dioxo-3H-perfluorononanoic acid (ADONA) | NE | NE | <2 | <2 | <2.0 | <2 | <2 | <1.9 | <2.0 | <2 | <2 | <2.0 | <2.0 UJ | <2.0 | <2 | <1.9 | <2 | <2 | <2.0 |
| Perfluoro-4-ethylcyclohexanesulfonate (PFECBS) | NE | NE | NA | NA | 2.1 | NA | NA | <1.9 | <2.0 | NA | NA | 2.1 | 2.3 J | 7.6 | NA | 9.2 | NA | NA | 3.8 |
| Total PFAS | | | 53.46 | 44.54 | 21.1 | 49.98 | 77.96 | 85.4 | 82 | 136.37 | 164.23 | 77.68 | 67.1 | 89 | 837.52 | 799.4 | 84.48 | 123.48 | 130 |

Notes:
Bold values indicate analyte detection is at or above the Limit of Detection
Analyte detected exceeds Groundwater Surface Water Interface (GSI) Criteria
Analyte detected exceeds Residential/Nonresidential Drinking Water Criteria
Analyte detected exceeds Residential/Nonresidential Drinking Water and GSI Criteria
Generic Part 201 Criteria from Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 201. Effective Date: October 12, 2023.
GSI criterion for PFOA, PFOA, PFBS, PFHxS, and PFNA are Rule 57 Surface Water Quality Human Noncancer Values (HNV) for a drinking water source from EGLE Surface Water Assessment Section. Updated October 12, 2023.
-MW-11, MW-12, MW-18, MW-19, MW-20, MW-27, MW-30, MW-31 and MW-32 have had a change in designation since installation. The monitoring wells are referred to as piezometers, as designated by the prefix "PZ" in the analytical report for these results and soil boring logs.
-Samples collected by Golder Associates, USA Inc. from May 2021 through January 2022
<: Analyte was not detected above the associated limit of detection.
B: Sample result is an estimate due to contamination in the blank.
(D): Indicates duplicate sample
I: Sample result is an estimate due to low internal standard recovery
J: The reported result is an estimate quantity with an unknown bias
NA: Not analyzed
ND: Analyte was not detected
NE: Criterion not established
ng/L: nanograms per liter
UJ: The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Table 4
Monitoring Well and Piezometer Groundwater Analytical Results-PFAS
Former JB Sims Generating Station
Harbor Island, Grand Haven, Michigan

| Sample ID | Residential & Nonresidential Drinking Water Criteria | Groundwater Surface Water Interface Criteria | PZ-32 | PZ-32 | MW-32 | MW-32 | MW-33 | MW-33 | MW-33 | MW-34 | MW-34 | MW-34 | | MW-35 | | MW-35 | MW-36 | MW-36 | |
|--|--|--|---------------|---------------|--------------|--------------|--------------|--------------|--------------|------------|---------------|--------------|--------------|---------------|--------------|--------------|--------------|--------------|------|
| | | | 10/27/21 | 1/13/22 | 1/31/23 | 5/2/23 | 12/1/23 | 1/31/23 | 5/3/23 | 12/1/23 | 1/31/23 | 5/3/23 | 5/3/2023 (D) | 2/1/23 | 2/1/2023 (D) | 5/2/23 | 2/1/23 | 5/1/23 | |
| PFAS, Method: ASTM D7979-19M: (ng/L)*****VARIABLES***** | | | | | | | | | | | | | | | | | | | |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTSA) | NE | NE | <2 | <2 | <1.9 UJ | <2.0 UJ | ND | <2.0 UJ | <2.0 UJ | ND | <1.9 UJ | <2.0 UJ | <2.0 UJ | <1.9 UJ | <2.0 UJ | <2.0 UJ | <2.1 UJ | <2.0 UJ | |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTSA) | NE | NE | <20 | <20 | 1.7 J | <2.0 UJ | ND | <2.0 | <2.0 UJ | ND | <1.9 | <2.0 UJ | <2.0 UJ | <1.9 | <2.0 | <2.0 UJ | 70 | 64 J | |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTSA) | NE | NE | <2 | <2 | <1.9 | <2.0 UJ | ND | <2.0 | <2.0 UJ | ND | <1.9 | <2.0 UJ | <2.0 UJ | <1.9 | <2.0 | <2.0 UJ | 2.1 | 3.7 J | |
| Perfluorobutane sulfonic acid (PFBS) | 420 | 8,300 | 3.73 | 3.81 | 3.5 | 2.8 J | 17 | 11 | 9.5 J | 9.8 | 9.7 | 8.2 J | 7.8 J | 11 | 11 | 11 | 11 | 17 | 13 J |
| Perfluoropentane sulfonic acid (PFPeS) | NE | NE | 6.77 I | 3.52 | 2.2 | <2.0 UJ | 2.8 | 2.1 | 1.8 J | 2.9 | 2.0 | 1.9 J | 1.9 J | 2.3 | 2.1 | <2.0 UJ | 3.6 | 3.2 J | |
| Perfluorohexane sulfonic acid (PFHxS) | 51 | 59 | 7.64 | 8.67 | 7.8 | 6.3 J | 19 | 15 | 14 J | 13 | 9.6 | 10 J | 9.5 J | 11 | 11 | 8.8 J | 12 | 13 J | |
| Perfluoroheptane sulfonic acid (PFHpS) | NE | NE | 4.43 | 2.9 | 2.0 | <2.0 UJ | ND | <2.0 | <2.0 UJ | 3.7 | 2.5 | 3.2 J | 3.0 J | 1.3 J | <2.0 | <2.0 UJ | <2.1 | <2.0 UJ | |
| Perfluorooctane sulfonic acid (PFOS) | 16 | 11 | 214.74 | 220.6 | 140 | 110 J | 95 | 83 | 86 J | 160 | 130 | 130 J | 120 J | 80 | 74 | 68 J | 15 | 19 J | |
| Perfluorononane sulfonic acid (PFNS) | NE | NE | <2 | <2 | <1.9 | <2.0 UJ | ND | <2.0 | <2.0 UJ | ND | <1.9 | <2.0 UJ | <2.0 UJ | <1.9 | <2.0 | <2.0 UJ | <2.1 | <2.0 UJ | |
| Perfluorodecane sulfonic acid (PFDS) | NE | NE | <2 | <2 | <1.9 | <2.0 UJ | ND | <2.0 | <2.0 UJ | ND | <1.9 | <2.0 UJ | <2.0 UJ | <1.9 | <2.0 | <2.0 UJ | <2.1 | <2.0 UJ | |
| 3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA)) | NE | NE | NA | NA | <3.8 | <3.9 UJ | ND | <4.0 | <4.0 UJ | ND | <3.8 | <4.0 UJ | <4.0 UJ | <3.9 | 3.0 J | <4.0 UJ | <4.1 | <4.0 UJ | |
| 3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA)) | NE | NE | NA | NA | <3.8 | <3.9 UJ | ND | <4.0 | <4.0 UJ | ND | <3.8 | <4.0 UJ | <4.0 UJ | 3.8 J | 3.7 J | <4.0 UJ | 7.9 | 9.9 J | |
| 3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA)) | NE | NE | NA | NA | <3.8 | <3.9 UJ | ND | <4.0 | <4.0 UJ | ND | <3.8 | <4.0 UJ | <4.0 UJ | <3.9 | 3.2 J | <4.0 UJ | <4.1 | <4.0 UJ | |
| Perfluorobutanoic acid (PFBA) | NE | NE | 18.53 I | 20.2 | 13 | <9.9 UJ | 18 | 15 | 13 J | ND | 11 | <10 UJ | <10 UJ | 10 | 12 | <10 UJ | 180 | 130 J | |
| Perfluoropentanoic acid (PFPeA) | NE | NE | 32.35 I | 35.38 | 17 | 13 J | 9.4 | 11 | 14 J | 17 | 12 | 10 J | 10 J | 8.2 | 7.7 | 4.5 J | 130 | 99 J | |
| Perfluorohexanoic acid (PFHxA) | 400,000 | NE | 18.8 I | 23.44 | 10 | 9.9 J | 9.9 | 11 | 14 J | 12 | 8.2 | 8.2 J | 8.1 J | 10 | 9.8 | 7.5 J | 88 | 98 J | |
| Perfluoroheptanoic acid (PFHpA) | NE | NE | 8.71 | 12.99 | 7.2 | 4.5 J | 11 | 7.8 | 7.2 J | 7.9 | 5.9 | 7.3 J | 7.0 J | 6.2 | 6.7 | 4.4 J | 32 | 36 J | |
| Perfluorooctanoic acid (PFOA) | 8 | 66 | 16.04 | 18.15 | 14 | 12 J | 45 | 34 | 51 J | 82 | 53 | 53 J | 64 J | 71 | 63 | 57 J | 45 | 52 J | |
| Perfluorononanoic acid (PFNA) | 6 | 19 | <2 | 2.23 | 1.9 | <2.0 UJ | 1.7 J | 2.2 | 2.9 J | ND | 0.86 J | <2.0 UJ | <2.0 UJ | 1.8 J | 1.7 J | 1.9 J | 2.3 | 2.8 J | |
| Perfluorodecanoic acid (PFDA) | NE | NE | <2 | <2 | <1.9 | <2.0 UJ | ND | <2.0 | <2.0 UJ | ND | <1.9 | <2.0 UJ | <2.0 UJ | 0.81 J | <2.0 | <2.0 UJ | 1.0 J | <2.0 UJ | |
| Perfluoroundecanoic acid (PFUnDA) | NE | NE | <2 | <2 | <1.9 | <2.0 UJ | ND | <2.0 | <2.0 UJ | ND | <1.9 | <2.0 UJ | <2.0 UJ | <1.9 | <2.0 | <2.0 UJ | <2.1 | <2.0 UJ | |
| Perfluorododecanoic acid (PFDoDA) | NE | NE | <2 | <2 | <1.9 | <2.0 UJ | ND | <2.0 | <2.0 UJ | ND | <1.9 | <2.0 UJ | <2.0 UJ | <1.9 | <2.0 | <2.0 UJ | <2.1 | <2.0 UJ | |
| Perfluorotridecanoic acid (PFTrDA) | NE | NE | <2 | <2 | <1.9 | <2.0 UJ | ND | <2.0 | <2.0 UJ | ND | <1.9 | <2.0 UJ | <2.0 UJ | <1.9 | <2.0 | <2.0 UJ | <2.1 | <2.0 UJ | |
| Perfluorotetradecanoic acid (PFTeDA) | NE | NE | NA | <2 | <3.8 | <3.9 UJ | ND | <4.0 | <4.0 UJ | ND | <3.8 | <4.0 UJ | <4.0 UJ | <3.9 | <3.9 | <4.0 UJ | <4.1 | <4.0 UJ | |
| N-methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) | NE | NE | <10 | <10 | <1.9 | <2.0 UJ | ND | <2.0 | <2.0 UJ | ND | <1.9 | <2.0 UJ | <2.0 UJ | 3.4 | 3.4 | <2.0 UJ | <2.1 | <2.0 UJ | |
| N-Ethyl Perfluorooctane Sulfonamidoacetic acid (EtFOSAA) | NE | NE | <10 | <10 | 3.4 J | 3.0 J | 3.5 J | <4.0 | <4.0 UJ | 16 | 13 | 11 J | 11 J | 21 | 19 | 20 J | <4.1 | <4.0 UJ | |
| Perfluorobutanesulfonamide (PFBSA) | NE | NE | NA | NA | 1.2 J | <2.0 UJ | ND | <2.0 | <2.0 UJ | ND | <1.9 | <2.0 UJ | <2.0 UJ | <1.9 | <2.0 | <2.0 UJ | 8.9 | 9.4 J | |
| Perfluorohexanesulfonamide (PFHxSA) | NE | NE | NA | NA | 0.80 J | <2.0 UJ | ND | <2.0 | <2.0 UJ | 1.2 J | 1.4 J | 1.1 J | <2.0 UJ | <1.9 | <2.0 | <2.0 UJ | 2.4 | 1.6 J | |
| Perfluorooctane Sulfonamide (FOSA) | NE | NE | <10 | <10 | <1.9 | <2.0 UJ | ND | <2.0 | <2.0 UJ | ND | <1.9 | <2.0 UJ | <2.0 UJ | 0.85 J | <2.0 | <2.0 UJ | <2.1 | <2.0 UJ | |
| Hexafluoropropylene oxide dimer (HFPO-DA) | 370 | NE | <2 | <2 | <9.6 | <2.0 UJ | ND | <10 | <2.0 UJ | ND | <9.5 | <2.0 UJ | <2.0 UJ | <9.7 | <9.8 | <2.0 UJ | <10 | <2.0 UJ | |
| 11-chloroicosafauro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | NE | NE | <2 | <2 | <1.9 | <2.0 UJ | ND | <2.0 | <2.0 UJ | ND | <1.9 | <2.0 UJ | <2.0 UJ | <1.9 | <2.0 | <2.0 UJ | <2.1 | <2.0 UJ | |
| 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS) | NE | NE | <2 | <2 | <1.9 | <2.0 UJ | ND | <2.0 | <2.0 UJ | ND | <1.9 | <2.0 UJ | <2.0 UJ | <1.9 UJ | <2.0 J | <2.0 UJ | <2.1 UJ | <2.0 UJ | |
| 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | NE | NE | <2 | <2 | <1.9 | <2.0 UJ | ND | <2.0 | <2.0 UJ | ND | <1.9 | <2.0 UJ | <2.0 UJ | <1.9 | <2.0 | <2.0 UJ | <2.1 | <2.0 UJ | |
| Perfluoro-4-ethylcyclohexanesulfonate (PFECBS) | NE | NE | NA | NA | 24 | 14 J | 8.3 | 6.8 | 5.5 J | 8.5 | 7.6 | 6.5 J | 5.7 J | 19 | 17 | 11 J | 5.3 | 6.1 J | |
| Total PFAS | | | 331.74 | 351.89 | 249.7 | 175.5 | 240.6 | 198.9 | 218.9 | 334 | 266.76 | 250.4 | 248 | 261.66 | 248.3 | 194.1 | 622.5 | 560.7 | |

Notes:
Bold values indicate analyte detection is at or above the Limit of Detection
Analyte detected exceeds Groundwater Surface Water Interface (GSI) Criteria
Analyte detected exceeds Residential/Nonresidential Drinking Water Criteria
Analyte detected exceeds Residential/Nonresidential Drinking Water and GSI Criteria
Generic Part 201 Criteria from Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 201. Effective Date: October 12, 2023.
GSI criterion for PFOA, PFOA, PFBS, PFHxS, and PFNA are Rule 57 Surface Water Quality Human Noncancer Values (HNV) for a drinking water source from EGLE Surface Water Assessment Section. Updated October 12, 2023.
-MW-11, MW-12, MW-18, MW-19, MW-20, MW-27, MW-30, MW-31 and MW-32 have had a change in designation since installation. The monitoring wells are referred to as piezometers, as designated by the prefix "PZ" in the analytical report for these results and soil boring logs.
-Samples collected by Golder Associates, USA Inc. from May 2021 through January 2022
<: Analyte was not detected above the associated limit of detection.
B: Sample result is an estimate due to contamination in the blank.
(D): Indicates duplicate sample
I: Sample result is an estimate due to low internal standard recovery
J: The reported result is an estimate quantity with an unknown bias
NA: Not analyzed
ND: Analyte was not detected
NE: Criterion not established
ng/L: nanograms per liter
UJ: The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Table 4
Monitoring Well and Piezometer Groundwater Analytical Results-PFAS
Former JB Sims Generating Station
Harbor Island, Grand Haven, Michigan

| Sample ID | Residential & Nonresidential Drinking Water Criteria | Groundwater Surface Water Interface Criteria | MW-37 | | MW-37 | MW-38 | | MW-38 | MW-39 | | MW-39 | MW-40 | | MW-40 |
|--|--|--|---------------|---------------|--------------|---------------|--------------|---------------|---------------|--------------|--------------|-------|--|-------|
| | | | 2/1/23 | 2/1/2023 (D) | 5/1/23 | 2/1/23 | 5/1/23 | 2/1/23 | 5/1/23 | 2/1/23 | 5/1/23 | | | |
| PFAS, Method: ASTM D7979-19M: (ng/L)*****VARIABLES***** | | | | | | | | | | | | | | |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTSA) | NE | NE | 2.8 J | 2.4 J | <2.0 UJ | 3.6 J | <2.0 UJ | 2.1 J | <2.0 UJ | 9.2 J | 5.6 J | | | |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTSA) | NE | NE | 420 | 450 | 53 J | 140 | 64 J | 180 J | 110 J | 420 | 250 J | | | |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTSA) | NE | NE | <1.9 | <1.9 | <2.0 UJ | <1.9 | <2.0 UJ | <1.9 | <2.0 UJ | 25 | 12 J | | | |
| Perfluorobutane sulfonic acid (PFBS) | 420 | 8,300 | 40 | 43 | 26 J | 24 | 9.9 J | 21 | 12 J | 15 | 8.9 J | | | |
| Perfluoropentane sulfonic acid (PFPeS) | NE | NE | 16 | 17 | 9.4 J | 12 | 8.1 J | 10 | 8 J | 6.2 | 3.4 J | | | |
| Perfluorohexane sulfonic acid (PFHxS) | 51 | 59 | 41 | 42 | 17 J | 30 | 28 J | 22 | 15 J | 21 | 12 J | | | |
| Perfluoroheptane sulfonic acid (PFHpS) | NE | NE | <1.9 | <1.9 | <2.0 UJ | 1.2 J | <2.0 UJ | <1.9 | <2.0 UJ | <2.0 | <2.0 UJ | | | |
| Perfluorooctane sulfonic acid (PFOS) | 16 | 11 | 13 | 17 | 2.7 J | 13 | 13 J | 12 | 12 J | 25 | 7.4 J | | | |
| Perfluorononane sulfonic acid (PFNS) | NE | NE | <1.9 | <1.9 | <2.0 UJ | <1.9 | <2.0 UJ | <1.9 | <2.0 UJ | <2.0 | <2.0 UJ | | | |
| Perfluorodecane sulfonic acid (PFDS) | NE | NE | <1.9 | <1.9 | <2.0 UJ | <1.9 | <2.0 UJ | <1.9 | <2.0 UJ | <2.0 | <2.0 UJ | | | |
| 3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA)) | NE | NE | <3.8 | <3.8 | <3.9 UJ | <3.8 | <4.0 UJ | <3.9 | <4.0 UJ | <4.0 | <4.0 UJ | | | |
| 3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA)) | NE | NE | <3.8 | <3.8 | <3.9 UJ | <3.8 | 7.5 J | <3.9 | <4.0 UJ | 15 | 8.0 J | | | |
| 3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA)) | NE | NE | <3.8 | <3.8 | <3.9 UJ | <3.8 | <4.0 UJ | <3.9 | <4.0 UJ | <4.0 | <4.0 UJ | | | |
| Perfluorobutanoic acid (PFBA) | NE | NE | 210 | 220 | 85 J | 110 | 36 J | 110 | 60 J | <99 | <460 UJ | | | |
| Perfluoropentanoic acid (PFPeA) | NE | NE | 750 | 770 | 270 J | 350 | 120 J | 530 | 260 J | 120 | 88 J | | | |
| Perfluorohexanoic acid (PFHxA) | 400,000 | NE | 420 | 460 | 170 J | 280 | 100 J | 240 | 160 J | 120 | 79 J | | | |
| Perfluoroheptanoic acid (PFHpA) | NE | NE | 66 | 68 | 48 J | 59 | 40 J | 39 | 37 J | 15 | 14 J | | | |
| Perfluorooctanoic acid (PFOA) | 8 | 66 | 33 | 35 | 23 J | 67 | 64 J | 17 | 19 J | 21 | 16 J | | | |
| Perfluorononanoic acid (PFNA) | 6 | 19 | 1.5 J | 1.6 J | <2.0 UJ | 5.9 | 4.3 J | <1.9 | <2.0 UJ | 1.3 J | <2.0 UJ | | | |
| Perfluorodecanoic acid (PFDA) | NE | NE | <1.9 | <1.9 | <2.0 UJ | <1.9 | <2.0 UJ | <1.9 | <2.0 UJ | <2.0 | <2.0 UJ | | | |
| Perfluoroundecanoic acid (PFUnDA) | NE | NE | <1.9 | <1.9 | <2.0 UJ | <1.9 | <2.0 UJ | <1.9 | <2.0 UJ | <2.0 | <2.0 UJ | | | |
| Perfluorododecanoic acid (PFDoDA) | NE | NE | <1.9 | <1.9 | <2.0 UJ | <1.9 | <2.0 UJ | <1.9 | <2.0 UJ | <2.0 | <2.0 UJ | | | |
| Perfluorotridecanoic acid (PFTrDA) | NE | NE | <1.9 | <1.9 | <2.0 UJ | <1.9 | <2.0 UJ | <1.9 | <2.0 UJ | <2.0 | <2.0 UJ | | | |
| Perfluorotetradecanoic acid (PFTeDA) | NE | NE | <3.8 | <3.8 | <3.9 UJ | <3.8 | <4.0 UJ | <3.9 | <4.0 UJ | <4.0 | <4.0 UJ | | | |
| N-methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) | NE | NE | <1.9 | <1.9 | <2.0 UJ | <1.9 | <2.0 UJ | <1.9 | <2.0 UJ | <2.0 | <2.0 UJ | | | |
| N-Ethyl Perfluorooctane Sulfonamidoacetic acid (EtFOSAA) | NE | NE | <3.8 | <3.8 | <3.9 UJ | <3.8 | <4.0 UJ | <3.9 | <4.0 UJ | <4.0 | <4.0 UJ | | | |
| Perfluorobutanesulfonamide (PFBSA) | NE | NE | 22 | 24 | 8.9 J | 31 | 15 J | 14 | 8.6 J | 11 | 7.4 J | | | |
| Perfluorohexanesulfonamide (PFHxSA) | NE | NE | 8.0 | 7.2 | 1.6 J | 6.8 | 9.7 J | <1.9 | 0.99 J | 14 J | 8.6 J | | | |
| Perfluorooctane Sulfonamide (FOSA) | NE | NE | <1.9 | <1.9 | <2.0 UJ | <1.9 | <2.0 UJ | <1.9 | <2.0 UJ | <2.0 | <2.0 UJ | | | |
| Hexafluoropropylene oxide dimer (HFPO-DA) | 370 | NE | <9.5 | <9.6 | <2.0 UJ | <9.5 | <2.0 UJ | <9.7 | <2.0 UJ | <9.9 | <2.0 UJ | | | |
| 11-chloroicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | NE | NE | <1.9 | <1.9 | <2.0 UJ | <1.9 | <2.0 UJ | <1.9 | <2.0 UJ | <2.0 | <2.0 UJ | | | |
| 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS) | NE | NE | <1.9 UJ | <1.9 J | <2.0 UJ | <1.9 UJ | <2.0 UJ | <1.9 UJ | <2.0 UJ | <2.0 UJ | <2.0 UJ | | | |
| 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | NE | NE | <1.9 | <1.9 | <2.0 UJ | <1.9 | <2.0 UJ | <1.9 | <2.0 UJ | <2.0 | <2.0 UJ | | | |
| Perfluoro-4-ethylcyclohexanesulfonate (PFECBS) | NE | NE | 3.0 | 3.4 | 2.1 J | 11 | 10 J | 5.1 | 4.3 J | 1.5 J | <2.0 UJ | | | |
| Total PFAS | | | 2046.3 | 2160.6 | 716.7 | 1144.5 | 529.5 | 1202.2 | 706.89 | 840.2 | 520.3 | | | |

Notes:

Bold values indicate analyte detection is at or above the Limit of Detection

Analyte detected exceeds Groundwater Surface Water Interface (GSI) Criteria

Analyte detected exceeds Residential/Nonresidential Drinking Water Criteria

Analyte detected exceeds Residential/Nonresidential Drinking Water and GSI Criteria

Generic Part 201 Criteria from Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 201. Effective Date: October 12, 2023.

GSI criterion for PFOA, PFOA, PFBS, PFHxS, and PFNA are Rule 57 Surface Water Quality Human Noncancer Values (HNV) for a drinking water source from EGLE Surface Water Assessment Section. Updated October 12, 2023.

-MW-11, MW-12, MW-18, MW-19, MW-20, MW-27, MW-30, MW-31 and MW-32 have had a change in designation since installation. The monitoring wells are referred to as piezometers, as designated by the prefix "PZ" in the analytical report for these results and soil boring logs.

-Samples collected by Golder Associates, USA Inc. from May 2021 through January 2022

<: Analyte was not detected above the associated limit of detection.

B: Sample result is an estimate due to contamination in the blank.

(D): Indicates duplicate sample

I: Sample result is an estimate due to low internal standard recovery

J: The reported result is an estimate quantity with an unknown bias

NA: Not analyzed

ND: Analyte was not detected

NE: Criterion not established

ng/L: nanograms per liter

UJ: The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Table 5
Surface Water Analytical Results-PFAS
Former JB Sims Generating Station
Harbor Island, Grand Haven, Michigan

| Sample ID | Human Noncancer Value (Drinking) | Human Noncancer Value (Nondrinking) | SW-01-2022-12-14 | SW-02 | SW-03 | SW-04 | SW-05 | SW-06 | SW-01 | SW-02 | SW-03 | SW-04 | SW-05 | SW-06 ¹ |
|--|----------------------------------|-------------------------------------|------------------|-------------|--------------|-------------|-------------|-----------|--------------|--------------|--------------|-------------|-------------|--------------------|
| Sample Date | | | 12/14/22 | 12/14/22 | 12/14/22 | 12/14/22 | 12/14/22 | 12/14/22 | 5/1/23 | 5/1/23 | 5/1/23 | 5/1/23 | 5/1/23 | 5/1/23 |
| PFAS, Method: ASTM D7979-19M; (ng/L) | | | | | | | | | | | | | | |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTSA) | NE | NE | ND | ND | ND | ND | ND | ND | <2.0 | <2.0 | <2.0 | <1.9 | <2.0 | <2.0 |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTSA) | NE | NE | ND | ND | ND | ND | ND | ND | <2.0 | <2.0 | <2.0 | <1.9 | <2.0 | 1.3 J |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTSA) | NE | NE | ND | ND | ND | ND | ND | ND | <2.0 | <2.0 | <2.0 | <1.9 | <2.0 | <2.0 |
| Perfluorobutane sulfonic acid (PFBS) | 8,300 | 670,000 | 1.8 J | 1.7 J | 2.0 | 1.9 | 1.6 J | 1.8 J | 2.0 | 2.7 | 2.2 | 2.2 | 1.1 J | 1,500 |
| Perfluoropentane sulfonic acid (PFPeS) | NE | NE | ND | ND | ND | ND | ND | ND | 0.92 J | 0.98 J | 0.98 J | 0.90 J | 1.1 J | 940 |
| Perfluorohexane sulfonic acid (PFHxS) | 59 | 210 | ND | ND | ND | ND | ND | ND | 1.6 J | <2.0 | 1.8 J | 1.7 J | 3.8 | 2,600 |
| Perfluoroheptane sulfonic acid (PFHpS) | NE | NE | ND | ND | ND | ND | ND | ND | <2.0 | <2.0 | <2.0 | <1.9 | <2.0 | 21 |
| Perfluorooctane sulfonic acid (PFOS) | 11 | 12 | 2.3 | 2.0 | 4.3 | 2.2 | 3.2 | 1.8 J | 12 | 5.6 | 5.2 | 4.9 | 6.6 | 300 |
| Perfluorononane sulfonic acid (PFNS) | NE | NE | ND | ND | ND | ND | ND | ND | <2.0 | <2.0 | <2.0 | <1.9 | <2.0 | <2.0 |
| Perfluorodecane sulfonic acid (PFDS) | NE | NE | ND | ND | ND | ND | ND | ND | <2.0 | <2.0 | <2.0 | <1.9 | <2.0 | <2.0 |
| 3-Perfluoropropyl propanoic acid (FPPrPA (3:3 FTCA)) | NE | NE | ND | ND | ND | ND | ND | ND | <3.9 | <3.9 | <4.1 | <3.7 | <4.1 | <4.0 |
| 3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA)) | NE | NE | ND | ND | ND | ND | ND | ND | <3.9 | <3.9 | <4.1 | <3.7 | <4.1 | <4.0 |
| 3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA)) | NE | NE | ND | ND | ND | ND | ND | ND | <3.9 | <3.9 | <4.1 | <3.7 | <4.1 | <4.0 |
| Perfluorobutanoic acid (PFBA) | NE | NE | 2.9 J | 2.5 J | 3.3 J | 2.9 J | 3.0 J | 3.2 J | 1.6 J | 7.3 J | 6.3 J | 3.8 J | 5.0 J | 380 |
| Perfluoropentanoic acid (PFPeA) | NE | NE | 2.4 J | 2.2 J | 2.6 J | 2.1 J | 2.2 J | 2.1 J | 1.5 J | 6.6 | 4.5 | 3.9 | 11 | 350 |
| Perfluorohexanoic acid (PFHxA) | NE | NE | 2.2 | 2.2 | 2.7 | 2.1 | 2.3 | 2.2 | 2.0 | 5.7 | 4.3 | 3.6 | 5.9 | 880 |
| Perfluoroheptanoic acid (PFHpA) | NE | NE | 1.1 J | ND | 0.99 J | ND | ND | 1.1 J | 1.5 J | 2.5 | 2.2 | 2.1 | 6.8 | 92 |
| Perfluorooctanoic acid (PFOA) | 66 | 170 | ND | ND | 2.2 | ND | 1.6 J | ND | 2.2 | 3.2 | 2.3 | 2.6 | 5.1 | 94 |
| Perfluorononanoic acid (PFNA) | 19 | 30 | ND | ND | ND | ND | ND | ND | 1.2 J | 1.1 J | 1.00 J | 1.1 J | 3.2 | 2.5 |
| Perfluorodecanoic acid (PFDA) | NE | NE | ND | ND | ND | ND | ND | ND | <2.0 | <2.0 | <2.0 | <1.9 | <2.0 | <2.0 |
| Perfluoroundecanoic acid (PFUnDA) | NE | NE | ND | ND | ND | ND | ND | ND | <2.0 | <2.0 | <2.0 | <1.9 | <2.0 | <2.0 |
| Perfluorododecanoic acid (PFDoDA) | NE | NE | ND | ND | ND | ND | ND | ND | <2.0 | <2.0 | <2.0 | <1.9 | <2.0 | <2.0 |
| Perfluorotridecanoic acid (PFTrDA) | NE | NE | ND | ND | ND | ND | ND | ND | <2.0 | <2.0 | <2.0 | <1.9 | <2.0 | <2.0 |
| Perfluorotetradecanoic acid (PFTeDA) | NE | NE | 1.2 J | ND | ND | ND | ND | ND | <3.9 | <3.9 | <4.1 | <3.7 | <4.1 | <4.0 |
| N-methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) | NE | NE | ND | ND | ND | ND | ND | ND | <2.0 | <2.0 | <2.0 | <1.9 | <2.0 | <2.0 |
| N-Ethyl Perfluorooctane Sulfonamidoacetic acid (EtFOSAA) | NE | NE | ND | ND | ND | ND | ND | ND | <3.9 | <3.9 | <4.1 | <3.7 | <4.1 | <4.0 |
| Perfluorobutanesulfonamide (PFBSA) | NE | NE | ND | ND | ND | ND | ND | ND | <2.0 | 1.6 J | 1.4 J | <1.9 | 1.6 | 310 |
| Perfluorohexanesulfonamide (PFHxSA) | NE | NE | ND | ND | ND | ND | ND | ND | <2.0 | <2.0 | <2.0 | <1.9 | 1.1 J | 83 |
| Perfluorooctane Sulfonamide (FOSA) | NE | NE | ND | ND | ND | ND | ND | ND | <2.0 | <2.0 | <2.0 | <1.9 | <2.0 | <2.0 |
| Hexafluoropropylene oxide dimer (HFPO-DA) | NE | NE | ND | ND | ND | ND | ND | ND | <2.0 | <2.0 | <2.0 | <1.9 | <2.0 | <2.0 |
| 11-chloroicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | NE | NE | ND | ND | ND | ND | ND | ND | <2.0 | <2.0 | <2.0 | <1.9 | <2.0 | <2.0 |
| 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) | NE | NE | ND | ND | ND | ND | ND | ND | <2.0 | <2.0 | <2.0 | <1.9 | <2.0 | <2.0 |
| 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | NE | NE | ND | ND | ND | ND | ND | ND | <2.0 | <2.0 | <2.0 | <1.9 | <2.0 | <2.0 |
| Perfluoro-4-ethylcyclohexanesulfonate (PFECHS) | NE | NE | 2.0 | 2.5 | 1.4 J | 2.3 | 2.3 | 1.8 J | 1.8 J | 2.2 | 1.9 J | 1.3 J | <2.0 | 1.9 J |
| Total PFAS | | | 15.9 | 13.1 | 19.49 | 13.5 | 16.2 | 14 | 28.32 | 39.48 | 34.08 | 28.1 | 52.3 | 7,555.70 |

Notes:
Bold values indicate analyte detection is at or above the Limit of Detection
Analyte detected exceeds Human Noncancer Value (Drinking)
 -Rule 57 Surface Water Quality Values from Michigan Department of Environment, Great Lakes, and Energy (EGLE) Surface Water Assessment Section. Updated October 12, 2023
¹: Sample was collected by skimming surface water (not collected in general accordance with EGLE Surface Water PFAS Sampling Guidance Document). According to this guidance, these analytical results were not compared to Rule 57 Surface Water Quality Values.

ND: Analyte was not detected
 NE: Criterion not established
 ng/L: nanograms per liter
 J: The reported result is an estimate quantity with an unknown bias

**Table 6
Sediment Analytical Results-PFAS
Former JB Sims Generating Station
Harbor Island, Grand Haven, Michigan**

| Sample ID | SED-01 |
|--|--------------|
| Sample Date | 12/14/2022 |
| PFAS, Method: ASTMD7979-19M; (ng/kg) | |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTSA) | ND |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTSA) | ND |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTSA) | ND |
| Perfluorobutane sulfonic acid (PFBS) | ND |
| Perfluoropentane sulfonic acid (PFPeS) | ND |
| Perfluorohexane sulfonic acid (PFHxS) | 42 J |
| Perfluoroheptane sulfonic acid (PFHpS) | ND |
| Perfluorooctane sulfonic acid (PFOS) | 610 |
| Perfluorononane sulfonic acid (PFNS) | ND |
| Perfluorodecane sulfonic acid (PFDS) | 30 J |
| 3-Perfluoropropyl propanoic acid (FPrPA (3:3 FTCA)) | ND |
| 3-Perfluoropentyl propanoic acid (FPePA (5:3 FTCA)) | ND |
| 3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA)) | ND |
| Perfluorobutanoic acid (PFBA) | 33 J |
| Perfluoropentanoic acid (PFPeA) | ND |
| Perfluorohexanoic acid (PFHxA) | 13 J |
| Perfluoroheptanoic acid (PFHpA) | ND |
| Perfluorooctanoic acid (PFOA) | 57 J |
| Perfluorononanoic acid (PFNA) | 16 J |
| Perfluorodecanoic acid (PFDA) | 29 J |
| Perfluoroundecanoic acid (PFUnDA) | 22 J |
| Perfluorododecanoic acid (PFDoDA) | 32 J |
| Perfluorotridecanoic acid (PFTrDA) | ND |
| Perfluorotetradecanoic acid (PFTeDA) | 24 J |
| N-methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) | ND |
| N-Ethyl Perfluorooctane Sulfonamidoacetic acid (EtFOSAA) | 41 J |
| Perfluorobutanesulfonamide (PFBSA) | ND |
| Perfluorohexanesulfonamide (PFHxSA) | ND |
| Perfluorooctane Sulfonamide (FOSA) | 12 J |
| Hexafluoropropylene oxide dimer (HFPO-DA) | ND |
| 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | ND |
| 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS) | ND |
| 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | ND |
| Perfluoro-4-ethylcyclohexanesulfonate (PFECHS) | 29 J |
| Total PFAS | 990.0 |

Notes:

Values are in ng/kg (nanograms per kilogram).

Bold values indicate analyte detection is at or above the Limit of Detection

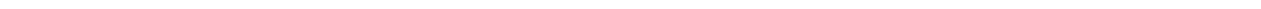
J = the reported result is an estimate quantity with an unknown bias

ND: Analyte was not detected

ng/kg: nanograms per kilogram

Appendix A

Potentiometric Surface Maps



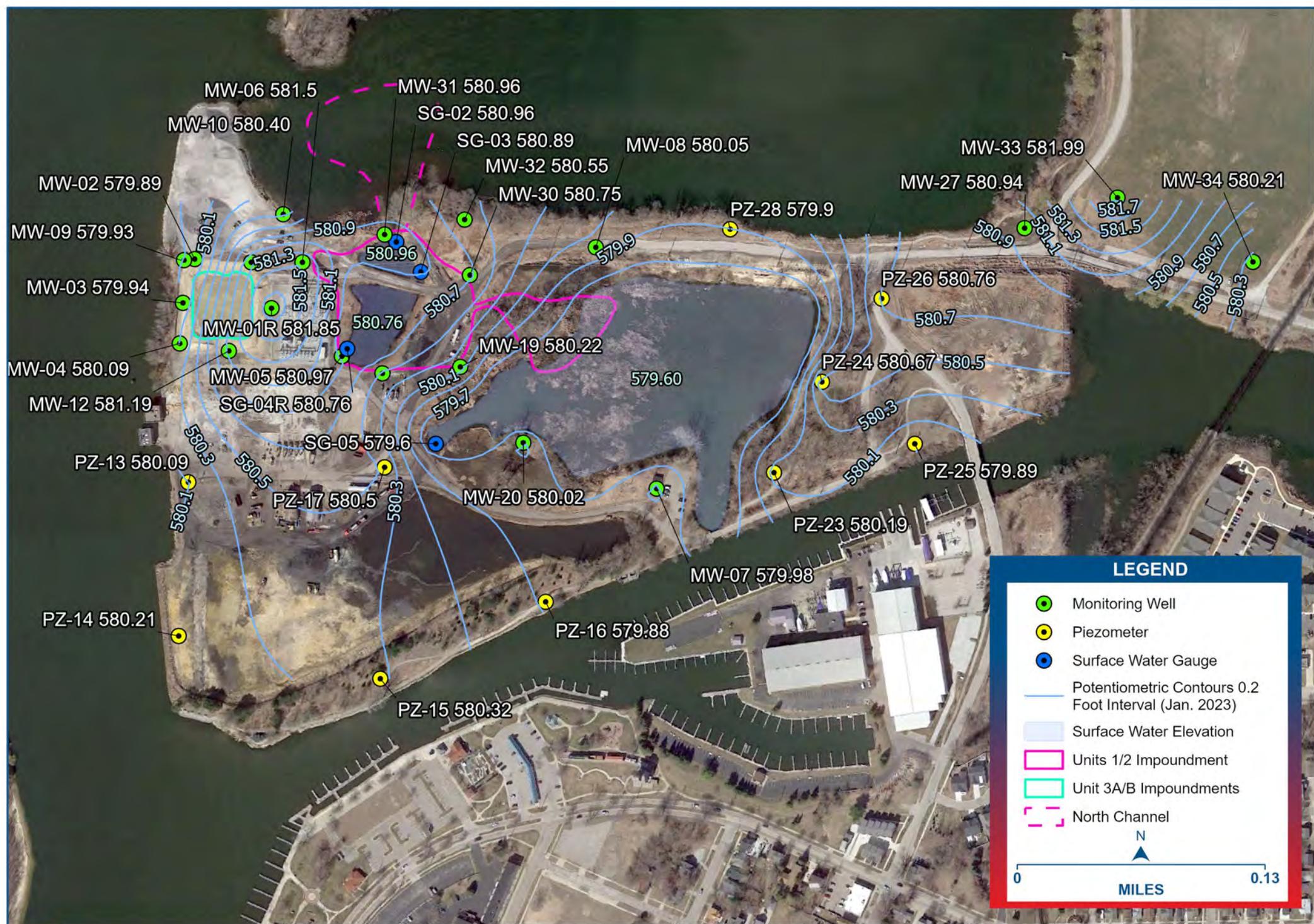


LEGEND

- Monitoring Well
- Piezometer
- Surface Water Gauge
- Potentiometric Contour 0.2 Foot Interval (Sept. 2022)
- Surface Water Elevation
- Units 1/2 Impoundment
- Unit 3A/B Impoundments
- North Channel

N

0 MILES 0.11



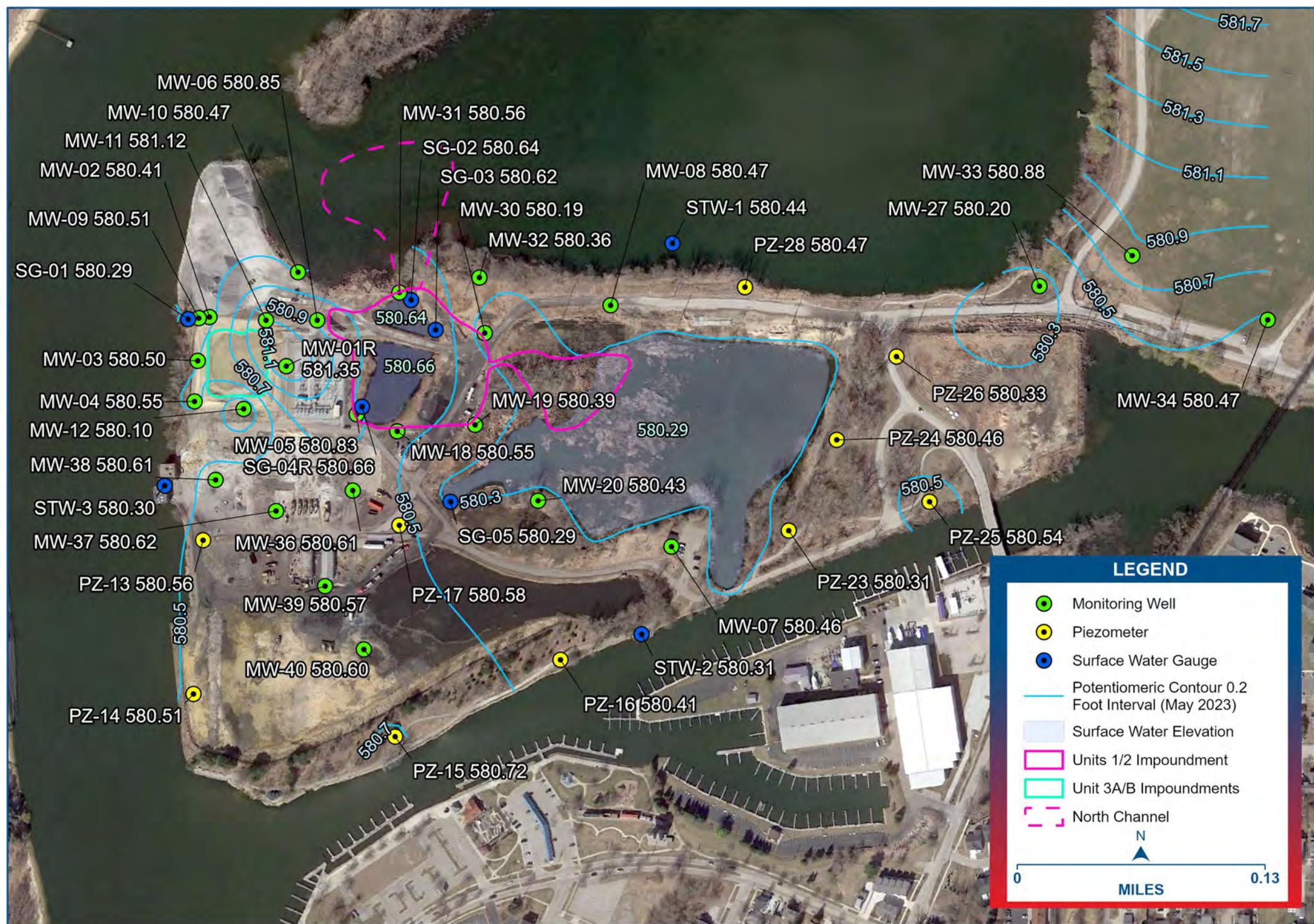


LEGEND

- Monitoring Well
- Piezometer
- Surface Water Gauge
- Potentiometric Contour 0.2 Foot Interval (April 2023)
- Surface Water Elevation
- ▭ Units 1/2 Impoundment
- ▭ Unit 3A/B Impoundments
- - - North Channel

N

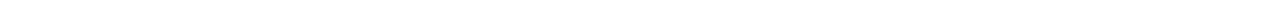
0 MILES 0.13





Appendix B

Soil Boring Logs



| | | | |
|---|----------|---------------------------------------|---------------------------------|
| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring GP-01/MW-35 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 11/29/22 | DATE FINISHED: 11/29/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 18.0 | SCREEN INTERVAL (ft.): 13-18 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 13.0 | CASING: 1", Sch-40 PVC |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 13.0 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Kiersten White | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|--------------|------------|--------------|-------------|-------------------|---|------------|---|---------------|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| | | | | | Fill (GW): | | | |
| | | | | 0.0 | | | | |
| | | | | 0.0 | SILTY SAND (SM): olive, dry, fine to medium silty sand, loose | | | |
| | | | | 0.0 | | | | |
| 5 | | | | 0.0 | | | | |
| | | | | 0.0 | SILTY SAND (SM): olive, dry, fine to medium silty sand, trace gravel, loose | | | |
| | | | | 0.0 | | | | |
| | | | | 0.0 | SILTY SAND (SM): gray, dry, fine to medium silty sand, loose | | | |
| | | | | 0.0 | | | | |
| 10 | | | | 0.0 | CLAYEY SAND (SC): gray, moist, slight plasticity | | | |
| | | | | 0.0 | | | | |
| | | | | 0.0 | CLAYEY SAND (SC): gray, saturated, slight plasticity | | | |
| | | | | 51.6 | | | | Odor detected |
| | | | | NM | SILTY SAND (SM): light gray, saturated, loose | | | |
| 15 | | | | NM | | | | |
| | | | | NM | SILTY SAND (SM): light gray, saturated, silty sand with clay, slight plasticity | | | |
| | | | | NM | | | | |
| | | | | NM | End of boring at 18 ft bgs. | | | |
| 20 | | | | | | | | |

WELL 10



Acronyms
ATD - At Time of Drilling
ATS - At Time of Sampling

| | | | |
|---|----------|-------------------------------------|--------------------------------|
| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring GP-02 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 11/29/22 | DATE FINISHED: 11/29/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 15.0 | SCREEN INTERVAL (ft.): 5-10 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 6.0 | CASING: 1", Sch-40 PVC |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 6.0 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Kiersten White | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS |
|--------------|------------|--------------|-------------|-------------------|---|------------|---|
| | Sample No. | Recovery (%) | | | | | |
| | | | | | Fill (GW): | | Top of Casing Elevation: TBD |
| | | | | 0.0 | | | |
| | | | | 0.0 | | | |
| | | | | 0.0 | SILTY CLAY (CL/ML): dark gray, soft | | |
| 5 | | | | 0.0 | | | |
| | | | | 0.1 | SILTY CLAY (CL/ML): dark gray, saturated, soft | | |
| | | | | NM | | | |
| | | | | NM | | | |
| | | | | NM | | | |
| 10 | | | | NM | | | |
| | | | | NM | | | |
| | | | | NM | SILTY SAND (SM): gray, saturated | | |
| | | | | NM | | | |
| | | | | NM | | | |
| 15 | | | | NM | End of boring at 15 ft bgs. | | |
| | | | | | | | |
| | | | | | | | |
| 20 | | | | | | | |

WELL10



Acronyms
 ATD - At Time of Drilling
 ATS - At Time of Sampling

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| | | | |
|---|----------|-------------------------------------|-------------------------------|
| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring MW-33 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 11/28/22 | DATE FINISHED: 11/28/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 7.0 | SCREEN INTERVAL (ft.): 2-7 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 2.0 | CASING: 2", Sch-40 PVC |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 1.68 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Zach McCurley | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS |
|--------------|------------|--------------|-------------|-------------------|---|------------|---|
| | Sample No. | Recovery (%) | | | | | |
| | | | | | Top soil | | Top of Casing Elevation: TBD |
| | | | | 0.0 | SAND (SP), brown, medium to fine, moist, loose, | | |
| | | | | 0.0 | CLAYEY SAND (SC), very dark brown/gray, moist, medium dense | | |
| | | | | 0.0 | CLAYEY SAND (SC), very dark brown/gray, wet, medium dense | | |
| | | | | 0.0 | SAND (SP), brown, medium to fine, wet, loose | | |
| | | | | 0.0 | SAND (SP), brown, medium to fine, wet, loose | | |
| 5 | | | | 0.0 | SAND (SP), gray, medium to fine, wet, loose, wood at the very end of the boring | | |
| | | | | 0.0 | End of boring at 7 ft bgs. | | |

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| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring MW-34 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 11/28/22 | DATE FINISHED: 11/28/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 15.0 | SCREEN INTERVAL (ft.): 7.5-12.5 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 9.5 | CASING: 2", Sch-40 PVC |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 4.21 | |
| HAMMER WEIGHT: NA | | DROP: NA | LOGGED BY: Zach McCurley |
| | | | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS |
|--------------|------------|--------------|-------------|-------------------|---|------------|---|
| | Sample No. | Recovery (%) | | | | | |
| | | | | | Topsoil | | Top of Casing Elevation: TBD |
| | | | | 0 | SAND (SP), brown, medium to fine, trace gravel, moist, loose | | |
| | | | | 0 | SAND (SP), black, medium to fine, little organics, moist, loose | | |
| | | | | 0 | SILTY SAND (SM), gray, trace gravel, moist, medium dense | | |
| | | | | 0 | SAND (SP), gray, medium to fine, trace clay, moist, medium dense | | |
| 5 | | | | 0 | | | |
| | | | | 0 | | | |
| | | | | 0 | | | |
| | | | | 0 | | | |
| 10 | | | | 0 | SAND (SP), gray, medium to fine, wet, Wood | | |
| | | | | 13.7 | SAND (SP), black, medium to fine, strong odor, bricks and metal at 10'. Sheen starting at 11' | | |
| | | | | 141.7 | | | |
| | | | | 106.3 | | | |
| | | | | 177.4 | SAND (SP), gray, medium to fine, trace gravel, wet, medium dense | | |
| | | | | 49.7 | | | |
| 15 | | | | | End of boring at 15 ft bgs | | |

WELL10



Acronyms
 ATD - At Time of Drilling
 ATS - At Time of Sampling

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| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS01 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 11/29/22 | DATE FINISHED: 11/29/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 25.0 | SCREEN INTERVAL (ft.): 3-7 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 2.0 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 2.0 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Kiersten White | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS |
|-----------------|---------------|-----------------|----------------|-----------------------------|--|------------|--|
| | Sample No. | Recovery (%) | | | | | |
| | | | | | | | Top of Casing Elevation: TBD |
| 5 | VAS01-3-7 | | | | Fill (GW): | | |
| | | | | | SAND (SA): light brown, saturated, fine to medium sand | | |
| | | | | | SILTY CLAY (SC): dark gray, saturated, slight plasticity | | |
| | | | | | SILTY SAND (SM): greenish gray, saturated, trace clay | | |
| 10 | | | | | SILTY CLAY (SC): olive gray, saturated, soft, slight plasticity | | |
| | | | | | SILTY SAND (SM): light gray, saturated, fine to medium sand | | |
| 15 | | | | | SILTY CLAY (CL): olive gray, saturated, soft, slight plasticity | | |
| | | | | | SILTY SAND (SM): light gray, saturated, fine to medium sand | | |
| 20 | | | | | SILTY SAND (SM): dark brown, saturated, coarse to medium silty sand, some gravel | | |
| | | | | | SILTY SAND (SM): light gray, saturated, compacted | | |
| 25 | | | | End of boring at 25 ft bgs. | | | 1", stainless steel screen used |

WELL10



Acronyms
ATD - At Time of Drilling
ATS - At Time of Sampling

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| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS02 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 11/29/22 | DATE FINISHED: 11/29/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 5-10; |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 5.0 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 5.0 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Kiersten White | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|--------------|-------------|--------------|-------------|-------------------|---|------------|---|---------------------------------|
| | Sample No. | Recovery (%) | | | | | | |
| | | | | | | | Top of Casing Elevation: TBD | |
| | VAS02-5-10 | | | 0.0 | Fill (GW): | | | |
| | | | | 0.0 | SILTY SAND (SM): dark olive, some gravel | | | |
| 5 | | | | 0.0 | SILTY SAND (SM): dark olive, saturated, some gravel | | | |
| | | | | 0.0 | SILTY SAND (SM): dark olive, saturated, fine to medium sand, trace clay, glass fragments | | | |
| | | | | 0.0 | SILTY CLAY (CL): dark olive, saturated | | | 1", Sch-40 PVC screen used |
| 10 | VAS02-16-20 | | | 0.0 | SILTY SAND (SM): dark gray, saturated, fine to medium sand | | | |
| | | | | 0.0 | SILTY SAND (SM): dark brown, saturated, fine to medium sand | | | |
| 15 | | | | 0.0 | SILTY SAND (SM): light gray, saturated, fine to medium sand | | | |
| | | | | 0.0 | | | | 1", stainless steel screen used |
| 20 | | | | | End of boring at 20 ft bgs. | | | |

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| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS03 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 11/30/22 | DATE FINISHED: 11/30/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 2-7; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 2.5 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 2.5 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Kiersten White | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|--------------|-------------|--------------|-------------|-------------------|---|------------|---|--|
| | Sample No. | Recovery (%) | | | | | | |
| | | | | | Fill (GW): | | Top of Casing Elevation: TBD | |
| | VAS03-2-7 | | | 0.0 | SILTY SAND (SM): light brown, moist, trace gravel | | 1", Sch-40 PVC screen used | |
| | | | | 0.0 | SILTY SAND (SM): light brown, saturated, trace gravel | | | |
| 5 | | | | 0.0 | SILTY SAND (SM): dark gray, saturated, trace clay | | | |
| | | | | 0.0 | SILTY CLAY (CL): dark gray, saturated | | | |
| 10 | VAS03-16-20 | | | 0.0 | SILTY SAND (SM): light brown, saturated, fine to medium sand | | 1", stainless steel screen used | |
| | | | | 0.0 | SILTY SAND (SM): light gray, fine sand | | | |
| 20 | | | | | End of boring 20 ft bgs. | | | |

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| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS04 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 11/30/22 | DATE FINISHED: 11/30/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 4-9; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 4.0 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 4.0 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Kiersten White | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|-----------------|---------------|-----------------|----------------|-------------------------|--|------------|--|--|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| 5 | VAS04-4-9 | | | 0.0 | Fill (GM): brown (7.5 YR 4/3), damp, fill, gravel with fines | ▼ | 1", Sch-40 PVC screen used | |
| | | | | 0.0 | SILTY SAND (SM): black (10 YR 2/1), moist SATURATED | | | |
| 15 | VAS04-16-20 | | | 46.2 | SILTY SAND (SM): black (10 YR 2/1), saturated | | 1", stainless steel screen used | |
| | | | | NM | SILTY SAND (SM): light olive brown (2.5 YR 5/4), saturated | | | |
| 20 | | | | NM | SANDY SILT (ML): gray (GLEY 1 6/1), saturated | | | |
| | | | | | End of boring at 20 ft bgs. | | | |

WELL10



Acronyms

ATD - At Time of Drilling
ATS - At Time of Sampling

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| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS05 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/1/22 | DATE FINISHED: 12/1/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 4-9; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 4.0 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 3.72 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Jared Walbert | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|--------------|--|--------------|-------------|-------------------|---|------------|---|--|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| 5 | VAS05-4-9, DUP-01-01122022, VAS05-SB-3-4 | | | | ORGANIC SILT (OL): brown (7.5 YR 5/3), damp | ▼ | 1", Sch-40 PVC screen used | |
| | | | | | SILTY SAND (SM): brown (7.5 YR 5/3), damp | | | |
| | | | | | SILTY GRAVEL (GM): brown (7.5 YR 5/4), damp | | | |
| | | | | | CLAYEY SILT (ML): very dark brown (10 YR 2/2), wet, slight plasticity | | | |
| | | | | | CLAYEY SILT (ML): very dark brown (10 YR 2/2), saturated, slight plasticity | | | |
| | | | | | ORGANIC SOIL (PT): yellowish brown (10 YR 5/6), saturated, wood fiber | | | |
| | | | | | CLAYEY SILT (ML): black (5 YR 2.5/1), saturated, slight plasticity | | | |
| | | | | | SILTY SAND (SM): dark gray (Gley 1 4/N), saturated | | | |
| | | | | | SILTY SAND (SM): gray to olive brown (5 Y 6/1 to 2.5 Y 4/3), saturated | | | |
| | | | | | SILT (ML): gray (Gley 1 6/N), saturated | | | |
| 20 | | | | | End of boring at 20 ft bgs. | | 1", stainless steel screen used | |

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| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS06 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/1/22 | DATE FINISHED: 12/1/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 3-8; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 3.0 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 3.22 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Jared Walbert | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|--------------|------------|--------------|-------------|-------------------|---|---|---|---|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| 5 | VAS06-3-8 | | | | 0.0 | ▼ | 1", Sch-40 PVC screen used | Topsoil (OL): brown (7 YR 4/3), damp |
| | | | | | 0.0 | | | SILTY SAND (SM): dark brown (7 YR 3/4), damp |
| | | | | | 0.0 | | | POORLY-GRADED SAND (SP): dark gray (5 Y 4/1), saturated |
| | | | | | NM | | | |
| | | | | | NM | | | |
| | | | | | NM | | | CLAYEY SILT (ML): black (GLEY 1 2.5/N), saturated, low plasticity |
| | | | | | NM | | | ORGANIC SILT (OL): very dark brown (10 YR 2/2), saturated, trace organic material (roots) |
| | | | | | NM | | | |
| | | | | | NM | | | POORLY-GRADED SAND (SP): dark gray (5 Y 4/1), saturated |
| | | | | | NM | | | CLAYEY SILT (ML): black (GLEY 1 2.5/N), saturated, low plasticity |
| 10 | | | | | NM | | | SILTY SAND (SM): very dark gray (GLEY 1 3/N), saturated |
| | | | | | NM | POORLY-GRADED SAND (SP): grayish brown (10 YR 5/2), saturated | | |
| | | | | | NM | | | |
| | | | | | NM | | | |
| | | | | | NM | SANDY SILT (ML): gray (GLEY 1 7/N), saturated | | |
| 15 | | | | | NM | | 1", stainless steel screen used | |
| | | | | | NM | | | |
| | | | | | NM | | | |
| | | | | | NM | | | |
| | | | | | NM | | | |
| | | | | | NM | | | |
| | | | | | NM | | | |
| | | | | | NM | | | |
| | | | | | NM | | | |
| | | | | | NM | | | |
| 20 | | | | | NM | | | End of boring 20 ft bgs. |
| | | | | | NM | | | |

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| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS07 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/1/22 | DATE FINISHED: 12/1/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 3-8; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 4.0 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 4.67 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Jared Walbert | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|-----------------|---------------|-----------------|----------------|-------------------------|--|------------|--|------------------------------------|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| | | | | | Topsoil (OL): brown (7.5 YR), damp | | | |
| | | | | 0.0 | SILTY SAND (SM): brown (7.5 YR 5/3), damp | | | |
| | | | | 0.0 | | | | |
| | | | | 0.0 | POORLY-GRADED SAND (SP): grayish brown (2.5 Y 3/2) | | | |
| | | | | 0.0 | | | | |
| 5 | VAS07-3-8 | | | NM | POORLY-GRADED SAND (SP): grayish brown (2.5 Y 3/2), saturated | | | 1", Sch-40 PVC screen used |
| | | | | NM | SANDY SILT (ML): black (GLEY 1 2.5/N), saturated | | | |
| | | | | NM | POORLY-GRADED SAND (SP): grayish brown (2.5 Y 3/2), saturated | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | CLAYEY SILT (ML): black (10 YR 2/1), saturated, low plasticity | | | |
| | | | | NM | | | | |
| | | | | NM | POORLY-GRADED SAND (SP): light brownish gray (2.5 Y 6/2), saturated | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | ORGANIC SOIL (OL): dark brown (7.5 YR 3/2), saturated, organic silt | | | 1", stainless steel screen used |
| | | | | NM | | | | |
| 20 | VAS07-16-20 | | | NM | End of boring at 20 ft bgs. | | | |

WELL10



Acronyms
ATD - At Time of Drilling
ATS - At Time of Sampling

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| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS08 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/1/22 | DATE FINISHED: 12/2/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 4-9; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 4.5 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 4.65 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Jared Walbert | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|--------------|-------------|--------------|-------------|-------------------|---|--|---|--|
| | Sample No. | Recovery (%) | | | | | | |
| | | | | | | | Top of Casing Elevation: TBD | |
| | VAS08-4-9 | | | 0.0 | POORLY-GRADED SAND (SP): brown (10 YR 5/3), dry | | | |
| | | | | 0.0 | | | | |
| | | | | 0.0 | | | | |
| | | | | NM | | | | |
| 5 | | | | NM | | ORGANIC SOIL (OL): very dark brown (10 YR 2/2), saturated, organic silt, roots and wood fibers | | |
| | | | NM | | SILT (ML): gray (10 YR 6/1), saturated, slight plasticity | | | |
| | | | NM | | CLAYEY SILT (ML): very dark brown (10 YR 2/2), saturated, low plasticity | | | |
| | | | NM | | POORLY-GRADED SAND (SP): gray (10 YR 6/1), saturated, shells present 10-11 ft bgs | | | |
| 10 | | | NM | | | | | |
| | | | NM | | | | | |
| | | | NM | | | | | |
| | | | NM | | | | | |
| | | | NM | | | | | |
| | | | NM | | | | | |
| | | | NM | | | | | |
| | | | NM | | | | | |
| 15 | | | NM | | POORLY-GRADED SAND (SP): brownish yellow (10 YR 6/6), saturated | | | |
| | | | NM | | SILT (ML): dark gray (10 YR 4/1), saturated | | | |
| | | | NM | | | | | |
| | | | NM | | | | | |
| | | | NM | | | | | |
| | | | NM | | | | | |
| 20 | | | NM | | | | | |
| | | | | | End of boring 20 ft bgs. | | | |
| | VAS08-16-20 | | | | | | 1", stainless steel screen used | |

WELL10



Acronyms
 ATD - At Time of Drilling
 ATS - At Time of Sampling

Project No. 3650220203

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| | | | |
|---|----------|-------------------------------------|--------------------------------------|
| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS09 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/2/22 | DATE FINISHED: 12/2/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 4-9; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 4.8 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 4.88 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Jared Walbert | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|--------------|-------------|--------------|-------------|-------------------|---|------------|---|---------------------------------|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| 5 | VAS09-4-9 | | | | 0.0 | 0.0 | Topsoil (OL): very dark brown (10 YR 2/2), damp | 1", Sch-40 PVC screen used |
| | | | | | 0.0 | 0.0 | POORLY-GRADED SAND (SP): brown (10 YR 5/3), damp | |
| | | | | | 0.0 | 0.0 | SANDY SILT (ML): gray (10 YR 6/1), wet, no plasticity | |
| | | | | | 0.0 | 0.0 | SANDY SILT (ML): gray (10 YR 6/1), saturated | |
| | | | | | NM | NM | CLAYEY SILT with SAND (ML): dark gray (GLEY 1 4/N), saturated | |
| | | | | | NM | NM | Peat (PT): very dark brown, black (10 YR 2/2 to 10 YR 2/1), saturated, compressed wood fibers, friable | |
| | | | | | NM | NM | POORLY-GRADED SAND (SP): gray (GLEY 1 5/N), saturated, silty clay stringers (CL), wet at 7.00-7.25 and 8.25-8.50 ft bgs, shell fragments 10-11 feet bgs | |
| | | | | | NM | NM | SILT (OL): very dark brown (10 YR 2/2), saturated, wood pieces | |
| | | | | | NM | NM | POORLY-GRADED SAND (SP): grayish brown (10 YR 5/2), saturated | |
| | | | | | NM | NM | | |
| 15 | VAS09-16-20 | | | | NM | NM | SILT (ML): gray (10 YR 6/1), damp, no plasticity | 1", stainless steel screen used |
| | | | | | NM | NM | | |
| | | | | | NM | NM | | |
| | | | | | NM | NM | | |
| 20 | | | | | NM | NM | End of boring 20 ft bgs. | |

| | | | |
|---|----------|-------------------------------------|--------------------------------------|
| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS10 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/2/22 | DATE FINISHED: 12/2/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 2-7; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 2.5 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 2.55 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Jared Walbert | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|--------------|---------------------------|--------------|-------------|-------------------|---|------------|---|---------------------------------|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| 5 | VAS10-2-7; DUP02-02122022 | | | 0.0 | SILTY SAND (SM): dark brown (10 YR 3/3), damp | ▼ | 1", Sch-40 PVC screen used | |
| | | | | 0.0 | Crushed brick yellowish red (5 YR 4/6) | | | |
| | | | | NM | SILT (ML): dark bluish gray (GLEY 2 4/1), wet, GLEY 1 8/N veins, 5 YR 7/2 mottling | | | |
| | | | | NM | SILTY CLAY (CL): black (10 YR 4/1 to 10 YR 2/1), saturated, wood and root fibers | | | |
| | | | | NM | POORLY-GRADED SAND (SP): gray (GLEY 1 5/N), saturated, trace shells at 6.5 ft bgs | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| 10 | | | | NM | SILTY CLAY (CL): very dark gray (GLEY 1 3/N), saturated | | | |
| | | | | NM | ORGANIC SOIL (PT): black (GLEY 1 2.5/N to GLEY 1 3/N), saturated, trace wood, shells throughout | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| 15 | | | | NM | SILTY SAND (SM): very dark gray (GLEY 1 3/N), saturated | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| 20 | | | | NM | | | | 1", stainless steel screen used |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | | End of boring 20 ft bgs. | | | |

| | | | |
|---|----------|-------------------------------------|--------------------------------------|
| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS12 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/5/22 | DATE FINISHED: 12/5/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 3-7; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 3.6 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 3.59 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Jared Walbert | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|--------------|-------------|--------------|-------------|-------------------|--|---------------------------------|---|--|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| 5 | VAS12-3-7 | | | 0.0 | GRAVELLY SILT with SAND (GM): black (GLEY 1 2.5/N), dry, coal fragments | ▼ | 1", stainless steel screen used | |
| | | | | 0.0 | POORLY-GRADED SAND (SP): reddish yellow (7.5 YR 6/8), damp | | | |
| | | | | 0.0 | SILTY SAND (SM): brown (10 YR 5/3), wet | | | |
| | | | | NM | SILTY SAND (SM): brown (10 YR 5/3), saturated | | | |
| | | | | NM | SILTY GRAVEL (GM): very dark brown (10 YR 2/2), saturated | | | |
| | | | | NM | GRAVELLY SILT (ML): very dark brown (10 YR 2/2), saturated | | | |
| | | | | NM | POORLY-GRADED SAND (SP): gray (GLEY 1 5/N), saturated, shells present at 9.0-9.5 ft bgs | | | |
| | | | | NM | CLAYEY SILT (ML): black (GLEY 1 2.5/N), saturated, shells present at 10.0-15.0 ft bgs, leaves and wood present at 15.0-18.0 ft bgs, low plasticity | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| 15 | VAS12-16-20 | | | NM | SILTY SAND (SM): gray (GLEY 1 5/N), saturated | 1", stainless steel screen used | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| 20 | | | | NM | CLAYEY SILT (ML): black (GLEY 1 2.5/N), saturated, low plasticity | | | |
| | | | | NM | | | | |
| | | | | | End of boring 20 ft bgs. | | | |

| | | | |
|---|----------|-------------------------------------|--------------------------------------|
| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS13 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/5/22 | DATE FINISHED: 12/5/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 3-7; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 3.0 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 3.05 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Jared Walbert | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|--------------|--------------|--------------|-------------|-------------------|--|------------|---|--|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| 5 | VAS13-SB-2-3 | | | | Topsoil (OL): very dark brown (10 YR 2/2), damp | ▼ | 1", stainless steel screen used | |
| | VAS13-3-7 | | | | SILTY GRAVEL (GM): black to very dark brown (GLE Y 1 2.5/N, 10 YR 2/2), wet, ceramic, glass, and rubber pieces from 2.0-3.0 ft bgs | | | |
| 10 | | | | NM | SILTY GRAVEL (GM): very dark brown (10 YR 2/2), saturated | | 1", stainless steel screen used | |
| | | | | NM | SILT (ML): black (GLE Y 1 2.5/N), saturated, wood fragments | | | |
| | | | | NM | SILT (ML): gray (10 YR 6/1), saturated, shells present 8.0-9.0 ft bgs, low plasticity | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| 15 | | | | NM | SILTY SAND (SM): gray (10 YR 6/1), saturated | | 1", stainless steel screen used | |
| | | | | NM | CLAYEY SILT (ML): gray (10 YR 6/1), saturated | | | |
| | | | | NM | POORLY-GRADED SAND (SP): black (GLE Y 1 2.5/N), saturated, trace shell fragments | | | |
| | | | | NM | | | | |
| 20 | VAS13-16-20 | | | NM | WELL-GRADED SAND (SW): brown (10 YR 5/3), saturated | | 1", stainless steel screen used | |
| | | | | NM | End of boring 20 ft bgs. | | | |

| | | | |
|---|----------|-------------------------------------|--------------------------------------|
| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS14 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/5/22 | DATE FINISHED: 12/5/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 1-5; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 1.5 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 1.79 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Jared Walbert | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|--------------|-------------|--------------|-------------|-------------------|---|------------|---|--|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| 5 | VAS14-1-5 | | | 0.0 | POORLY-GRADED SAND (SP): brown (10 YR 5/3), wet | ▼ | 1", stainless steel screen used | |
| | | | | 0.0 | SANDY CLAY (CL): dark grayish brown (10 YR 4/2), dry, low plasticity | | | |
| | | | | NM | SILTY GRAVEL (GM): black (GLE Y 1 2.5/N), wet, coal fragments | | | |
| | | | | NM | SILTY GRAVEL (GM): black (GLE Y 1 2.5/N), saturated, coal fragments | | | |
| | | | | NM | SILTY GRAVEL (GM): dark brown (10 YR 3/3), saturated | | | |
| | | | | NM | CLAYEY SILT (ML): very dark gray (GLE Y 1 3/N), saturated, shells at 6.0 ft bgs, low plasticity | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| 10 | | | | NM | POORLY-GRADED SAND (SP): gray (GLE Y 1 6/N), saturated | | | |
| | | | | NM | CLAYEY SILT (ML): very dark gray (GLE Y 1 3/N), saturated, leaf and wood pieces at 15.0-17.0 ft bgs, low plasticity | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| 15 | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| 20 | VAS14-16-20 | | | NM | POORLY-GRADED SAND (SP): gray (GLE Y 1 6/N), saturated | | 1", stainless steel screen used | |
| | | | | NM | | | | |
| | | | | NM | CLAYEY SILT (ML): very dark gray (GLE Y 1 3/N), saturated, low plasticity | | | |
| | | | | NM | End of boring 20 ft bgs. | | | |

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| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS15/MW-39 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/5/22 | DATE FINISHED: 12/6/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 3-7; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 3.0 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 3.10 | |
| HAMMER WEIGHT: NA | | DROP: NA | LOGGED BY: Jared Walbert |
| | | | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|-----------------|-------------------------|-----------------|----------------|-------------------------|--|---|--|--|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| 5 | VAS15-3-7, VAS15-SB-3-5 | | | 0.0 | POORLY-GRADED SAND (SP): yellowish brown (10 YR 5/8), dry |  | | Odor detected at 3.0-5.0 ft bgs, low PID reading of saturated soil (0.6 ppm), 1", stainless steel screen used Odor detected at 5.0-7.0 ft bgs |
| | | | | 0.0 | POORLY-GRADED SAND (SP): very dark brown (10 YR 2/2), saturated, waste consisting of ceramics, glass and metal | | | |
| | | | | 0.6 | | | | |
| | | | | NM | SILTY GRAVEL (GM): very dark brown (10 YR 2/2), saturated, waste consisting of ceramic and glass | | | |
| | | | | NM | | | | |
| | | | | NM | CLAYEY SILT (ML): black to very dark gray (10 YR 2/1 to 10 YR 3/1), saturated, wood fibers, low plasticity | | | |
| | | | | NM | SANDY SILT (ML): brown (10 YR 5/3), saturated, shells at 9.0 ft bgs | | | |
| | | | | NM | CLAYEY SILT (ML): very dark grayish brown (10 YR 3/2), saturated | | | |
| | | | | NM | | | | |
| | | | | NM | SILTY CLAY (ML): very dark grayish brown (10 YR 3/2), wet | | | |
| 15 | | | | NM | CLAYEY SILT (ML): very dark grayish brown (10 YR 3/2), saturated, leaf and wood debris at 14.0-15.0 ft bgs |  | | 1", stainless steel screen used |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| 20 | VAS15-16-20 | | | NM | POORLY-GRADED SAND (SP): gray (10 YR 6/1), saturated |  | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | End of boring at 20 ft bgs. | | | |

WELL10



Acronyms

ATD - At Time of Drilling
ATS - At Time of Sampling

| | | | |
|---|----------|---------------------------------------|--------------------------------|
| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS16/MW-40 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/6/22 | DATE FINISHED: 12/6/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 10.0 | SCREEN INTERVAL (ft.): 3-7 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 3.0 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 3.2 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Jared Walbert | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | | |
|-----------------|---------------|-----------------|----------------|-------------------------|--|---|--|---|---------------------------------|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | | |
| 5 | VAS16-3-7 | | | 0.0 | POORLY-GRADED SAND (SP): dark grayish brown (10 YR 4/2), damp | | | | |
| | | | | 0.0 | SILTY GRAVEL (GM): black (GLEY 1 2.5/N), damp, coal fragments | | | | |
| | | | | 0.0 | POORLY-GRADED SAND (SP): dark grayish brown (10 YR 4/2), saturated | | | | |
| | | | | NM | | | | | |
| | | | | NM | | SILTY GRAVEL (GM): grayish brown (10 YR 5/2), saturated | | | 1", stainless steel screen used |
| | | | | NM | | | | | |
| 10 | | | | NM | End of boring at 10 ft bgs. | | | Multiple location refusal at 10 ft bgs, no deep interval achieved | |

WELL10



Acronyms
ATD - At Time of Drilling
ATS - At Time of Sampling

Project No. 3650220203

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| | | | |
|---|--|-------------------------------------|--------------------------------------|
| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS17 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/6/22 | DATE FINISHED: 12/6/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 3-7; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 3.0 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 3.29 | |
| HAMMER WEIGHT: NA | | DROP: NA | LOGGED BY: Jared Walbert |
| | | | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|--------------|-------------|--------------|-------------|-------------------|--|------------|---|-------------------------------------|
| | Sample No. | Recovery (%) | | | | | | |
| | | | | | | | Top of Casing Elevation: TBD | |
| 0.0 | | | | | POORLY-GRADED SAND (SP): dark gray (GLEY 1 4/N), damp | | | |
| 0.0 | | | | | SILTY GRAVEL (GM): black (GLEY 1 2.5/N), damp, coal fragments | | | |
| 0.0 | | | | | POORLY-GRADED SAND (SP): dark gray (GLEY 1 4/N), moist | | | |
| 5 | VAS17-3-7 | | | NM | SILTY GRAVEL (GM): black to dark grayish brown (GLEY 1 2.5/N to 10 YR 4/2), moist, glass, coal, and concrete fragments | | | 1", stainless steel screen used |
| | | | | NM | SILT (ML): black to dark gray (GLEY 1 2.5/N to GLAY 1 4/N), wet, trace coal and root fibers, low | | | seen at 6.0-9.5 ft bgs, no PID hits |
| | | | | NM | SILTY GRAVEL (GM): dark grayish brown (10 YR 4/2), saturated, glass fragments | | | |
| | | | | NM | SILTY GRAVEL (GM): black (GLEY 1 2.5/N), saturated, glass, wood debris at 9.5 ft bgs | | | |
| 10 | | | | NM | CLAYEY SILT (ML): black to dark gray (GLEY 1 2.5/N to GLAY 1 4/N), saturated | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| 15 | | | | NM | POORLY-GRADED SAND (SP): gray (GLEY 1 6/N), saturated | | | |
| | | | | NM | CLAYEY SILT (ML): dark gray (GLEY 1 4/N), saturated | | | |
| | | | | NM | | | | |
| | | | | NM | | | | 1", stainless steel screen used |
| 20 | VAS17-16-20 | | | NM | POORLY-GRADED SAND (SP): gray (GLEY 1 6/N), saturated | | | |
| | | | | NM | End boring at 20 ft bgs. | | | |

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| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS18 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/6/22 | DATE FINISHED: 12/6/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 3-7; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 3.5 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 3.41 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Jared Walbert | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|--------------|----------------------------|--------------|-------------|-------------------|---|------------|---|---------------------------------|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| 5 | VAS18-3-7, DUP-03-06122022 | | | 0.0 | POORLY-GRADED SAND (SP): reddish yellow (7.5 YR 6/8), moist | ▼ | | 1", stainless steel screen used |
| | | | | 0.0 | | | | |
| | | | | 0.0 | | | | |
| | | | | NM | POORLY-GRADED SAND (SP): reddish yellow (7.5 YR 6/8), saturated | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | CLAYEY SILT (ML): very dark gray (GLE Y 3/N), saturated, low plasticity | | | |
| | | | | NM | SILTY GRAVEL (GM): black (GLE Y 1 2.5/N), saturated, brick and wood fragments | | | |
| | | | | NM | CLAYEY SILT (ML): black (GLE Y 1 2.5/N), saturated, low plasticity | | | |
| | | | | NM | | | | |
| 10 | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| 15 | VAS18-16-20 | | | NM | POORLY-GRADED SAND (SP): gray (5 Y 6/1), saturated | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| 20 | | | | NM | | | 1", stainless steel screen used | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | End of boring at 20 ft bgs. | | | |

| | | | |
|---|----------|-------------------------------------|--------------------------------------|
| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS19 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/7/22 | DATE FINISHED: 12/7/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 5-9; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 5.0 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 6.05 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Jared Walbert | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|-----------------|----------------------------|-----------------|----------------|-------------------------|--|------------|--|--|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| 5 | VAS19-5-9, DUP-04-07122022 | | | 0.0 | POORLY-GRADED SAND (SP): yellowish brown (10 YR 5/8), moist | 5.0 | 1", stainless steel screen used | |
| | | | | NM | SILTY GRAVEL with SAND (GM): black (GLEY 1 2.5/N), saturated, glass fragments, slag at 5.0 ft bgs | | | |
| 10 | | | | NM | SILTY SAND (SM): black (GLEY 1 2.5/N), saturated, fine to medium sand, glass and slag at 7.5-8.5 ft bgs, wood fragments at 9.5-10.0 ft bgs | 10.0 | | |
| | | | | NM | CLAYEY SILT (ML): very dark grayish brown (10 YR 3/2), saturated, low plasticity | | | |
| 15 | | | | NM | SANDY SILT (ML): dark grayish brown (10 YR 4/2), saturated, no plasticity | 15.0 | | |
| | | | | NM | SILTY CLAY (CL): very dark grayish brown (10 YR 3/2), saturated, low plasticity | | | |
| 20 | VAS19-16-20 | | | NM | SANDY SILT (ML): dark grayish brown (10 YR 4/2), saturated, no plasticity | 20.0 | 1", stainless steel screen used | |
| | | | | NM | CLAYEY SILT (ML): very dark brown (10 YR 2/2), saturated, low plasticity | | | |
| | | | | NM | End of boring at 20 ft bgs. | | | |

WELL10



Acronyms
ATD - At Time of Drilling
ATS - At Time of Sampling

Project No. 3650220203

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| | | | |
|---|----------|---------------------------------------|--------------------------------------|
| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS20/MW-36 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/7/22 | DATE FINISHED: 12/7/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 5-9; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 5.0 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 5.85 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Jared Walbert | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|--------------|------------|--------------|-------------|-------------------|---|------------|---|---------------------------------|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| 5 | VAS20-5-9 | | | 0.0 | POORLY-GRADED SAND (SP): yellowish brown (10 YR 5/8), moist | | | |
| | | | | 0.0 | | | | |
| | | | | 0.0 | | | | |
| | | | | 0.0 | | | | |
| | | | | 0.0 | | | | |
| | | | | 0.0 | | | | |
| | | | | 0.0 | | | | |
| | | | | 0.0 | | | | |
| | | | | 0.0 | | | | |
| | | | | 0.0 | | | | |
| 10 | | | | NM | POORLY-GRADED SAND (SP): yellowish brown (10 YR 5/8), saturated | | | 1", stainless steel screen used |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
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| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| 15 | | | | NM | WELL-GRADED SAND with GRAVEL (SW): yellowish brown (10 YR 5/8), saturated | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| 20 | | | | NM | WELL-GRADED GRAVEL (GW): gray (GLE 1 6/N), saturated | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | SILTY GRAVEL (GM): very dark brown (10 YR 2/2), saturated | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | CLAYEY SILT (ML): very dark brown (10 YR 2/2), saturated, low plasticity | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | SANDY SILT (ML): dark gray (5 Y 4/1), saturated | | | 1", stainless steel screen used |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | SILT (ML): very dark brown (10 YR 2/2), saturated | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | POORLY-GRADED SAND (SP): gray (5 Y 6/1), saturated | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | | End of boring at 20 ft bgs. | | | |

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|---|----------|--------------------------------------|--------------------------------------|
| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS21/MW37 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/7/22 | DATE FINISHED: 12/7/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 5-9; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 5.0 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 5.58 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Jared Walbert | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|-----------------|-------------------------|-----------------|----------------|-------------------------|--|------------|--|---------------------------------|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| 5 | VAS21-5-9, VAS21-SB-5-7 | | | 0.0 | SILTY GRAVEL (GM): gray (10 YR 6/1), damp | | | |
| | | | | 0.0 | POORLY-GRADED SAND (SP): yellowish brown (10 YR 5/8), damp | | | |
| | | | | 0.0 | SILTY GRAVEL (GM): very dark brown (10 YR 2/2), damp | | | |
| | | | | 0.0 | POORLY-GRADED SAND (SP): brown (10 YR 5/3), moist | | | |
| | | | | 0.0 | POORLY-GRADED SAND (SP): brown (10 YR 5/3), wet | | | |
| | | | | NM | POORLY-GRADED SAND (SP): brown (10 YR 5/3), saturated, glass fragments at 7 ft bgs | | | |
| | | | | NM | POORLY-GRADED SAND (SP): dark gray (10 YR 4/1), saturated | | | |
| | | | | NM | POORLY-GRADED SAND (SP): black (GLEY 1 2.5/N), saturated | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| 15 | VAS21-16-20 | | | NM | SILTY GRAVEL (GM): black (GLEY 1 2.5/N), saturated, poorly graded | | | 1", stainless steel screen used |
| | | | | NM | POORLY-GRADED SAND (SP): black (GLEY 1 2.5/N), saturated | | | |
| | | | | NM | SILTY CLAY (CL): very dark brown (10 YR 2/2), wet, plastic | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| 20 | | | | NM | POORLY-GRADED SAND (SP): dark gray (GLEY 1 4/N), saturated | | | 1", stainless steel screen used |
| | | | | NM | SILTY CLAY (CL): very dark brown (10 YR 2/2), wet, plastic | | | |
| | | | | | End of boring at 20 ft bgs. | | | |

WELL10



Acronyms
ATD - At Time of Drilling
ATS - At Time of Sampling

Project No. 3650220203

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| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS22/MW-38 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/7/22 | DATE FINISHED: 12/7/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 5-9; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 5.0 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 5.50 | |
| HAMMER WEIGHT: NA | | DROP: NA | LOGGED BY: Jared Walbert |
| | | | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|--------------|-------------|--------------|-------------|-------------------|--|------------|---|---------------------------------|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| 5 | VAS22-5-9 | | | 0.0 | SILTY GRAVEL (GM): black (GLEY 1 2.5/N), damp | | | |
| | | | | 0.0 | | | | |
| | | | | 0.0 | | | | |
| | | | | 0.0 | | | | |
| | | | | 0.0 | | | | |
| | | | | 0.0 | | | | |
| | | | | 0.0 | | | | |
| | | | | 0.0 | | | | |
| | | | | 0.0 | | | | |
| | | | | 0.0 | | | | |
| 10 | | | | 0.0 | POORLY-GRADED SAND (SP): black (GLEY 1 2.5/N), wet | | | |
| | | | | NM | POORLY-GRADED SAND (SP): brownish yellow (10 YR 6/8), saturated | | | |
| | | | | NM | CLAYEY SILT (ML): black (GLEY 1 2.5/N), wet, coal fragments, low plasticity | | | |
| | | | | NM | POORLY-GRADED SAND (SP): brownish yellow to black (10 YR 6/8 to GLEY 1 2.5/N), saturated, wood and coal at 9.5-10.0 ft bgs | | | |
| | | | | NM | CLAYEY SILT (ML): very dark grayish brown (10 YR 3/2), saturated, low plasticity | | | |
| | | | | NM | POORLY-GRADED SAND (SP): very dark gray (GLEY 1 3/N), saturated | | | |
| | | | | NM | SILT (ML): very dark gray (GLEY 1 3/N), saturated | | | |
| | | | | NM | CLAYEY SILT (ML): very dark grayish brown (10 YR 3/2), saturated, leaves and roots at 16.0-17.0 ft bgs, low plasticity | | | |
| | | | | NM | POORLY-GRADED SAND (SP): gray (GLEY 1 5/N), saturated | | | |
| | | | | NM | | | | |
| 15 | | | | NM | | | | 1", stainless steel screen used |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| 20 | VAS22-16-20 | | | NM | | | | sheen at 9.5 ft bgs |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | End of boring at 20 ft bgs. | | | 1", stainless steel screen used |

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| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS25 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/8/22 | DATE FINISHED: 12/8/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 3-7; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 3.5 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 3.82 | |
| HAMMER WEIGHT: NA | | DROP: NA | LOGGED BY: Jared Walbert |
| | | | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|--------------|-------------|--------------|-------------|--|---|------------|---|---------------------------------|
| | Sample No. | Recovery (%) | | | | | | |
| | | | | | | | Top of Casing Elevation: TBD | |
| | VAS25-3-7 | | | | 0.0 Topsoil (OL): very dark brown (10 YR 2/2), wet | | | |
| | | | | | 0.0 SILTY SAND (SM): brown (10 YR 5/3), wet | | | |
| | | | | | 0.0 SANDY SILTY GRAVEL (GM): dark gray (10 YR 4/1), wet | | | |
| 5 | | | | NM | SANDY SILTY GRAVEL (GM): black (GLEY 1 2.5/N), saturated | | | |
| | | | | NM | SANDY SILT (ML): black (GLEY 1 2.5/N), saturated | | | 1", stainless steel screen used |
| | | | | NM | Highly organic material (PT): reddish brown (5 YR 4/4), saturated, wood | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| 15 | VAS25-16-20 | | NM | CLAYEY SILT (ML): dark gray (5 Y 4/1), saturated, low plasticity | | | | |
| | | | NM | | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | 1", stainless steel screen used |
| | | | | NM | | | | |
| 20 | | | | NM | End of boring at 20 ft bgs. | | | |

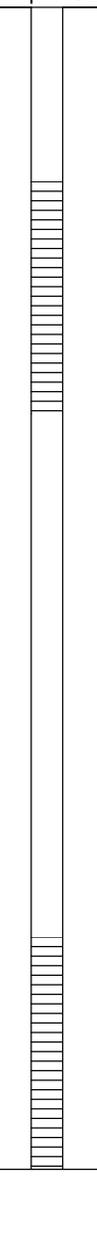
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|---|----------|-------------------------------------|--------------------------------------|
| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS26 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/8/22 | DATE FINISHED: 12/8/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 4-8; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 4.0 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 4.10 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Jared Walbert | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|--------------|-------------------------|--------------|-------------|-------------------|---|------------|---|---------------------------------|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| 5 | VAS26-4-8, VAS26-SB-4-6 | | | | 0.0 Topsoil (OL): brown (10 YR 4/3), moist | | | |
| | | | | | 0.0 POORLY-GRADED SAND (SP): yellowish brown (10 YR 5/8), moist | | | |
| 5 | | | | | 0.0 SILTY GRAVEL (GM): very dark brown (10 YR 2/2), moist, leather at 3 ft bgs, slag at 3 ft bgs | | | |
| | | | | | 0.0 SILT (ML): very dark gray (GLE Y 1 3/N), wet | | | |
| 5 | | | | | SILT (ML): very dark gray (GLE Y 1 3/N), saturated | | | 1", stainless steel screen used |
| | | | | | NM | | | |
| 10 | | | | | NM Highly organic material (PT): brown (7.5 YR 4/4), wood | | | |
| | | | | | NM | | | |
| 15 | | | | | NM CLAYEY SILT (ML): very dark gray (GLE Y 1 3/N), saturated | | | |
| | | | | | NM | | | |
| 20 | VAS26-16-20 | | | | NM | | | 1", stainless steel screen used |
| | | | | | NM | | | |
| | | | | | End of boring at 20 ft bgs. | | | |

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|---|----------|-------------------------------------|--------------------------------------|
| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS27 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/9/22 | DATE FINISHED: 12/9/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 4-8; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 4.0 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 3.26 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Jared Walbert | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|--------------|-------------|--------------|-------------|-------------------|---|------------|---|---------------------------------|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| 5 | VAS27-4-8 | | | 0.0 | POORLY-GRADED SAND (SP): yellowish brown (10 YR 5/4), moist | ▼ | | |
| | | | | 0.0 | SANDY SILT (ML): very dark brown to black (10 YR 2/2 to 10 YR 2/1), moist, concrete clasts at 4.0 ft bgs | | | |
| 10 | VAS27-16-20 | | | 0.0 | SANDY SILT (ML): very dark brown to black (10 YR 2/2 to 10 YR 2/1), saturated | | | 1", stainless steel screen used |
| | | | | NM | SILTY GRAVEL (GM): gray (GLEY 1 6/N), saturated | | | |
| | | | | NM | Highly organic material (PT): dark reddish brown (5 YR 3/4), saturated, wood | | | |
| | | | | NM | CLAYEY SILT (ML): dark grayish bbrown (10 YR 4/2), saturated, slight plasticity | | | |
| | | | | NM | POORLY-GRADED SAND (SP): gray (GLEY 1 5/N), saturated | | | |
| | | | | NM | SANDY SILT (ML): gray (GLEY 1 5/N), saturated | | | |
| 15 | VAS27-16-20 | | | NM | CLAYEY SILT (ML): gray (GLEY 1 5/N), saturated, low plasticity | | | 1", stainless steel screen used |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| 20 | | | | NM | End of boring at 20 ft bgs. | | | |

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| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS28 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/9/22 | DATE FINISHED: 12/9/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 3-7; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 4.0 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 3.90 | |
| HAMMER WEIGHT: NA | | DROP: NA | |
| | | LOGGED BY: Jared Walbert | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|--------------|----------------------------|--------------|-------------|-------------------|---|--|---|---------------------------------|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| 5 | VAS28-3-7, DUP-05-09122022 | | | 0.0 | CLAY (CL): brownish yellow (10 YR 6/6), dry |  | | |
| | | | | 0.0 | SILTY GRAVEL (GM): black (GLEYS 1 2.5/N), moist, coal deposit | | | |
| | | | | 0.0 | POORLY-GRADED SAND (SP): brown to very dark brown (10 YR 5/3 to 10 YR 2/2), wet | | | |
| | | | | 0.0 | POORLY-GRADED SAND (SP): brown to very dark brown (10 YR 5/3 to 10 YR 2/2), saturated | | | |
| | | | | NM | SILTY GRAVEL (GM): gray (GLEYS 1 5/N), saturated, glass at 7.0 ft bgs | | | |
| | | | | NM | SILTY GRAVEL (GM): black (GLEYS 1 2.5/N), saturated | | | |
| | | | | NM | SILT (ML): gray (GLEYS 1 5/N), saturated | | | |
| | | | | NM | POORLY-GRADED SAND (SP): gray (GLEYS 1 6/N), saturated | | | |
| | | | | NM | CLAYEY SILT (ML): very dark gray (10 YR 3/1), saturated | | | |
| | | | | NM | POORLY-GRADED SAND (SP): gray (GLEYS 1 6/N), saturated | | | |
| 15 | VAS28-16-20 | | | NM | CLAYEY SILT (ML): very dark gray (10 YR 3/1), saturated | | | |
| | | | | NM | POORLY-GRADED SAND (SP): gray (GLEYS 1 6/N), saturated | | | |
| | | | | NM | CLAYEY SILT (ML): very dark gray (10 YR 3/1), saturated | | | |
| | | | | NM | POORLY-GRADED SAND (SP): gray (GLEYS 1 6/N), saturated | | | |
| 20 | VAS28-16-20 | | | NM | CLAYEY SILT (ML): very dark gray (10 YR 3/1), saturated | | | 1", stainless steel screen used |
| | | | | NM | POORLY-GRADED SAND (SP): gray (GLEYS 1 6/N), saturated | | | |
| | | | | NM | CLAYEY SILT (ML): very dark gray (10 YR 3/1), saturated | | | |
| | | | | | End of boring at 20 ft bgs. | | | |

WELL10



Acronyms

ATD - At Time of Drilling
ATS - At Time of Sampling

Project No. 3650220203

Page 1 of 1

| | | | |
|---|--|-------------------------------------|--------------------------------------|
| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS29 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/12/22 | DATE FINISHED: 12/12/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 4-8; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 4.0 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 4.30 | |
| HAMMER WEIGHT: NA | | DROP: NA | LOGGED BY: Jared Walbert |
| | | | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|--------------|-------------|--------------|-------------|-------------------|---|------------|---|---------------------------------|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| 5 | VAS29-4-8 | | | | SILT (ML): very dark gray (GLEY 1 3/N), dry | 0.0 | | |
| | | | | | WELL-GRADED GRAVEL with SAND (GW): grayish brown (2.5 Y 5/2), wet | 0.0 | | |
| | | | | | SANDY SILT (ML): very dark gray (GLEY 1 3/N), wet | 0.0 | | |
| | | | | | SANDY SILT (ML): very dark gray (GLEY 1 3/N), saturated | 0.0 | | |
| | | | | | SILTY CLAY (CL): black (GLEY 1 2.5/N), saturated, low plasticity | NM | | 1", stainless steel screen used |
| | | | | | SILTY SAND (SM): black (GLEY 1 2.5/N), saturated | NM | | |
| | | | | | SILTY CLAY (CL): dark gray (GLEY 1 4/N), wet, low plasticity | NM | | |
| | | | | | POORLY-GRADED SAND (SP): light gray (GLEY 1 7/N), saturated | NM | | |
| | | | | | SILTY CLAY (CL): dark brown (10 YR 3/3), wet, low plasticity | NM | | |
| | | | | | POORLY-GRADED SAND (SP): pinkish gray (5 YR 7/2), saturated | NM | | |
| 15 | VAS29-16-20 | | | | | | | |
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| | | | | | | | | |
| | | | | | | | | |
| 20 | VAS29-16-20 | | | | | | | |
| | | | | | | | | 1", stainless steel screen used |
| | | | | | End of boring at 20 ft bgs. | | | |

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| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS30 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/12/22 | DATE FINISHED: 12/12/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 4-8; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 4.0 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 5.04 | |
| HAMMER WEIGHT: NA | | DROP: NA | LOGGED BY: Jared Walbert |
| | | | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|--------------|-------------|--------------|-------------|-------------------|---|------------|---|--|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| 5 | VAS30-4-8 | | | 0.0 | SILTY GRAVEL (GM): gray (GLEY 1 6/N), dry | ▼ | 1", stainless steel screen used | |
| | | | | 0.0 | POORLY-GRADED SAND (SP): light yellowish brown (10 YR 6/4), damp to moist | | | |
| | | | | 0.0 | | | | |
| | | | | 0.0 | SILTY SAND (SM): brown (10 YR 4/3), wet, brick fragments at 4.9 ft bgs | | | |
| | | | | NM | POORLY-GRADED GRAVEL (GP): dark gray (10 YR 4/1), saturated | | | |
| | | | | NM | | | | |
| | | | | NM | CLAYEY SILT (ML): dark brown (10 YR 3/3), saturated | | | |
| | | | | NM | SILTY CLAY (CL): grayish brown (10 YR 5/2), saturated | | | |
| | | | | NM | | | | |
| | | | | NM | POORLY-GRADED SAND (SP): gray (GLEY 1 6/N), saturated | | | |
| 15 | VAS30-16-20 | | | NM | SILTY CLAY (CL): gray to very dark gray (GLEY 1 5/N to GLEY 1 3/N), saturated, saturated leaves throughout 13.0-14.5 ft bgs | | 1", stainless steel screen used | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | SILT (ML): dark gray (5 Y 4/1), saturated, leaves throughout | | | |
| | | | | NM | CLAYEY SILT (ML): grayish brown (2.5 Y 5/2), saturated | | | |
| | | | | NM | POORLY-GRADED SAND (SP): gray (2.5 Y 6/1), saturated | | | |
| | | | | NM | SILT (ML): dark gray (5 Y 4/1), saturated | | | |
| 20 | | | | | End of boring at 20 ft bgs. | | | |

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| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS32 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/12/22 | DATE FINISHED: 12/12/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 3-7; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 3.0 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 4.31 | |
| HAMMER WEIGHT: NA | | DROP: NA | LOGGED BY: Jared Walbert |
| | | | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|--------------|-------------------------|--------------|-------------|--|---|------------|---|---------------------------------|
| | Sample No. | Recovery (%) | | | | | | |
| | | | | | | | Top of Casing Elevation: TBD | |
| | VAS32-3-7, VAS32-SB-3-5 | | | 0.0 | SANDY SILT (ML): dark brown (10 YR 3/3), moist, topsoil | | | |
| | | | | 0.0 | POORLY-GRADED SAND (SP): pale brown (10 YR 6/3), moist | | | |
| | | | | 0.0 | SILTY SAND (SM): dark brown to pale brown (10 YR 3/3 to 10 YR 6/3), wet, waxy paper, glass at 3.0 ft bgs | | | |
| 5 | | | | NM | SILTY SAND (SM): dark brown to pale brown (10 YR 3/3 to 10 YR 6/3), saturated | | | 1", stainless steel screen used |
| | | | | NM | SILTY GRAVEL (GM): dark brown (10 YR 3/3), saturated | | | |
| | | | | NM | Peat (PT): dark brown (10 YR 3/3), saturated, wood fragments throughout | | | |
| | | | | NM | SANDY SILT (ML): brown (10 YR 4/3), saturated | | | |
| 10 | | | | NM | POORLY-GRADED SAND (SP): gray (10 YR 5/1), saturated | | | |
| | | | | NM | SILT (ML): dark grayish brown (10 YR 4/2), saturated, trace organics | | | |
| | | | | NM | POORLY-GRADED SAND (SP): gray (10 YR 5/1), saturated | | | |
| | | | NM | CLAYEY SILT (ML): dark gray (10 YR 4/1), saturated | | | | |
| 15 | | | NM | SANDY SILT (ML): dark gray (GLEY 1 4/N), saturated, shells throughout | | | | |
| | | | NM | POORLY-GRADED SAND (SP): gray (GLEY 1 6/N), saturated | | | | |
| | | | NM | POORLY-GRADED SAND (SP): light yellowish brown (10 YR 6/4), saturated | | | | |
| | VAS32-16-20 | | NM | POORLY-GRADED SAND (SP): very pale brown (10 YR 7/3), saturated, black wood at 17.0 ft bgs | | | 1", stainless steel screen used | |
| | | | NM | | | | | |
| 20 | | | | NM | End of boring at 20 ft bgs. | | | |



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| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS33 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/13/22 | DATE FINISHED: 12/13/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 3-7; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 3.0 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 3.28 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Jared Walbert | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|-----------------|-------------------------|-----------------|----------------|-------------------------|---|------------|--|---------------------------------|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| 5 | VAS33-3-7, VAS33-SB-3-5 | | | | Topsoil (OL): dark brown (10 YR 3/3), wet | | | 1", stainless steel screen used |
| | | | | | SILT (ML): brownish yellow (10 YR 6/6), wet | | | |
| | | | | | SILT (ML): dark brown to black (10 YR 3/3 to 10 YR 2/1), wet, glass, trace coal, fabric at 2.5-5.0 ft bgs | | | |
| | | | | | SILT (ML): black (10 YR 2/1), saturated | | | |
| | | | | | POORLY-GRADED GRAVEL (GP): black (10 YR 2/1), saturated | | | |
| | | | | | SANDY SILT (ML): grayish brown to dark grayish brown (10 YR 5/2 to 10 YR 4/2), saturated, leaves and roots throughout | | | |
| | | | | | POORLY-GRADED SAND (SP): gray (10 YR 6/1), saturated | | | |
| | | | | | SILTY SAND (SM): dark gray (GLE Y 1 4/N), saturated, shells at 11.0-13.5 ft bgs | | | |
| | | | | | POORLY-GRADED SAND (SP): dark yellowish brown (10 YR 3/6), saturated | | | |
| | | | | | POORLY-GRADED SAND (SP): light brownish gray (10 YR 6/2), saturated | | | |
| 15 | VAS33-16-20 | | | | End of boring at 20 ft bgs. | | | 1", stainless steel screen used |

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| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS34 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/13/22 | DATE FINISHED: 12/13/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 3-7; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 4.0 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 4.20 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Jared Walbert | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|-----------------|--|-----------------|----------------|-------------------------|--|---|--|---------------------------------|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| 5 | VAS34-3-7, VAS34-SB-3-5 | | | | 0.0 | Topsoil (OL): dark brown (10 YR 3/3), moist, roots and organics | | 1", stainless steel screen used |
| | | | | | 0.0 | POORLY-GRADED SAND (SP): gray (7.5 YR 6/1), moist, trace organics | | |
| | | | | | 0.0 | SILTY SAND (SM): brown to black (7.5 YR 4/4 to 7.5 YR 2.5/1), wet, glass at 2.0-4.0 ft bgs | | |
| | | | | | 0.0 | SILTY SAND (SM): red (2.5 YR 4/8), saturated, glass fragments | | |
| | | | | | NM | Peat (PT): black (10 YR 2/1), saturated | | |
| | | | | | NM | WELL-GRADED GRAVEL (GW): black to dark brown (10 YR 2/1 to 10 YR 3/3), saturated, metal at 5.5 ft bgs | | |
| | | | | | NM | SANDY SILT (ML): very dark grayish brown (10 YR 3/2), saturated | | |
| | | | | | NM | POORLY-GRADED SAND (SP): light gray (GLE Y 1 7/N), saturated | | |
| | | | | | NM | SANDY SILT (ML): dark grayish brown (10 YR 4/2), saturated, roots | | |
| | | | | | NM | POORLY-GRADED SAND (SP): gray (10 YR 6/1), saturated | | |
| | | | | | NM | SANDY SILT (ML): gray (2.5 Y 5/1), saturated | | |
| | | | | | 10 | | | |
| NM | SANDY SILT (ML): gray (GLE Y 1 5/N), saturated, shells at 14.0-15.0 ft bgs | | | | | | | |
| NM | SILTY SAND (SM): gray (GLE Y 1 5/N), saturated, shells at 16.0-17.0 ft bgs | | | | | | | |
| NM | POORLY-GRADED SAND (SP): very pale brown (10 YR 7/3), saturated | | | | | | | |
| 15 | | | | | NM | POORLY-GRADED SAND (SP): gray (10 YR 6/1), saturated | | |
| | | | | | NM | SANDY SILT (ML): gray (GLE Y 1 5/N), saturated, shells at 14.0-15.0 ft bgs | | |
| | | | | | NM | SILTY SAND (SM): gray (GLE Y 1 5/N), saturated, shells at 16.0-17.0 ft bgs | | |
| | | | | | NM | POORLY-GRADED SAND (SP): very pale brown (10 YR 7/3), saturated | | |
| 20 | VAS34-16-20 | | | | NM | POORLY-GRADED SAND (SP): gray (10 YR 6/1), saturated | | 1", stainless steel screen used |
| | | | | | NM | SANDY SILT (ML): gray (GLE Y 1 5/N), saturated, shells at 14.0-15.0 ft bgs | | |
| | | | | | NM | SILTY SAND (SM): gray (GLE Y 1 5/N), saturated, shells at 16.0-17.0 ft bgs | | |
| | | | | | NM | POORLY-GRADED SAND (SP): very pale brown (10 YR 7/3), saturated | | |
| | | | | | | End of boring at 20 ft bgs. | | |

WELL10



Acronyms
ATD - At Time of Drilling
ATS - At Time of Sampling

| | | | |
|---|----------|-------------------------------------|--------------------------------------|
| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS35 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/13/22 | DATE FINISHED: 12/13/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 1-5; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 1.0 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 1.0 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Jared Walbert | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|--------------|--|--------------|-------------|-------------------|---|---|---|---------------------------------|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| | VAS35-SB-3-5, VAS35-1-5, DUP-07-13122022 | | | | 0.0 | Topsoil (OL): dark brown (10 YR 3/3), wet | | 1", stainless steel screen used |
| | | | | | NM | SANDY SILT (ML): very dark gray (GLEY 1 3/N), saturated, trace organics | | |
| | | | | | NM | POORLY-GRADED SAND (SP): light olive brown to dark gray (2.5 Y 5/6 to GLEY 1 4/N), saturated | | |
| 5 | | | | | NM | SILT (ML): very dark gray to black (GLEY 1 3/N to GLEY 1 2.5/N), saturated, wood at 4.0-5.5 ft bgs, metal and glass at 4.5 ft bgs | | |
| | | | | | NM | POORLY-GRADED SAND (SP): gray (10 YR 6/1), saturated | | |
| | | | | | NM | SILTY SAND (SM): gray (10 YR 5/1), saturated | | |
| | | | | | NM | POORLY-GRADED SAND (SP): gray (10 YR 6/1), saturated | | |
| 10 | | | | | NM | CLAYEY SILT (ML/CL): very dark grayish brown (10 YR 3/2), saturated | | |
| | | | | | NM | POORLY-GRADED SAND (SP): gray (10 YR 6/1), saturated | | |
| | | | | | NM | SILTY SAND (SM): dark gray (GLEY 1 4/N), saturated | | |
| | | | | | NM | SILT (ML): light gray (GLEY 1 7/N), saturated | | |
| 15 | | | | | NM | POORLY-GRADED SAND (SP): brown (10 YR 5/3), saturated | | |
| | | | | | NM | POORLY-GRADED SAND (SP): light gray (7.5 YR 7/1), saturated | | |
| 20 | | | | | NM | End of boring at 20 ft bgs. | | |

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| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS36 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/13/22 | DATE FINISHED: 12/13/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 4-8; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 4.0 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 3.95 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Jared Walbert | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|--------------|-------------|--------------|-------------|-------------------|--|------------|---|--|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| 5 | VAS36-4-8 | | | 0.0 | Topsoil (OL): light brownish gray (10 YR 6/2), wet | ▼ | 1", stainless steel screen used | |
| | | | | 0.0 | SILTY SAND (SM): pale brown (10 YR 6/3), wet | | | |
| | | | | 0.0 | SANDY GRAVEL (GM): brown (10 YR 4/3), wet | | | |
| | | | | 0.0 | POORLY-GRADED SAND (SP): pale brown (10 YR 6/3), wet | | | |
| | | | | NM | POORLY-GRADED SAND (SP): pale brown (10 YR 6/3), saturated | | | |
| | | | | NM | SILTY GRAVEL (GM): very dark grayish brown (10 YR 3/2), saturated | | | |
| | | | | NM | POORLY-GRADED SAND (SP): dark brown (10 YR 3/3), saturated | | | |
| | | | | NM | SANDY SILT (ML): very dark grayish brown to black (10 YR 3/2 to 10 YR 2/1), saturated, trace organics at 9.5-10.0 ft bgs | | | |
| | | | | NM | CLAYEY SILT (ML/CL): very dark grayish brown (10 YR 3/2), saturated | | | |
| | | | | NM | POORLY-GRADED SAND (SP): light gray (GLEYS 1 7/N), saturated | | | |
| 15 | VAS36-16-20 | | | NM | | | 1", stainless steel screen used | |
| | | | | NM | | | | |
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| | | | | NM | | | | |
| | | | | NM | | | | |
| 20 | | | | NM | End of boring at 20 ft bgs. | | | |

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| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS37 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/13/22 | DATE FINISHED: 12/13/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 4-8; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 4.0 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 4.10 | |
| HAMMER WEIGHT: NA | | DROP: NA | LOGGED BY: Jared Walbert |
| | | | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|--------------|-------------------------|--------------|-------------|-------------------|--|------------|---|--|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| 5 | VAS37-4-8, VAS37-SB-4-6 | | | 0.0 | POORLY-GRADED SAND (SP): dark brown (10 YR 3/3), damp | ▼ | 1", stainless steel screen used | |
| | | | | 0.0 | SILTY GRAVEL (GM): dark brown (10 YR 3/3), damp | | | |
| | | | | 0.0 | POORLY-GRADED SAND (SP): gray to very dark gray (10 YR 5/1 to 10 YR 3/1), damp | | | |
| | | | | 0.0 | SILT (ML): light brownish gray (10 YR 6/2), saturated | | | |
| | | | | NM | POORLY-GRADED SAND (SP): light gray (10 YR 7/2), saturated | | | |
| | | | | NM | SILT (ML): black (10 YR 2/1), saturated, synthetic fibers and metal at 5.5 ft bgs | | | |
| | | | | NM | CLAYEY SILT (ML/CL): dark gray to dark brown (10 YR 4/1 to 10 YR 3/3), saturated, wood at 6.0 ft bgs, shells at 10.0-12.5 ft bgs | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| 15 | VAS37-16-20 | | | NM | SILTY SAND (SM): gray (GLEY 1 5/N), saturated, shells | | 1", stainless steel screen used | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| 20 | | | | NM | WELL-GRADED SAND (SW): light brownish gray (10 YR 6/2), saturated | | 1", stainless steel screen used | |
| | | | | NM | | | | |
| | | | | NM | End of boring at 20 ft bgs. | | | |

WELL10



Acronyms
 ATD - At Time of Drilling
 ATS - At Time of Sampling

| | | | |
|---|----------|-------------------------------------|--------------------------------------|
| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS38 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/14/22 | DATE FINISHED: 12/14/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 5-9; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 5.0 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 5.65 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Jared Walbert | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | | |
|--------------|-------------|--------------|-------------|-------------------|---|--|---|---------------------------------|---------------------------------|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | | |
| 5 | VAS38-5-9 | | | 0.0 | SANDY SILT (ML): dark brown (10 YR 3/3), damp, trace roots and gravel | | | | |
| | | | | 0.0 | WELL-GRADED GRAVEL with SAND (GW): dark brown to black (10 YR 3/3 to 10 YR 2/1), damp to wet, glass at 4.5 ft bgs | | | | |
| | | | | 0.0 | | | | | |
| | | | | 0.0 | | | | | |
| | | | | NM | | SILTY SAND (SM): dark brown (10 YR 3/3), wet, rubber, glass, painted metal pieces | | | |
| | | | | NM | | SILTY SAND (SM): dark brown (10 YR 3/3), saturated, rubber, glass, painted metal pieces | | | 1", stainless steel screen used |
| | | | | NM | | SILTY GRAVEL (GM): light gray (GLE Y 1 7/N), saturated | | | |
| | | | | NM | | SANDY SILT (ML): dark brown to black (10 YR 3/3 to GLEY 1 2.5/N), saturated, glass at 9.5 ft bgs | | | |
| | | | | NM | | SILT (ML): black (GLE Y 1 2.5/N), saturated, glass at 10 ft bgs, wood at 10.5 ft bgs | | | sheen 10-11 ft bgs |
| | | | | NM | | CLAYEY SILT (ML): very dark grayish brown (10 YR 3/2), saturated | | | |
| 15 | VAS38-16-20 | | | NM | SILT (ML): gray (GLE Y 1 5/N), saturated, shells at 15-17 ft bgs | | | | |
| | | | | NM | SILTY SAND (SM): gray (GLE Y 1 5/N), saturated | | | 1", stainless steel screen used | |
| | | | | NM | | | | | |
| | | | | NM | | | | | |
| 20 | | | | NM | End of boring at 20 ft bgs. | | | | |

| | | | |
|---|----------|-------------------------------------|--------------------------------------|
| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS39 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/14/22 | DATE FINISHED: 12/14/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 1-5; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 1.0 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 2.65 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Jared Walbert | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|-----------------|------------------------|-----------------|----------------|-------------------------|--|------------|--|--|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| 5 | VAS39-SB-2-5 VAS39-1-5 | | | 0.0 | Topsoil (OL): very dark grayish brown (10 YR 3/2), moist, roots | ▼ | 1", stainless steel screen used | |
| | | | | NM | POORLY-GRADED SAND (SP): light yellowish brown (10 YR 6/4), wet | | | |
| | | | | NM | POORLY-GRADED SAND (SP): light yellowish brown (10 YR 6/4), saturated | | | |
| | | | | NM | POORLY-GRADED SAND (SP): light brownish gray (10 YR 6/2), saturated | | | |
| | | | | NM | SANDY SILT (ML): gray (10 YR 5/1), saturated, plastic sheeting at 3.5 ft bgs | | | |
| | | | | NM | SANDY SILT (ML): black (GLEY 1 2.5/N), saturated, glass fragments at 4.0 ft bgs | | | |
| | | | | NM | CLAYEY SILT (ML): very dark grayish brown (10 YR 3/2), saturated, trace shells at 4.0 ft bgs | | | |
| 10 | | | | NM | SILTY SAND (SP): gray (GLEY 1 5/N), saturated, shells at 12.0-14.0 ft bgs | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| 15 | | | | NM | SANDY SILT (ML): light gray (10 YR 7/1), saturated | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| 20 | VAS39-16-20 | | | NM | | | 1", stainless steel screen used | |
| | | | | NM | | | | |
| | | | | NM | | | | |
| | | | | | End of boring at 20 ft bgs. | | | |

WELL 10



Acronyms
 ATD - At Time of Drilling
 ATS - At Time of Sampling

| | | | |
|---|----------|-------------------------------------|--------------------------------------|
| PROJECT: Former JB Sims Generating Station Harbor Island Grand Haven, Michigan | | Log of Soil Boring VAS40 | |
| BORING LOCATION: Harbor Island | | SURFACE ELEVATION AND DATUM: TBD | |
| DRILLING CONTRACTOR: Job Site Services | | DATE STARTED: 12/14/22 | DATE FINISHED: 12/14/22 |
| DRILLING METHOD: DPT | | TOTAL DEPTH (ft.): 20.0 | SCREEN INTERVAL (ft.): 4-8; 16-20 |
| DRILLING EQUIPMENT: Geoprobe 7822DT | | DEPTH TO WATER ATD (ft): 4.5 | CASING: 1", stainless steel |
| SAMPLING METHOD: Dual Tube | | DEPTH TO WATER ATS (ft): 5.09 | |
| HAMMER WEIGHT: NA | DROP: NA | LOGGED BY: Jared Walbert | REG. NO. NA |

| DEPTH (feet) | SAMPLES | | Blow Counts | PID Reading (ppm) | DESCRIPTION NAME (USCS): color, moist, % by wt., plasticity, dilatancy, toughness, dry strength, consistency | Depth (ft) | WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS | |
|--------------|-------------|--------------|-------------|-------------------|---|--|---|---------------------------------|
| | Sample No. | Recovery (%) | | | | | Top of Casing Elevation: TBD | |
| 5 | VAS40-4-8 | | | | 0.0 | Topsoil (OL): dark brown (10 YR 3/3), moist | | 1", stainless steel screen used |
| | | | | | 0.0 | SILTY GRAVEL (GM): black to very dark brown (10 YR 2/1 to 10 YR 2/2), moist | | |
| | | | | | 0.0 | POORLY-GRADED SAND (SP): yellow (10 YR 7/6), moist | | |
| | | | | | 0.0 | POORLY-GRADED SAND (SP): brown (10 YR 4/3), wet | | |
| | | | | | NM | POORLY-GRADED SAND (SP): brown (10 YR 4/3), saturated | | |
| | | | | | NM | SANDY SILT (ML): very dark grayish brown (10 YR 3/2), saturated, high organic content of leaves and wood | | |
| | | | | | NM | POORLY-GRADED SAND (SP): gray (10 YR 6/1), saturated | | |
| | | | | | NM | SILTY CLAY (ML): very dark grayish brown (10 YR 3/2), wet | | |
| | | | | | NM | CLAYEY SILT (ML): very dark grayish brown (10 YR 3/2), saturated | | |
| | | | | | NM | SILTY SAND (SM): gray (GLEY 1 5/N), saturated, shells at 12.0-14.0 ft bgs | | |
| 15 | VAS40-16-20 | | | | NM | POORLY-GRADED SAND (SP): gray (GLEY 1 5/N), saturated, shells at 14.5 to 16.0 ft bgs | | 1", stainless steel screen used |
| | | | | | NM | POORLY-GRADED SAND (SP): light yellowish brown (10 YR 6/4), saturated | | |
| | | | | | NM | SANDY SILT (ML): light gray (10 YR 7/1), saturated | | |
| | | | | | NM | End of boring at 20 ft bgs. | | |

Appendix C

Groundwater Sample Records

NOVEMBER 2023

TEMPORARY MONITORING WELL GROUNDWATER SAMPLE RECORDS

NOVEMBER-DECEMBER 2022
VAS GROUNDWATER SAMPLE RECORDS

GROUNDWATER SAMPLING RECORD



| | |
|--|------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 11/30/2022 |
| Well ID: VAS03-2-7 | Weather Condition: |
| Initial Depth to Water: 1.75 | Well Diameter (inches): 1 |
| Total Depth of Well: 7.0 | 1 Casing Volume (gal): 0.2 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 0.6 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 6 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 09:08 | | 500 | | | | | | | | Pump Started |
| 09:16 | 1.75 | 500.0 | 1.1 | 6.7 | 6.31 | 0.995 | 3.81 | 159.5 | 20.74 | Cloudy |
| 09:21 | | 500.0 | 1.7 | 6.7 | 6.56 | 1.007 | 0.91 | 134.4 | 13.45 | Clear |
| 09:26 | | 500.0 | 2.4 | 6.8 | 6.61 | 1.014 | 0.58 | 115.4 | 13.47 | |
| 09:31 | | 500.0 | 3.0 | 6.6 | 6.63 | 1.017 | 0.46 | 103.6 | 11.16 | |
| 09:36 | | 500.0 | 3.7 | 6.8 | 6.67 | 1.023 | 0.33 | 83.0 | 10.28 | |
| 09:39 | | 500.0 | 4.1 | 6.8 | 6.68 | 1.027 | 0.24 | 67.1 | 7.71 | |
| 09:42 | | 500.0 | 4.5 | 6.7 | 6.70 | 1.027 | 0.20 | 59.6 | 5.83 | |
| 09:45 | | 500.0 | 4.9 | 6.7 | 6.71 | 1.029 | 0.17 | 47.7 | 4.95 | |
| 09:48 | | 500.0 | 5.3 | 6.7 | 6.72 | 1.030 | 0.14 | 35.0 | 4.81 | |
| 09:51 | | 500.0 | 5.7 | 6.7 | 6.73 | 1.031 | 0.11 | 26.9 | 4.62 | |
| 09:54 | | 500.0 | 6.1 | 6.6 | 6.74 | 1.033 | 0.10 | 20.1 | 5.11 | |
| 09:57 | | 500.0 | 6.5 | 6.7 | 6.74 | 1.033 | 0.08 | 13.0 | 4.85 | |
| 10:00 | | 500.0 | 6.9 | 6.7 | 6.75 | 1.034 | 0.06 | 5.2 | 5.41 | |
| 10:03 | | 500.0 | 7.3 | 6.8 | 6.75 | 1.035 | 0.04 | 0.7 | 5.65 | |

Stability Reached (Y/N): No If No, Provide Explanation: 3 Well volumes purged

| | | | | | | |
|----------------------|-----|------|-------|------|-----|------|
| Final Values: | 6.8 | 6.75 | 1.035 | 0.04 | 0.7 | 5.65 |
|----------------------|-----|------|-------|------|-----|------|

| | |
|--------------------------------------|--|
| Sample ID: VAS03-2-7 | Method of Sampling: Low Flow |
| Sample Depth (ft): 6 | Sample Container Type(s): |
| Sample Date: 11/30/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 10:05 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 1.75 |
| Duplicate ID: | Depth to Water After Sampling: 1.75 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI Pro DSS 17L100457

| | |
|--|---|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$ $H = \text{height of water column (ft)}$</p> | <p>$V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)}/12 \text{ (in/ft)})/2)^2 * 5.25 * 7.48 \text{ gal/ft}^3$ $= 0.2$</p> |

| | |
|---|---------------------------------|
| Notes: | Technician Name (print): |
| Cal check within acceptable range. 3 well volumes were purged | Kiersten White |

| | |
|----------------------------------|------------------------------|
| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/1/2022 |
|----------------------------------|------------------------------|

GROUNDWATER SAMPLING RECORD



| | |
|--|-------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 11/30/2022 |
| Well ID: VAS04-16-20 | Weather Condition: |
| Initial Depth to Water: 8.01 | Well Diameter (inches): 1 |
| Total Depth of Well: 20.0 | 1 Casing Volume (gal): 0.5 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 1.5 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 19 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|------------|------------|---|-----------|----------|------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 15:13 | | 500 | | | | | | | | Pump Started |
| 15:57 | 8.01 | 500.0 | 5.8 | 11.7 | 7.20 | 0.645 | 3.41 | -2.8 | 569.83 | Gray, cloudy |
| 16:00 | | 500.0 | 6.2 | 12.0 | 7.12 | 0.646 | 0.73 | -54.7 | 547.78 | |
| 16:03 | | 500.0 | 6.6 | 12.0 | 7.12 | 0.645 | 0.46 | -64.8 | 374.75 | |
| 16:06 | | 500.0 | 7.0 | 12.0 | 7.13 | 0.644 | 0.27 | -75.0 | 450.64 | |
| 16:09 | | 500.0 | 7.4 | 12.1 | 7.13 | 0.644 | 0.16 | -83.3 | 396.28 | |
| 16:12 | | 500.0 | 7.8 | 12.2 | 7.14 | 0.642 | 0.07 | -91.0 | 379.12 | |
| 16:15 | | 500.0 | 8.2 | 12.0 | 7.14 | 0.640 | 0.03 | -95.2 | 403.58 | |
| 16:18 | | 500.0 | 8.6 | 12.0 | 7.15 | 0.639 | 0.00 | -100.1 | 404.31 | |
| 16:21 | | 500.0 | 9.0 | 11.8 | 7.15 | 0.637 | 0.00 | -104.2 | 355.79 | |
| 16:24 | | 500.0 | 9.4 | 12.1 | 7.15 | 0.638 | 0.00 | -106.7 | 338.61 | |

Stability Reached (Y/N): No If No, Provide Explanation: Turbidity out of range/unstable, sample collected after 3 well volumes

| | | | | | | |
|----------------------|------|------|-------|------|--------|--------|
| Final Values: | 12.1 | 7.15 | 0.638 | 0.00 | -106.7 | 338.61 |
|----------------------|------|------|-------|------|--------|--------|

| | |
|--------------------------------------|--|
| Sample ID: VAS04-16-20 | Method of Sampling: Low Flow |
| Sample Depth (ft): 19 | Sample Container Type(s): |
| Sample Date: 11/30/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 16:25 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 8.01 |
| Duplicate ID: | Depth to Water After Sampling: 7.30 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI Pro DSS 17L100457

| | |
|---|------------------------------|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft) = (well diameter (in)/12 (in/ft))/2}$ $H = \text{height of water column (ft)}$</p> <p style="text-align: center;"> $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)/12 (in/ft)})^2 * 2 * 11.99 * 7.48 \text{ gal/ft}^3$ $= 0.5$ </p> | |

| | |
|---------------|---------------------------------|
| Notes: | Technician Name (print): |
| AM cal check | Kiersten White |

| | |
|----------------------------------|------------------------------|
| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/1/2022 |
|----------------------------------|------------------------------|

GROUNDWATER SAMPLING RECORD



| | |
|--|-------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/01/2022 |
| Well ID: VAS05-16-20 | Weather Condition: |
| Initial Depth to Water: 5.25 | Well Diameter (inches): 1 |
| Total Depth of Well: 20.0 | 1 Casing Volume (gal): 0.6 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 1.8 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 19 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|------------|------------|---|-----------|----------|------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 10:26 | | 180 | | | | | | | | Pump Started |
| 11:15 | 6.36 | 500.0 | 6.5 | 13.1 | 7.03 | 1.193 | 0.35 | -134.4 | 128.87 | Clear |
| 11:20 | | 500.0 | 7.1 | 13.0 | 7.03 | 1.193 | 0.21 | -143.5 | 45.25 | |
| 11:23 | | 500.0 | 7.5 | 13.0 | 7.03 | 1.188 | 0.11 | -152.6 | 100.21 | |
| 11:26 | | 500.0 | 7.9 | 13.0 | 7.04 | 1.187 | 0.08 | -155.0 | 92.26 | |
| 11:29 | | 500.0 | 8.3 | 13.1 | 7.03 | 1.185 | 0.04 | -159.0 | 151.76 | |
| 11:32 | | 500.0 | 8.7 | 13.2 | 7.03 | 1.183 | 0.02 | -162.1 | 140.51 | |
| 11:35 | | 500.0 | 9.1 | 13.0 | 7.03 | 1.186 | 0.00 | -164.9 | 173.29 | |
| 11:38 | | 500.0 | 9.5 | 13.2 | 7.02 | 1.189 | 0.00 | -168.1 | 72.63 | |
| 11:41 | | 500.0 | 9.9 | 13.1 | 7.02 | 1.188 | 0.00 | -169.7 | 71.66 | |

Stability Reached (Y/N): No If No, Provide Explanation Turbidity did not stabilize, sample collected after 3 well volumes

| | | | | | | |
|----------------------|------|------|-------|------|--------|-------|
| Final Values: | 13.1 | 7.02 | 1.188 | 0.00 | -169.7 | 71.66 |
|----------------------|------|------|-------|------|--------|-------|

| | |
|--------------------------------------|--|
| Sample ID: VAS05-16-20 | Method of Sampling: Low Flow |
| Sample Depth (ft): 19 | Sample Container Type(s): |
| Sample Date: 12/01/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 11:45 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 5.25 |
| Duplicate ID: | Depth to Water After Sampling: 5.35 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI Pro DSS 17L100457

| | |
|---|------------------------------|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft) = (well diameter (in)/12 (in/ft))/2}$ $H = \text{height of water column (ft)}$</p> <p style="text-align: center;"> $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)/12 (in/ft)})^2 * 2 * 14.75 * 7.48 \text{ gal/ft}^3$ $= 0.6$ </p> | |

| | |
|---|---------------------------------|
| Notes: | Technician Name (print): |
| Conducted AM cal check 1.5 gallons added, 4.5 removed prior to readings. Rate increased to 500 ml/min @ 1050. | Kiersten White |

| | |
|----------------------------------|------------------------------|
| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/1/2022 |
|----------------------------------|------------------------------|

GROUNDWATER SAMPLING RECORD



| | |
|--|-------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/02/2022 |
| Well ID: VAS08-16-20 | Weather Condition: |
| Initial Depth to Water: 5.01 | Well Diameter (inches): 1 |
| Total Depth of Well: 20.0 | 1 Casing Volume (gal): 0.6 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 1.8 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 19 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 08:15 | | 500 | | | | | | | | Pump Started |
| 08:50 | 5.0 | 500.0 | 4.6 | 11.6 | 6.62 | 1.850 | 3.69 | -33.1 | 231.88 | Clear |
| 08:53 | | 500.0 | 5.0 | 11.6 | 6.70 | 1.844 | 2.06 | -55.6 | 190.29 | |
| 08:56 | | 500.0 | 5.4 | 11.6 | 6.80 | 1.832 | 0.86 | -81.0 | 161.92 | |
| 08:59 | | 500.0 | 5.8 | 11.5 | 6.82 | 1.824 | 0.64 | -88.7 | 164.54 | |
| 09:02 | | 500.0 | 6.2 | 11.6 | 6.85 | 1.816 | 0.43 | -98.7 | 115.92 | |
| 09:05 | | 500.0 | 6.6 | 11.6 | 6.86 | 1.812 | 0.34 | -104.3 | 104.09 | |
| 09:08 | | 500.0 | 7.0 | 11.6 | 6.87 | 1.808 | 0.28 | -109.7 | 83.57 | |
| 09:11 | | 500.0 | 7.4 | 11.6 | 6.87 | 1.807 | 0.22 | -115.9 | 85.29 | |
| 09:14 | | 500.0 | 7.8 | 11.6 | 6.88 | 1.803 | 0.18 | -120.6 | 69.81 | |
| 09:17 | | 500.0 | 8.2 | 11.6 | 6.88 | 1.803 | 0.14 | -125.1 | 70.35 | |
| 09:20 | | 500.0 | 8.6 | 11.6 | 6.88 | 1.801 | 0.11 | -129.2 | 57.90 | |
| 09:23 | | 500.0 | 9.0 | 11.6 | 6.89 | 1.800 | 0.08 | -132.6 | 69.91 | |
| 09:26 | | 500.0 | 9.4 | 11.6 | 6.89 | 1.797 | 0.05 | -137.0 | 64.06 | |
| 09:29 | | 500.0 | 9.8 | 11.6 | 6.89 | 1.800 | 0.04 | -137.7 | 64.55 | |
| 09:32 | | 500.0 | 10.2 | 11.6 | 6.89 | 1.797 | 0.02 | -140.6 | 58.60 | |
| 09:35 | | 500.0 | 10.6 | 11.6 | 6.89 | 1.799 | 0.00 | -142.7 | 139.72 | |
| 09:38 | | 500.0 | 11.0 | 11.6 | 6.89 | 1.799 | 0.00 | -145.1 | 93.67 | |
| 09:41 | | 500.0 | 11.4 | 11.6 | 6.89 | 1.797 | 0.00 | -146.4 | 71.44 | |

Stability Reached (Y/N): No If No, Provide Explanation: Turbidity did not stabilize, sample collected after 3 well volumes

| | | | | | | |
|----------------------|------|------|-------|------|--------|-------|
| Final Values: | 11.6 | 6.89 | 1.797 | 0.00 | -146.4 | 71.44 |
|----------------------|------|------|-------|------|--------|-------|

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|--------------------------------------|--|
| Sample ID: VAS08-16-20 | Method of Sampling: Low Flow |
| Sample Depth (ft): 19 | Sample Container Type(s): |
| Sample Date: 12/02/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 09:45 | Analysis: PFAS |
| QA/QC Samples: MS/MSD | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 5.01 |
| Duplicate ID: | Depth to Water After Sampling: 5.00 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI Pro DSS 17L100457

| | |
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| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$ $H = \text{height of water column (ft)}$</p> | <p>$V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)}/12 \text{ (in/ft)})^2 * 2 * 14.99 * 7.48 \text{ gal/ft}^3$ $= 0.6$</p> |

| | |
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| Notes: | Technician Name (print): |
| 1.5 gallons added, 4.5 removed. Turbidity did not stabilize, sample collected after 3 well volumes | Kiersten White |

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| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/6/2022 |
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GROUNDWATER SAMPLING RECORD



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|--|------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/02/2022 |
| Well ID: VAS09-4-9 | Weather Condition: |
| Initial Depth to Water: 4.88 | Well Diameter (inches): 1 |
| Total Depth of Well: 9.0 | 1 Casing Volume (gal): 0.2 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 0.5 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 8 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 10:15 | | 500 | | | | | | | | Pump Started |
| 10:25 | 5.9 | 500.0 | 1.3 | 12.2 | 6.89 | 1.623 | 4.71 | 52.1 | 11.04 | Clear |
| 10:30 | | 500.0 | 2.0 | 12.4 | 6.79 | 1.612 | 1.27 | 49.1 | 10.41 | |
| 10:35 | | 500.0 | 2.6 | 12.3 | 6.79 | 1.598 | 0.68 | 36.1 | 9.31 | |
| 10:40 | | 500.0 | 3.3 | 12.3 | 6.80 | 1.593 | 0.52 | 28.0 | 9.62 | |
| 10:45 | | 500.0 | 4.0 | 12.4 | 6.80 | 1.591 | 0.41 | 20.2 | 10.79 | |
| 10:50 | | 500.0 | 4.6 | 12.4 | 6.80 | 1.588 | 0.35 | 13.4 | 15.85 | |
| 10:55 | | 500.0 | 5.3 | 12.4 | 6.80 | 1.582 | 0.32 | 5.1 | 18.21 | |
| 11:00 | | 500.0 | 5.9 | 12.5 | 6.80 | 1.583 | 0.26 | -1.8 | 23.75 | |
| 11:05 | | 500.0 | 6.6 | 12.5 | 6.80 | 1.584 | 0.24 | -7.0 | 17.78 | |
| 11:10 | | 500.0 | 7.3 | 12.5 | 6.80 | 1.584 | 0.22 | -11.8 | 9.17 | |
| 11:15 | | 500.0 | 7.9 | 12.4 | 6.80 | 1.585 | 0.21 | -16.4 | 10.59 | |
| 11:20 | | 500.0 | 8.6 | 12.4 | 6.80 | 1.584 | 0.20 | -20.2 | 12.77 | |

Stability Reached (Y/N): No If No, Provide Explanation: Turbidity and ORP not stabilized, sample collected after 3 well volumes

Final Values: 12.4 6.80 1.584 0.20 -20.2 12.77

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| Sample ID: VAS09-4-9 | Method of Sampling: Low Flow |
| Sample Depth (ft): 8 | Sample Container Type(s): |
| Sample Date: 12/02/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 11:25 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 4.88 |
| Duplicate ID: | Depth to Water After Sampling: 4.95 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI Pro DSS 17L100457

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| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft) = (well diameter (in)/12 (in/ft))/2}$ $H = \text{height of water column (ft)}$</p> <p style="text-align: center;"> $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)/12 (in/ft)/2})^2 * 4.12 * 7.48 \text{ gal/ft}^3$ $= 0.2$ </p> | |

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| Notes: | Technician Name (print): |
| Turbidity and ORP not stabilized, sample collected after 3 well volumes | Kiersten White |

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| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/6/2022 |
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GROUNDWATER SAMPLING RECORD



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|--|-------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/02/2022 |
| Well ID: VAS10-16-20 | Weather Condition: |
| Initial Depth to Water: 2.02 | Well Diameter (inches): 1 |
| Total Depth of Well: 20.0 | 1 Casing Volume (gal): 0.7 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 2.2 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 19 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 13:55 | | 500 | | | | | | | | Pump Started |
| 13:55 | 2.5 | 500.0 | 0.0 | 12.3 | 6.94 | 1.515 | 3.90 | 22.3 | 47.42 | Clear |
| 13:58 | | 500.0 | 0.4 | 12.3 | 6.90 | 1.520 | 1.22 | 9.8 | 17.38 | |
| 14:01 | | 500.0 | 0.8 | 12.3 | 6.89 | 1.519 | 0.53 | -0.5 | 13.22 | |
| 14:04 | | 500.0 | 1.2 | 12.4 | 6.88 | 1.519 | 0.40 | -4.5 | 11.52 | |
| 14:07 | | 500.0 | 1.6 | 12.4 | 6.88 | 1.518 | 0.31 | -8.8 | 10.96 | |
| 14:10 | | 500.0 | 2.0 | 12.4 | 6.88 | 1.519 | 0.19 | -14.9 | 9.82 | |
| 14:13 | | 500.0 | 2.4 | 12.4 | 6.87 | 1.520 | 0.11 | -21.3 | 8.30 | |
| 14:16 | | 500.0 | 2.8 | 12.4 | 6.87 | 1.519 | 0.07 | -25.7 | 8.52 | |
| 14:19 | | 500.0 | 3.2 | 12.4 | 6.87 | 1.519 | 0.03 | -30.9 | 6.52 | |
| 14:22 | | 500.0 | 3.6 | 12.4 | 6.87 | 1.519 | 0.01 | -34.9 | 6.01 | |
| 14:25 | | 500.0 | 4.0 | 12.4 | 6.87 | 1.519 | 0.00 | -37.7 | 6.34 | |
| 14:28 | | 500.0 | 4.4 | 12.3 | 6.87 | 1.519 | 0.00 | -42.5 | 5.53 | |
| 14:31 | | 500.0 | 4.8 | 12.3 | 6.87 | 1.519 | 0.00 | -45.7 | 4.94 | |

Stability Reached (Y/N): No If No, Provide Explanation: Turbidity and ORP not stabilized, sample collected after 3 well volumes

Final Values: 12.3 6.87 1.519 0.00 -45.7 4.94

| | |
|--------------------------------------|--|
| Sample ID: VAS10-16-20 | Method of Sampling: Low Flow |
| Sample Depth (ft): 19 | Sample Container Type(s): |
| Sample Date: 12/02/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 14:35 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 2.02 |
| Duplicate ID: | Depth to Water After Sampling: 2.60 |

Instruments (Manufacturer, Model, and Serial No.):
Water Quality Meter, Water Level Meter, PID, Peristaltic Pump, YSI Pro DSS 17L100457

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| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$ $H = \text{height of water column (ft)}$</p> <p style="text-align: center;">$V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)}/12 \text{ (in/ft)})^2 * 17.98 * 7.48 \text{ gal/ft}^3$ $= 0.7$</p> | |

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| Notes: Turbidity and ORP not stabilized, sample collected after 3 well volumes | Technician Name (print): Kiersten White |
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| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/5/2022 |
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GROUNDWATER SAMPLING RECORD



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|--|------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/05/2022 |
| Well ID: VAS11-2-6 | Weather Condition: |
| Initial Depth to Water: 2.38 | Well Diameter (inches): 1 |
| Total Depth of Well: 6.0 | 1 Casing Volume (gal): 0.1 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 0.4 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 5 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 08:57 | | 500 | | | | | | | | Pump Started |
| 09:00 | 2.38 | 500.0 | 0.4 | 9.1 | 7.50 | 0.831 | 5.92 | 97.5 | 214.85 | Clear |
| 09:05 | | 500.0 | 1.1 | 8.5 | 7.89 | 0.790 | 1.40 | 72.2 | 430.72 | |
| 09:10 | | 500.0 | 1.7 | 8.5 | 7.85 | 0.791 | 0.95 | 56.6 | 342.75 | |
| 09:15 | | 500.0 | 2.4 | 8.5 | 7.77 | 0.796 | 0.67 | 10.4 | 239.85 | |
| 09:20 | | 500.0 | 3.0 | 8.6 | 7.72 | 0.800 | 0.53 | -36.3 | 180.21 | |
| 09:25 | | 500.0 | 3.7 | 8.6 | 7.68 | 0.805 | 0.43 | -68.3 | 141.89 | |
| 09:30 | | 500.0 | 4.4 | 8.6 | 7.66 | 0.809 | 0.35 | -87.7 | 114.11 | |
| 09:35 | | 500.0 | 5.0 | 8.6 | 7.66 | 0.815 | 0.26 | -107.4 | 90.22 | |
| 09:40 | | 500.0 | 5.7 | 8.7 | 7.65 | 0.817 | 0.23 | -112.9 | 76.33 | |
| 09:45 | | 500.0 | 6.3 | 8.7 | 7.65 | 0.822 | 0.20 | -120.4 | 58.09 | |
| 09:50 | | 500.0 | 7.0 | 8.7 | 7.65 | 0.826 | 0.17 | -127.4 | 57.92 | |
| 09:55 | | 500.0 | 7.7 | 8.7 | 7.65 | 0.829 | 0.14 | -134.2 | 53.73 | |
| 10:00 | | 500.0 | 8.3 | 8.7 | 7.67 | 0.832 | 0.12 | -139.0 | 57.14 | |
| 10:05 | | 500.0 | 9.0 | 8.8 | 7.65 | 0.837 | 0.09 | -143.9 | 48.05 | |

Stability Reached (Y/N): No If No, Provide Explanation: 3 well volumes purged

Final Values: 8.8 7.65 0.837 0.09 -143.9 48.05

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|--------------------------------------|--|
| Sample ID: VAS11-2-6 | Method of Sampling: Low Flow |
| Sample Depth (ft): 5 | Sample Container Type(s): |
| Sample Date: 12/05/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 10:10 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 2.38 |
| Duplicate ID: | Depth to Water After Sampling: 2.45 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI Pro DSS 17L100457

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|---|--|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft) = (well diameter (in)/12 (in/ft))/2}$ $H = \text{height of water column (ft)}$</p> | <p>$V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)/12 (in/ft)/2})^2 * 3.62 * 7.48 \text{ gal/ft}^3$ $= 0.1$</p> |

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| Notes: DO and turbidity did not stabilize, sample collected after additional hour purge | Technician Name (print): Kiersten White |
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| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/14/2022 |
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GROUNDWATER SAMPLING RECORD



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|--|-------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/05/2022 |
| Well ID: VAS11-16-20 | Weather Condition: |
| Initial Depth to Water: 3.01 | Well Diameter (inches): 1 |
| Total Depth of Well: 20.0 | 1 Casing Volume (gal): 0.7 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 2.1 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 19 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 11:00 | | 500 | | | | | | | | Pump Started |
| 11:30 | 2.65 | 475.0 | 3.8 | 10.4 | 6.77 | 1.306 | 7.53 | -15.2 | 287.12 | Clear |
| 11:35 | | 475.0 | 4.4 | 11.1 | 6.48 | 1.323 | 1.36 | -17.4 | 170.75 | |
| 11:38 | | 475.0 | 4.8 | 11.1 | 6.47 | 1.325 | 0.68 | -23.8 | 245.32 | |
| 11:41 | | 475.0 | 5.1 | 11.2 | 6.46 | 1.323 | 0.38 | -30.9 | 153.61 | |
| 11:44 | | 475.0 | 5.5 | 11.2 | 6.46 | 1.322 | 0.28 | -35.1 | 204.37 | |
| 11:47 | | 475.0 | 5.9 | 11.3 | 6.46 | 1.323 | 0.19 | -41.2 | 135.43 | |
| 11:50 | | 475.0 | 6.3 | 11.2 | 6.46 | 1.321 | 0.14 | -45.1 | 152.96 | |
| 11:53 | | 475.0 | 6.7 | 11.3 | 6.46 | 1.321 | 0.09 | -49.7 | 145.68 | |
| 11:56 | | 475.0 | 7.0 | 11.3 | 6.45 | 1.323 | 0.06 | -53.6 | 246.93 | |
| 11:59 | | 475.0 | 7.4 | 11.3 | 6.45 | 1.323 | 0.03 | -56.7 | 137.58 | |
| 12:02 | | 475.0 | 7.8 | 11.3 | 6.45 | 1.323 | 0.01 | -59.5 | 86.71 | |
| 12:05 | | 475.0 | 8.2 | 11.3 | 6.45 | 1.322 | 0.00 | -62.0 | 132.47 | |
| 12:08 | | 475.0 | 8.5 | 11.3 | 6.45 | 1.322 | 0.00 | -64.1 | 135.61 | |
| 12:11 | | 475.0 | 8.9 | 11.4 | 6.45 | 1.323 | 0.00 | -65.9 | 132.64 | |

Stability Reached (Y/N): No If No, Provide Explanation: Turbidity did not stabilize -3 well volumes purged

Final Values: 11.4 6.45 1.323 0.00 -65.9 132.64

| | |
|--------------------------------------|--|
| Sample ID: VAS11-16-20 | Method of Sampling: Low Flow |
| Sample Depth (ft): 19 | Sample Container Type(s): |
| Sample Date: 12/05/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 12:15 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 3.01 |
| Duplicate ID: | Depth to Water After Sampling: 2.53 |

Instruments (Manufacturer, Model, and Serial No.):
Water Quality Meter, Water Level Meter, PID, Peristaltic Pump, YSI Pro DSS 17L100457

| | |
|--|------------------------------|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H \times 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$ $H = \text{height of water column (ft)}$</p> <p style="text-align: center;"> $V = \pi(R^2)H \times 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)}/12 \text{ (in/ft)})^2 * 2 * 16.99 * 7.48 \text{ gal/ft}^3$ $= 0.7$ </p> | |

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|--|---------------------------------|
| Notes: | Technician Name (print): |
| 1.5 gallons added, 4.5 gallons purged before readings. Turbidity did not stabilize | Kiersten White |

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| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/6/2022 |
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GROUNDWATER SAMPLING RECORD



| | |
|--|------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/05/2022 |
| Well ID: VAS12-3-7 | Weather Condition: |
| Initial Depth to Water: 3.59 | Well Diameter (inches): 1 |
| Total Depth of Well: 7.0 | 1 Casing Volume (gal): 0.1 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 0.4 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 6 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|------------|------------|---|-----------|----------|------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 10:19 | | 500 | | | | | | | | Pump Started |
| 10:21 | 3.30 | 500.0 | 0.3 | 10.9 | 7.45 | 1.933 | 6.68 | -62.8 | 134.21 | Clear |
| 10:26 | | 500.0 | 0.9 | 11.8 | 7.52 | 1.093 | 1.40 | -115.8 | 45.66 | |
| 10:31 | | 500.0 | 1.6 | 12.0 | 7.73 | 1.098 | 0.56 | -136.2 | 22.03 | |
| 10:36 | | 500.0 | 2.2 | 12.0 | 7.78 | 1.097 | 0.35 | -144.9 | 15.56 | |
| 10:41 | | 500.0 | 2.9 | 11.9 | 7.80 | 1.091 | 0.22 | -154.7 | 16.21 | |
| 10:46 | | 500.0 | 3.6 | 12.0 | 7.80 | 1.088 | 0.15 | -162.9 | 14.85 | |
| 10:51 | | 500.0 | 4.2 | 12.0 | 7.81 | 1.083 | 0.09 | -170.9 | 13.52 | |
| 10:56 | | 500.0 | 4.9 | 12.0 | 7.82 | 1.084 | 0.05 | -177.5 | 16.22 | |
| 11:01 | | 500.0 | 5.5 | 12.1 | 7.83 | 1.082 | 0.02 | -183.4 | 15.94 | |
| 11:06 | | 500.0 | 6.2 | 12.0 | 7.83 | 1.080 | 0.00 | -188.7 | 15.81 | |
| 11:11 | | 500.0 | 6.9 | 12.0 | 7.83 | 1.081 | 0.00 | -193.6 | 11.83 | |
| 11:16 | | 500.0 | 7.5 | 12.0 | 7.84 | 1.081 | 0.00 | -198.4 | 10.57 | |

Stability Reached (Y/N): No If No, Provide Explanation: 3 well volumes purged

| | | | | | | |
|----------------------|------|------|-------|------|--------|-------|
| Final Values: | 12.0 | 7.84 | 1.081 | 0.00 | -198.4 | 10.57 |
|----------------------|------|------|-------|------|--------|-------|

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|--------------------------------------|--|
| Sample ID: VAS12-3-7 | Method of Sampling: Low Flow |
| Sample Depth (ft): 6 | Sample Container Type(s): |
| Sample Date: 12/05/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 11:20 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 3.59 |
| Duplicate ID: | Depth to Water After Sampling: 3.15 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI Pro DSS 17L100457

| | |
|---|--|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft) = (well diameter (in)/12 (in/ft))/2}$ $H = \text{height of water column (ft)}$</p> | <p>$V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)/12 (in/ft)/2})^2 * 3.41 * 7.48 \text{ gal/ft}^3$ $= 0.1$</p> |

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| Notes: | Technician Name (print): |
| Turbidity did not stabilize | Kiersten White |

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| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/6/2022 |
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GROUNDWATER SAMPLING RECORD



| | |
|--|-------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/05/2022 |
| Well ID: VAS12-16-20 | Weather Condition: |
| Initial Depth to Water: 4.1 | Well Diameter (inches): 1 |
| Total Depth of Well: 20.0 | 1 Casing Volume (gal): 0.7 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 2.0 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 19 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 12:00 | | 500 | | | | | | | | Pump Started |
| 12:35 | 2.95 | 500.0 | 4.6 | 12.4 | 6.58 | 1.068 | 0.40 | -38.7 | 195.41 | Clear |
| 12:38 | | 500.0 | 5.0 | 12.5 | 6.54 | 1.065 | 0.35 | -40.8 | 205.74 | |
| 12:41 | | 500.0 | 5.4 | 12.5 | 6.53 | 1.066 | 0.28 | -44.7 | 140.27 | |
| 12:44 | | 500.0 | 5.8 | 12.4 | 6.53 | 1.072 | 0.22 | -48.6 | 129.73 | |
| 12:47 | | 500.0 | 6.2 | 12.5 | 6.53 | 1.075 | 0.17 | -51.9 | 119.62 | |
| 12:50 | | 500.0 | 6.6 | 12.4 | 6.53 | 1.074 | 0.15 | -54.7 | 81.15 | |
| 12:53 | | 500.0 | 7.0 | 12.5 | 6.53 | 1.077 | 0.12 | -57.6 | 118.04 | |
| 12:56 | | 500.0 | 7.4 | 12.5 | 6.53 | 1.078 | 0.09 | -59.9 | 85.64 | |
| 12:59 | | 500.0 | 7.8 | 12.4 | 6.53 | 1.079 | 0.07 | -62.1 | 143.86 | |
| 13:02 | | 500.0 | 8.2 | 12.5 | 6.53 | 1.081 | 0.05 | -64.6 | 149.39 | |
| 13:05 | | 500.0 | 8.6 | 12.4 | 6.53 | 1.083 | 0.04 | -65.9 | 185.99 | |
| 13:08 | | 500.0 | 9.0 | 12.5 | 6.53 | 1.083 | 0.02 | -67.6 | 100.93 | |
| 13:11 | | 500.0 | 9.4 | 12.4 | 6.53 | 1.086 | 0.01 | -69.1 | 95.74 | |
| 13:14 | | 500.0 | 9.8 | 12.5 | 6.53 | 1.088 | 0.00 | -70.6 | 74.83 | |
| 13:17 | | 500.0 | 10.2 | 12.5 | 6.53 | 1.088 | 0.00 | -72.1 | 114.63 | |
| 13:20 | | 500.0 | 10.6 | 12.5 | 6.53 | 1.091 | 0.00 | -73.6 | 69.59 | |

Stability Reached (Y/N): No If No, Provide Explanation: 3 Well Volumes purged

| | | | | | | |
|----------------------|------|------|-------|------|-------|-------|
| Final Values: | 12.5 | 6.53 | 1.091 | 0.00 | -73.6 | 69.59 |
|----------------------|------|------|-------|------|-------|-------|

| | |
|--------------------------------------|--|
| Sample ID: VAS12-16-20 | Method of Sampling: Low Flow |
| Sample Depth (ft): 19 | Sample Container Type(s): |
| Sample Date: 12/05/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 13:25 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 4.10 |
| Duplicate ID: | Depth to Water After Sampling: 3.05 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI Pro DSS 17L100457

| | |
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| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$ $H = \text{height of water column (ft)}$</p> | <p>$V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)}/12 \text{ (in/ft)})^2 * 2 * 15.90 * 7.48 \text{ gal/ft}^3$ $= 0.7$</p> |

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| Notes: | Technician Name (print): |
| 1.5 gallons added, 4.5 removed before readings. Turbidity did not stabilize | Kiersten White |

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| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/7/2022 |
|----------------------------------|------------------------------|

GROUNDWATER SAMPLING RECORD



| | |
|--|------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/05/2022 |
| Well ID: VAS13-3-7 | Weather Condition: |
| Initial Depth to Water: 2.95 | Well Diameter (inches): 1 |
| Total Depth of Well: 7.0 | 1 Casing Volume (gal): 0.2 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 0.5 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 6 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|------------|------------|---|-----------|----------|------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 13:35 | | 500 | | | | | | | | Pump Started |
| 13:36 | 2.95 | 500.0 | 0.1 | 9.7 | 7.67 | 0.398 | 3.08 | -55.1 | 254.77 | Clear |
| 13:41 | | 500.0 | 0.8 | 9.8 | 7.75 | 0.375 | 0.84 | -75.1 | 214.60 | |
| 13:46 | | 500.0 | 1.5 | 9.9 | 7.77 | 0.372 | 0.48 | -86.4 | 146.93 | |
| 13:51 | | 500.0 | 2.1 | 9.9 | 7.78 | 0.369 | 0.30 | -96.0 | 104.65 | |
| 13:56 | | 500.0 | 2.8 | 9.9 | 7.78 | 0.368 | 0.16 | -108.4 | 161.25 | |
| 14:01 | | 500.0 | 3.4 | 10.0 | 7.79 | 0.363 | 0.11 | -114.5 | 83.85 | |
| 14:06 | | 500.0 | 4.1 | 10.0 | 7.79 | 0.360 | 0.06 | -121.7 | 60.64 | |
| 14:11 | | 500.0 | 4.8 | 10.0 | 7.79 | 0.358 | 0.02 | -127.8 | 42.73 | |
| 14:16 | | 500.0 | 5.4 | 10.0 | 7.80 | 0.356 | 0.00 | -132.9 | 90.31 | |
| 14:21 | | 500.0 | 6.1 | 10.0 | 7.80 | 0.354 | 0.00 | -136.2 | 48.79 | |
| 14:26 | | 500.0 | 6.7 | 9.9 | 7.79 | 0.359 | 0.00 | -139.2 | 122.25 | |

Stability Reached (Y/N): No If No, Provide Explanation 3 well volumes

| | | | | | | |
|----------------------|-----|------|-------|------|--------|--------|
| Final Values: | 9.9 | 7.79 | 0.359 | 0.00 | -139.2 | 122.25 |
|----------------------|-----|------|-------|------|--------|--------|

| | |
|--------------------------------------|--|
| Sample ID: VAS13-3-7 | Method of Sampling: Low Flow |
| Sample Depth (ft): 6 | Sample Container Type(s): |
| Sample Date: 12/05/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 14:30 | Analysis: PFAS, VOCs, SVOCs, metals |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 2.95 |
| Duplicate ID: | Depth to Water After Sampling: 2.90 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI Pro DSS 17L100457

| | |
|--|------------------------------|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft) = (well diameter (in)/12 (in/ft))/2}$ $H = \text{height of water column (ft)}$</p> <p style="text-align: center;"> $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)/12 (in/ft)/2})^2 * 4.05 * 7.48 \text{ gal/ft}^3$ $= 0.2$ </p> | |

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| Notes: | Technician Name (print): |
| Turbidity did not stabilize | Kiersten White |

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| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/7/2022 |
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GROUNDWATER SAMPLING RECORD



| | |
|--|-------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/06/2022 |
| Well ID: VAS13-16-20 | Weather Condition: |
| Initial Depth to Water: 3.05 | Well Diameter (inches): 1 |
| Total Depth of Well: 20.0 | 1 Casing Volume (gal): 0.7 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 2.1 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 19 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 07:55 | | 500 | | | | | | | | Pump Started |
| 08:27 | 3.05 | 500.0 | 4.2 | 12.2 | 6.67 | 1.185 | 3.43 | -52.7 | 12.61 | Clear |
| 08:30 | | 460.0 | 4.6 | 12.5 | 6.71 | 1.182 | 2.39 | -66.9 | 10.07 | |
| 08:33 | | 460.0 | 5.0 | 12.5 | 6.74 | 1.179 | 1.74 | -76.4 | 8.38 | |
| 08:36 | | 460.0 | 5.3 | 12.6 | 6.75 | 1.177 | 1.52 | -80.1 | 8.26 | |
| 08:39 | | 460.0 | 5.7 | 12.7 | 6.75 | 1.176 | 1.32 | -83.3 | 6.45 | |
| 08:42 | | 460.0 | 6.1 | 12.7 | 6.76 | 1.172 | 1.11 | -87.1 | 6.72 | |
| 08:45 | | 460.0 | 6.4 | 12.6 | 6.76 | 1.171 | 1.03 | -88.8 | 5.84 | |
| 08:48 | | 460.0 | 6.8 | 12.6 | 6.77 | 1.169 | 0.93 | -91.6 | 4.98 | |
| 08:51 | | 460.0 | 7.1 | 12.7 | 6.77 | 1.169 | 0.85 | -94.4 | 4.01 | |
| 08:54 | | 460.0 | 7.5 | 12.7 | 6.77 | 1.168 | 0.78 | -96.5 | 4.35 | |
| 08:57 | | 460.0 | 7.9 | 12.6 | 6.77 | 1.166 | 0.73 | -98.4 | 6.03 | |
| 09:00 | | 460.0 | 8.2 | 12.6 | 6.85 | 1.167 | 0.68 | -103.9 | 7.34 | |
| 09:03 | | 460.0 | 8.6 | 12.5 | 6.82 | 1.163 | 0.64 | -104.5 | 6.28 | |
| 09:06 | | 460.0 | 9.0 | 12.4 | 6.79 | 1.164 | 0.59 | -105.0 | 4.55 | |
| 09:09 | | 460.0 | 9.3 | 12.7 | 6.78 | 1.163 | 0.56 | -105.7 | 4.07 | |
| 09:12 | | 460.0 | 9.7 | 12.6 | 6.77 | 1.163 | 0.53 | -106.8 | 3.63 | |
| 09:15 | | 460.0 | 10.1 | 12.5 | 6.77 | 1.164 | 0.51 | -108.2 | 3.88 | |

Stability Reached (Y/N): Yes If No, Provide Explanation

| | | | | | | |
|----------------------|------|------|-------|------|--------|------|
| Final Values: | 12.5 | 6.77 | 1.164 | 0.51 | -108.2 | 3.88 |
|----------------------|------|------|-------|------|--------|------|

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|--------------------------------------|--|
| Sample ID: VAS13-16-20 | Method of Sampling: Low Flow |
| Sample Depth (ft): 19 | Sample Container Type(s): |
| Sample Date: 12/06/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 09:20 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 3.05 |
| Duplicate ID: | Depth to Water After Sampling: 3.09 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI Pro DSS 17L100457

| | |
|--|---|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$ $H = \text{height of water column (ft)}$</p> | <p>$V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)}/12 \text{ (in/ft)})^2 * 2 * 16.95 * 7.48 \text{ gal/ft}^3$ $= 0.7$</p> |

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| Notes: | Technician Name (print): |
| 1.5 gallons of water added, 4.5 gallons removed before readings. | Kiersten White |

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| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/7/2022 |
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GROUNDWATER SAMPLING RECORD



| | |
|--|------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/05/2022 |
| Well ID: VAS14-1-5 | Weather Condition: |
| Initial Depth to Water: 1.79 | Well Diameter (inches): 1 |
| Total Depth of Well: 5.0 | 1 Casing Volume (gal): 0.1 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 0.4 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 4 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 14:52 | | 500 | | | | | | | | Pump Started |
| 15:07 | 1.79 | 500.0 | 2.0 | 9.8 | 7.41 | 0.959 | 6.81 | 33.6 | 345.99 | Clear, dark brown sediment |
| 15:12 | | 500.0 | 2.6 | 9.8 | 7.49 | 0.953 | 2.04 | 11.2 | 296.77 | |
| 15:17 | | 500.0 | 3.3 | 9.9 | 7.52 | 0.966 | 1.05 | -7.3 | 285.51 | |
| 15:22 | | 500.0 | 4.0 | 9.9 | 7.53 | 0.964 | 0.70 | -26.2 | 195.12 | |
| 15:27 | | 500.0 | 4.6 | 9.9 | 7.54 | 0.967 | 0.53 | -43.5 | 226.87 | |
| 15:32 | | 500.0 | 5.3 | 9.9 | 7.55 | 0.960 | 0.37 | -68.7 | 97.64 | |
| 15:37 | | 500.0 | 5.9 | 9.9 | 7.55 | 0.966 | 0.29 | -81.7 | 63.01 | |
| 15:42 | | 500.0 | 6.6 | 9.8 | 7.53 | 1.002 | 0.22 | -93.2 | 169.77 | |
| 15:47 | | 500.0 | 7.3 | 9.9 | 7.56 | 0.956 | 0.16 | -105.3 | 31.73 | |
| 15:52 | | 500.0 | 7.9 | 9.9 | 7.57 | 0.953 | 0.12 | -112.3 | 14.95 | |
| 15:57 | | 500.0 | 8.6 | 9.8 | 7.55 | 0.988 | 0.09 | -118.6 | 54.39 | |
| 16:02 | | 500.0 | 9.2 | 10.0 | 7.57 | 0.956 | 0.06 | -125.5 | 17.19 | |
| 16:07 | | 500.0 | 9.9 | 9.9 | 7.56 | 0.976 | 0.04 | -128.9 | 29.72 | |
| 16:12 | | 500.0 | 10.6 | 10.0 | 7.57 | 0.960 | 0.02 | -132.3 | 34.68 | |

Stability Reached (Y/N): No If No, Provide Explanation 3 well volumes purged

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|----------------------|------|------|-------|------|--------|-------|
| Final Values: | 10.0 | 7.57 | 0.960 | 0.02 | -132.3 | 34.68 |
|----------------------|------|------|-------|------|--------|-------|

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|--------------------------------------|--|
| Sample ID: VAS14-1-5 | Method of Sampling: Low Flow |
| Sample Depth (ft): 4 | Sample Container Type(s): |
| Sample Date: 12/05/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 16:15 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 1.79 |
| Duplicate ID: | Depth to Water After Sampling: 1.79 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI Pro DSS 17L100457

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|--|-------------------------------------|
| <p>Calculations:</p> <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$ $H = \text{height of water column (ft)}$</p> <p style="text-align: center;">$V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)}/12 \text{ (in/ft)})/2)^2 * 3.21 * 7.48 \text{ gal/ft}^3$ $= 0.1$</p> | <p>Technician Signature:</p> |
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| Notes: DO and turbidity did not stabilize, sample collected after additional hour purge | Technician Name (print): Kiersten White |
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| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/7/2022 |
|----------------------------------|------------------------------|

GROUNDWATER SAMPLING RECORD



| | |
|--|------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/06/2022 |
| Well ID: VAS15-3-7 | Weather Condition: |
| Initial Depth to Water: 3.1 | Well Diameter (inches): 1 |
| Total Depth of Well: 7.0 | 1 Casing Volume (gal): 0.2 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 0.5 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 6 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 11:06 | | 500 | | | | | | | | Pump Started |
| 11:06 | 3.45 | 500.0 | 0.0 | 9.9 | 7.49 | 0.812 | 4.81 | -26.4 | 191.91 | Clear |
| 11:11 | | 500.0 | 0.7 | 10.5 | 7.44 | 0.915 | 1.69 | -46.0 | 25.24 | |
| 11:16 | | 500.0 | 1.3 | 10.6 | 7.44 | 0.917 | 1.09 | -56.2 | 13.98 | |
| 11:21 | | 500.0 | 2.0 | 10.8 | 7.43 | 0.921 | 0.75 | -65.7 | 9.27 | |
| 11:26 | | 500.0 | 2.6 | 10.8 | 7.43 | 0.924 | 0.59 | -72.4 | 8.49 | |
| 11:31 | | 500.0 | 3.3 | 10.7 | 7.43 | 0.925 | 0.51 | -76.8 | 4.89 | |
| 11:36 | | 500.0 | 4.0 | 10.8 | 7.43 | 0.925 | 0.46 | -80.5 | 3.57 | |
| 11:41 | | 500.0 | 4.6 | 10.8 | 7.43 | 0.926 | 0.42 | -84.0 | 3.04 | |
| 11:46 | | 500.0 | 5.3 | 10.8 | 7.43 | 0.926 | 0.38 | -87.4 | 2.58 | |
| 11:51 | | 500.0 | 5.9 | 10.9 | 7.42 | 0.927 | 0.35 | -90.5 | 2.09 | |
| 11:56 | | 500.0 | 6.6 | 10.8 | 7.42 | 0.928 | 0.33 | -93.2 | 1.77 | |
| 12:01 | | 500.0 | 7.3 | 10.8 | 7.42 | 0.929 | 0.31 | -95.0 | 1.82 | |
| 12:06 | | 500.0 | 7.9 | 10.9 | 7.46 | 0.928 | 0.29 | -97.3 | 1.80 | |

Stability Reached (Y/N): Yes If No, Provide Explanation

| | | | | | | |
|----------------------|------|------|-------|------|-------|------|
| Final Values: | 10.9 | 7.46 | 0.928 | 0.29 | -97.3 | 1.80 |
|----------------------|------|------|-------|------|-------|------|

| | |
|--------------------------------------|--|
| Sample ID: VAS15-3-7 | Method of Sampling: Low Flow |
| Sample Depth (ft): 6 | Sample Container Type(s): |
| Sample Date: 12/06/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 12:10 | Analysis: PFAS, VOCs, SVOCs, metals |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 3.10 |
| Duplicate ID: | Depth to Water After Sampling: 3.38 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI Pro DSS 17L100457

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|---|--|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft) = (well diameter (in)/12 (in/ft))/2}$ $H = \text{height of water column (ft)}$</p> | $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)/12 (in/ft)/2})^2 * 3.90 * 7.48 \text{ gal/ft}^3$ $= 0.2$ |

| | |
|---------------|---|
| Notes: | Technician Name (print): Kiersten White |
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| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/7/2022 |
|----------------------------------|------------------------------|

GROUNDWATER SAMPLING RECORD



| | |
|--|-------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/06/2022 |
| Well ID: VAS15-16-20 | Weather Condition: |
| Initial Depth to Water: 3.65 | Well Diameter (inches): 1 |
| Total Depth of Well: 20.0 | 1 Casing Volume (gal): 0.7 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 2.0 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 19 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 09:29 | | 500 | | | | | | | | Pump Started |
| 09:49 | 3.60 | 500.0 | 2.6 | 11.5 | 7.48 | 0.551 | 6.95 | 6.9 | 47.13 | Clear |
| 09:52 | | 500.0 | 3.0 | 11.9 | 6.91 | 0.861 | 3.88 | 7.5 | 26.08 | |
| 09:55 | | 500.0 | 3.4 | 12.0 | 6.87 | 0.871 | 2.23 | -3.9 | 20.48 | |
| 09:58 | | 500.0 | 3.8 | 12.1 | 6.86 | 0.873 | 1.79 | -9.6 | 21.53 | |
| 10:01 | | 500.0 | 4.2 | 12.1 | 6.86 | 0.875 | 1.43 | -15.3 | 19.64 | |
| 10:04 | | 500.0 | 4.6 | 11.9 | 6.87 | 0.876 | 1.16 | -21.0 | 18.19 | |
| 10:07 | | 500.0 | 5.0 | 12.0 | 6.87 | 0.880 | 1.02 | -24.1 | 17.21 | |
| 10:10 | | 500.0 | 5.4 | 12.0 | 6.86 | 0.883 | 0.85 | -29.0 | 16.17 | |
| 10:13 | | 500.0 | 5.8 | 12.1 | 6.86 | 0.887 | 0.77 | -31.3 | 18.68 | |
| 10:16 | | 500.0 | 6.2 | 12.2 | 6.86 | 0.872 | 0.71 | -35.5 | 25.22 | |
| 10:21 | | 500.0 | 6.9 | 12.2 | 6.83 | 0.927 | 0.60 | -35.9 | 18.75 | |
| 10:24 | | 500.0 | 7.3 | 12.4 | 6.78 | 0.934 | 0.55 | -36.2 | 5.57 | |
| 10:27 | | 500.0 | 7.7 | 12.5 | 6.78 | 0.938 | 0.58 | -26.3 | 6.52 | |
| 10:30 | | 500.0 | 8.1 | 12.4 | 6.79 | 0.937 | 1.05 | -30.6 | 5.49 | |
| 10:33 | | 500.0 | 8.5 | 12.5 | 6.79 | 0.937 | 0.73 | -35.2 | 5.92 | |
| 10:36 | | 500.0 | 8.9 | 12.4 | 6.79 | 0.936 | 0.59 | -38.3 | 5.31 | |
| 10:39 | | 500.0 | 9.2 | 12.5 | 6.79 | 0.937 | 0.48 | -42.0 | 5.36 | |
| 10:42 | | 500.0 | 9.6 | 12.5 | 6.79 | 0.937 | 0.43 | -44.6 | 5.34 | |
| 10:45 | | 500.0 | 10.0 | 12.5 | 6.79 | 0.938 | 0.39 | -47.0 | 6.23 | |
| 10:48 | | 500.0 | 10.4 | 12.5 | 6.79 | 0.937 | 0.37 | -49.0 | 7.09 | |
| 10:51 | | 500 | 10.8 | 12.5 | 6.80 | 0.935 | 0.33 | -52.7 | 7.25 | |
| 10:54 | | 500 | 11.2 | 12.5 | 6.80 | 0.936 | 0.31 | -54.0 | 8.53 | |
| 10:57 | | 500 | 11.6 | 12.6 | 6.80 | 0.937 | 0.30 | -55.4 | 2.27 | |

Stability Reached (Y/N): No If No, Provide Explanation: 3 well volumes purged

| | | | | | | |
|----------------------|------|------|-------|------|-------|------|
| Final Values: | 12.6 | 6.80 | 0.937 | 0.30 | -55.4 | 2.27 |
|----------------------|------|------|-------|------|-------|------|

| | |
|--------------------------------------|--|
| Sample ID: VAS15-16-20 | Method of Sampling: Low Flow |
| Sample Depth (ft): 19 | Sample Container Type(s): |
| Sample Date: 12/06/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 11:00 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 3.65 |
| Duplicate ID: | Depth to Water After Sampling: 3.85 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI Pro DSS 17L100457

| | |
|--|------------------------------|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$ $H = \text{height of water column (ft)}$</p> <p style="text-align: center;"> $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)}/12 \text{ (in/ft)})^2 * 2 * 16.35 * 7.48 \text{ gal/ft}^3$ $= 0.7$ </p> | |

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| Notes: | Technician Name (print): |
| Turbidity did not stabilize | Kiersten White |

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| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/7/2022 |
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GROUNDWATER SAMPLING RECORD



| | |
|--|------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/06/2022 |
| Well ID: VAS17-3-7 | Weather Condition: |
| Initial Depth to Water: 3.29 | Well Diameter (inches): 1 |
| Total Depth of Well: 7.0 | 1 Casing Volume (gal): 0.2 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 0.5 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 6 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 13:32 | | 270 | | | | | | | | Pump Started |
| 13:42 | 3.29 | 270.0 | 0.7 | 10.9 | 7.44 | 3.669 | 5.65 | -129.3 | 42.81 | Clear |
| 13:51 | | 270.0 | 1.4 | 10.8 | 6.45 | 3.493 | 5.37 | -17.1 | 47.84 | |
| 13:56 | | 270.0 | 1.7 | 11.0 | 6.42 | 3.458 | 5.49 | -2.6 | 5.34 | |
| 14:01 | | 270.0 | 2.1 | 11.0 | 6.42 | 3.435 | 5.81 | 5.6 | 2.54 | |
| 14:06 | | 270.0 | 2.4 | 11.0 | 6.41 | 3.410 | 5.91 | 9.8 | 10.81 | |
| 14:11 | | 270.0 | 2.8 | 10.9 | 6.40 | 3.385 | 5.80 | 12.4 | 2.04 | |
| 14:16 | | 270.0 | 3.1 | 11.0 | 6.40 | 3.357 | 5.74 | 14.0 | 1.80 | |
| 14:21 | | 270.0 | 3.5 | 11.0 | 6.40 | 3.322 | 5.71 | 15.6 | 1.82 | |
| 14:26 | | 270.0 | 3.9 | 11.0 | 6.40 | 3.295 | 5.67 | 17.4 | 2.03 | |
| 14:31 | | 270.0 | 4.2 | 11.0 | 6.40 | 3.276 | 5.69 | 19.0 | 1.76 | |
| 14:36 | | 270.0 | 4.6 | 11.1 | 6.40 | 3.256 | 5.65 | 19.5 | 1.50 | |
| 14:41 | | 270.0 | 4.9 | 11.1 | 6.40 | 3.238 | 5.64 | 20.0 | 1.69 | |

Stability Reached (Y/N): No If No, Provide Explanation 3 Well Volumes Purged

| | | | | | | |
|----------------------|------|------|-------|------|------|------|
| Final Values: | 11.1 | 6.40 | 3.238 | 5.64 | 20.0 | 1.69 |
|----------------------|------|------|-------|------|------|------|

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|--------------------------------------|--|
| Sample ID: VAS17-3-7 | Method of Sampling: Low Flow |
| Sample Depth (ft): 6 | Sample Container Type(s): |
| Sample Date: 12/06/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 14:45 | Analysis: PFAS, SVOCs, VOCs, metals |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 3.29 |
| Duplicate ID: | Depth to Water After Sampling: 3.29 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI Pro DSS 17L100457

| | |
|--|------------------------------|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$ $H = \text{height of water column (ft)}$</p> <p style="text-align: center;"> $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)}/12 \text{ (in/ft)})/2)^2 * 3.71 * 7.48 \text{ gal/ft}^3$ $= 0.2$ </p> | |

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| Notes: | Technician Name (print): |
| Turbidity did not stabilize | Kiersten White |

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| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/7/2022 |
|----------------------------------|------------------------------|

GROUNDWATER SAMPLING RECORD



| | |
|--|-------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/06/2022 |
| Well ID: VAS17-16-20 | Weather Condition: |
| Initial Depth to Water: 3.1 | Well Diameter (inches): 1 |
| Total Depth of Well: 20.0 | 1 Casing Volume (gal): 0.7 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 2.1 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 19 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|------------|------------|---|-----------|----------|------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 14:58 | | 490 | | | | | | | | Pump Started |
| 15:07 | 2.31 | 490.0 | 1.2 | 13.1 | 6.53 | 1.471 | 3.13 | -4.6 | 15.34 | Clear |
| 15:12 | | 490.0 | 1.8 | 13.1 | 6.52 | 1.470 | 2.00 | -13.8 | 13.73 | |
| 15:17 | | 490.0 | 2.5 | 13.4 | 6.52 | 1.467 | 1.50 | -20.0 | 19.33 | |
| 15:22 | | 490.0 | 3.1 | 13.5 | 6.52 | 1.460 | 1.17 | -26.4 | 10.36 | |
| 15:27 | | 490.0 | 3.8 | 13.4 | 6.52 | 1.460 | 0.94 | -32.6 | 8.28 | |
| 15:32 | | 490.0 | 4.4 | 13.5 | 6.52 | 1.455 | 0.82 | -36.9 | 8.34 | |
| 15:37 | | 490.0 | 5.0 | 13.5 | 6.52 | 1.457 | 0.71 | -41.7 | 9.98 | |
| 15:42 | | 490.0 | 5.7 | 13.5 | 6.52 | 1.453 | 0.65 | -45.1 | 11.72 | |
| 15:47 | | 490.0 | 6.3 | 13.6 | 6.52 | 1.454 | 0.58 | -48.9 | 6.88 | |
| 15:52 | | 490.0 | 7.0 | 13.4 | 6.52 | 1.449 | 0.52 | -52.3 | 7.83 | |
| 15:57 | | 490.0 | 7.6 | 13.4 | 6.52 | 1.446 | 0.47 | -55.2 | 8.11 | |
| 16:02 | | 490.0 | 8.3 | 13.2 | 6.52 | 1.463 | 0.41 | -58.6 | 6.93 | |
| 16:07 | | 490.0 | 8.9 | 13.5 | 6.58 | 1.444 | 0.40 | -61.1 | 11.33 | |
| 16:12 | | 490.0 | 9.6 | 13.6 | 6.52 | 1.442 | 0.37 | -62.8 | 6.04 | |

Stability Reached (Y/N): No If No, Provide Explanation: 3 well volumes purged

| | | | | | | |
|----------------------|------|------|-------|------|-------|------|
| Final Values: | 13.6 | 6.52 | 1.442 | 0.37 | -62.8 | 6.04 |
|----------------------|------|------|-------|------|-------|------|

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|--------------------------------------|--|
| Sample ID: VAS17-16-20 | Method of Sampling: Low Flow |
| Sample Depth (ft): 19 | Sample Container Type(s): |
| Sample Date: 12/06/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 16:15 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 3.10 |
| Duplicate ID: | Depth to Water After Sampling: 2.35 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI Pro DSS 17L100457

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|--|------------------------------|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$ $H = \text{height of water column (ft)}$</p> <p style="text-align: center;"> $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)}/12 \text{ (in/ft)})^2 * 2 * 16.90 * 7.48 \text{ gal/ft}^3$ $= 0.7$ </p> | |

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|--|---|
| Notes: Turbidity did not stabilize | Technician Name (print): Kiersten White |
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| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/7/2022 |
|----------------------------------|------------------------------|



GROUNDWATER SAMPLING RECORD

| | | | |
|--|-----------------------------------|----------------------------------|------------|
| Project Name: | Former JB Sims Generating Station | Project Number: | 3650220203 |
| Sample Technician: | Jared Walbert | Date: | 12/06/2022 |
| Well ID: | VAS18-3-7 | Weather Condition: | |
| Initial Depth to Water: | 3.41 | Well Diameter (inches): | 1 |
| Total Depth of Well: | 7.0 | 1 Casing Volume (gal): | 0.1 |
| Method of Purging: | Pumping | 3 Casing Volumes (gal): | 0.4 |
| Measuring Point (toc, tor, etc.): | Top of Casing | Pump Intake Depth (feet): | 5 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 15:45 | | | | | | | | | | Pump Started |
| 16:00 | 3.41 | 200.0 | 0.8 | 10.31 | 5.27 | 3.06 | 1.28 | 77.6 | 4974.2 | Orange color |
| 16:05 | 3.41 | 200.0 | 1.1 | 9.02 | 5.18 | 3.14 | 0.56 | 76.6 | 1159.9 | Orange color |
| 16:10 | 3.41 | 200.0 | 1.3 | 8.94 | 5.17 | 3.13 | 0.42 | 74.6 | 585.05 | Orange color |
| 16:15 | 3.41 | 200.0 | 1.6 | 9.03 | 5.14 | 3.13 | 0.29 | 73.3 | 59.15 | Orange color |
| 16:20 | 3.41 | 200.0 | 1.8 | 8.79 | 5.15 | 3.13 | 0.25 | 70.9 | 52.80 | Orange color |
| 16:25 | 3.41 | 200.0 | 2.1 | 8.89 | 5.15 | 3.13 | 0.24 | 71.1 | 31.85 | Orange color |
| 16:30 | 3.41 | 200.0 | 2.4 | 8.95 | 5.15 | 3.13 | 0.23 | 70.2 | 42.95 | Orange color |
| 16:35 | 3.41 | 200.0 | 2.6 | 8.85 | 5.16 | 3.13 | 0.23 | 69.5 | 27.06 | Orange color |
| 16:40 | 3.41 | 200.0 | 2.9 | 9.14 | 5.17 | 3.13 | 0.20 | 68.8 | 25.3 | Orange color |
| 16:45 | 3.41 | 200.0 | 3.2 | 9.05 | 5.15 | 3.14 | 0.21 | 69.1 | 25.9 | Orange color |
| 16:50 | 3.41 | 200.0 | 3.4 | 8.97 | 5.15 | 3.14 | 0.21 | 71.0 | 28.4 | Orange color |
| 16:55 | 3.41 | 200.0 | 3.7 | 9.01 | 5.15 | 3.14 | 0.20 | 70.6 | 35.5 | Orange color |
| 17:00 | 3.41 | 200.0 | 4.0 | 9.03 | 5.15 | 3.14 | 0.20 | 71.7 | 27.3 | Orange color |
| 17:05 | 3.41 | 200.0 | 4.2 | 9.16 | 5.14 | 3.13 | 0.21 | 71.4 | 28.5 | Orange color |
| 17:10 | 3.41 | 200.0 | 4.5 | 9.15 | 5.10 | 3.12 | 0.21 | 74.5 | 25.2 | Orange color |
| 17:15 | 3.41 | 200.0 | 4.8 | 9.02 | 5.12 | 3.13 | 0.22 | 73.4 | 23.2 | Orange color |

Stability Reached (Y/N): No If No, Provide Explanation: Turbidity only parameter not stable.

| | | | | | | |
|----------------------|------|------|------|------|------|------|
| Final Values: | 9.02 | 5.12 | 3.13 | 0.22 | 73.4 | 23.2 |
|----------------------|------|------|------|------|------|------|

| | | | |
|--------------------------------|-----------------|---------------------------------------|----------|
| Sample ID: | VAS18-3-7 | Method of Sampling: | Low Flow |
| Sample Depth (ft): | 5 | Sample Container Type(s): | |
| Sample Date: | 12/06/2022 | Well Head PID Reading (ppm): | 0 |
| Sample Collection Time: | 17:20 | Analysis: | PFAS |
| QA/QC Samples: | | Blank ID(s): | |
| Duplicate Collected: | Yes | Initial Depth to Water: | 3.41 |
| Duplicate ID: | DUP-03-06122022 | Depth to Water After Sampling: | 3.41 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, Peristaltic Pump
 , Aqua Troll 500 928064

| | |
|---|--|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft) = (well diameter (in)/12 (in/ft))/2}$ $H = \text{height of water column (ft)}$</p> | <p>$V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)/12 (in/ft)})^2 * 3.59 * 7.48 \text{ gal/ft}^3$ $= 0.1$</p>  |

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| Notes: | Technician Name (print): |
| None. | Jared Walbert |

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| QA/QC'd by: | Saamih Bashir | QA/QC Date: | 12/7/2022 |
|--------------------|---------------|--------------------|-----------|

GROUNDWATER SAMPLING RECORD



| | |
|--|-------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/06/2022 |
| Well ID: VAS18-16-20 | Weather Condition: |
| Initial Depth to Water: 3.4 | Well Diameter (inches): 1 |
| Total Depth of Well: 20.0 | 1 Casing Volume (gal): 0.7 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 2.0 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 19 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|------------------------|--------------------|--------------------|--------------------|------------|------------|---|-----------|----------|------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 16:28 | | 450 | | | | | | | | Pump Started |
| 16:37 | 3.78 | 450.0 | 1.1 | 13.0 | 6.50 | 1.560 | 3.11 | -2.9 | 11.52 | Clear |
| 16:42 | | 450.0 | 1.7 | 13.0 | 6.49 | 1.539 | 1.78 | -16.1 | 43.82 | |
| 16:47 | | 450.0 | 2.3 | 12.7 | 6.49 | 1.539 | 1.14 | -23.7 | 20.12 | |
| 16:52 | | 450.0 | 2.9 | 12.7 | 6.49 | 1.539 | 0.93 | -27.2 | 13.76 | |
| 16:57 | | 450.0 | 3.4 | 12.8 | 6.49 | 1.538 | 0.77 | -30.7 | 13.43 | |
| 17:02 | | 450.0 | 4.0 | 12.8 | 6.48 | 1.531 | 0.63 | -34.9 | 9.47 | |
| 17:07 | | 450.0 | 4.6 | 12.8 | 6.48 | 1.532 | 0.53 | -39.2 | 9.76 | |
| 17:12 | | 450.0 | 5.2 | 12.9 | 6.48 | 1.542 | 0.47 | -42.3 | 8.11 | |
| 17:17 | | 450.0 | 5.8 | 12.7 | 6.48 | 1.536 | 0.42 | -45.0 | 8.06 | |
| 17:22 | | 450.0 | 6.4 | 12.8 | 6.48 | 1.537 | 0.38 | -48.1 | 6.36 | |
| 17:27 | | 450.0 | 7.0 | 12.8 | 6.48 | 1.534 | 0.34 | -51.2 | 7.66 | |
| 17:32 | | 450.0 | 7.6 | 12.7 | 6.50 | 1.531 | 0.30 | -53.9 | 7.28 | |
| 17:37 | | 450.0 | 8.2 | 12.8 | 6.49 | 1.539 | 0.28 | -56.2 | 7.50 | |
| 17:42 | | 450.0 | 8.8 | 12.8 | 6.48 | 1.534 | 0.26 | -58.2 | 7.60 | |
| 17:47 | | 450.0 | 9.4 | 12.7 | 6.48 | 1.535 | 0.24 | -60.0 | 6.19 | |

Stability Reached (Y/N): No If No, Provide Explanation: 3 well volumes purged

| | | | | | | |
|----------------------|------|------|-------|------|-------|------|
| Final Values: | 12.7 | 6.48 | 1.535 | 0.24 | -60.0 | 6.19 |
|----------------------|------|------|-------|------|-------|------|

| | |
|--------------------------------------|--|
| Sample ID: VAS18-16-20 | Method of Sampling: Low Flow |
| Sample Depth (ft): 19 | Sample Container Type(s): |
| Sample Date: 12/06/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 17:50 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 3.40 |
| Duplicate ID: | Depth to Water After Sampling: 3.35 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI Pro DSS 17L100457

| | |
|--|---|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$ $H = \text{height of water column (ft)}$</p> | <p>$V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)}/12 \text{ (in/ft)})^2 * 2 * 16.60 * 7.48 \text{ gal/ft}^3$ $= 0.7$</p> |

| | |
|---------------------------------|---------------------------------|
| Notes: | Technician Name (print): |
| Turbidity and DO not stabilized | Kiersten White |

| | |
|----------------------------------|------------------------------|
| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/7/2022 |
|----------------------------------|------------------------------|

GROUNDWATER SAMPLING RECORD



| | |
|--|-------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/07/2022 |
| Well ID: VAS19-16-20 | Weather Condition: |
| Initial Depth to Water: 7.73 | Well Diameter (inches): 1 |
| Total Depth of Well: 20.0 | 1 Casing Volume (gal): 0.5 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 1.5 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 19 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 09:42 | | 500 | | | | | | | | Pump Started |
| 10:55 | 10.20 | 500.0 | 9.6 | 14.9 | 6.50 | 1.247 | 5.77 | -51.5 | 48.81 | |
| 11:00 | | 500.0 | 10.3 | 15.2 | 6.46 | 1.203 | 3.93 | -50.3 | 54.61 | |
| 11:05 | | 500.0 | 11.0 | 15.1 | 6.45 | 1.206 | 3.27 | -50.7 | 44.25 | |
| 11:13 | | 500.0 | 12.0 | 15.1 | 6.45 | 1.244 | 2.19 | -55.6 | 35.20 | |
| 11:22 | | 500.0 | 13.2 | 15.3 | 6.46 | 1.264 | 1.87 | -57.9 | 23.84 | |
| 11:27 | | 500.0 | 13.9 | 15.3 | 6.47 | 1.269 | 1.85 | -58.4 | 24.93 | |
| 11:32 | | 500.0 | 14.5 | 15.3 | 6.46 | 1.269 | 1.50 | -62.1 | 29.15 | |
| 11:37 | | 500.0 | 15.2 | 15.1 | 6.47 | 1.268 | 1.36 | -63.6 | 23.95 | |
| 11:42 | | 500.0 | 15.9 | 15.3 | 6.46 | 1.271 | 1.22 | -65.4 | 26.14 | |
| 11:47 | | 500.0 | 16.5 | 15.4 | 6.47 | 1.272 | 1.12 | -67.6 | 24.47 | |
| 11:52 | | 500.0 | 17.2 | 15.3 | 6.47 | 1.270 | 1.04 | -69.6 | 21.72 | |
| 11:57 | | 500.0 | 17.8 | 15.4 | 6.47 | 1.271 | 0.97 | -71.1 | 45.87 | |
| 12:02 | | 500.0 | 18.5 | 15.2 | 6.50 | 1.276 | 0.92 | -72.5 | 18.25 | |

Stability Reached (Y/N): No If No, Provide Explanation 3 Well Volumes

| | | | | | | |
|----------------------|------|------|-------|------|-------|-------|
| Final Values: | 15.2 | 6.50 | 1.276 | 0.92 | -72.5 | 18.25 |
|----------------------|------|------|-------|------|-------|-------|

| | |
|--------------------------------------|---|
| Sample ID: VAS19-16-20 | Method of Sampling: Low Flow |
| Sample Depth (ft): 19 | Sample Container Type(s): |
| Sample Date: 12/07/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 12:05 | Analysis: PFAS |
| QA/QC Samples: MS/MSD | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 7.73 |
| Duplicate ID: | Depth to Water After Sampling: 10.20 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI Pro DSS 17L100457

| | |
|--|------------------------------|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$ $H = \text{height of water column (ft)}$</p> <p style="text-align: center;"> $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)}/12 \text{ (in/ft)})^2 * 2 * 12.27 * 7.48 \text{ gal/ft}^3$ $= 0.5$ </p> | |

| | |
|---|---------------------------------|
| Notes: | Technician Name (print): |
| 1.5 gallons added, 4.5 removed before readings. Turbidity did not stabilize | Kiersten White |

| | |
|----------------------------------|------------------------------|
| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/7/2022 |
|----------------------------------|------------------------------|

GROUNDWATER SAMPLING RECORD



| | |
|--|-------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/07/2022 |
| Well ID: VAS20-16-20 | Weather Condition: |
| Initial Depth to Water: 5.85 | Well Diameter (inches): 1 |
| Total Depth of Well: 20.0 | 1 Casing Volume (gal): 0.6 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 1.7 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 19 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 12:21 | | 500 | | | | | | | | Pump Started |
| 12:55 | 16.15 | 500.0 | 4.5 | 14.4 | 8.60 | 0.833 | 5.23 | -215.8 | 5.83 | Clear |
| 13:00 | | 500.0 | 5.2 | 14.3 | 8.56 | 0.841 | 2.95 | -284.5 | 8.21 | |
| 13:05 | | 500.0 | 5.8 | 14.3 | 8.64 | 0.842 | 1.47 | -313.7 | 6.67 | |
| 13:10 | | 500.0 | 6.5 | 14.4 | 8.57 | 0.847 | 0.69 | -323.0 | 3.75 | |
| 13:15 | | 500.0 | 7.1 | 14.3 | 8.61 | 0.848 | 0.26 | -333.4 | 4.16 | |
| 13:20 | | 500.0 | 7.8 | 14.3 | 8.54 | 0.851 | 0.05 | -335.2 | 4.06 | |
| 13:25 | | 500.0 | 8.5 | 14.2 | 8.60 | 0.852 | 0.00 | -340.8 | 3.45 | |
| 13:30 | | 500.0 | 9.1 | 14.2 | 8.56 | 0.855 | 0.00 | -342.9 | 3.15 | |
| 13:35 | | 500.0 | 9.8 | 14.3 | 8.63 | 0.856 | 0.00 | -350.4 | 3.30 | |
| | | .0 | | | | | | | | |

Stability Reached (Y/N): Yes If No, Provide Explanation

| | | | | | | |
|----------------------|------|------|-------|------|--------|------|
| Final Values: | 14.3 | 8.63 | 0.856 | 0.00 | -350.4 | 3.30 |
|----------------------|------|------|-------|------|--------|------|

| | |
|--------------------------------------|--|
| Sample ID: VAS20-16-20 | Method of Sampling: Low Flow |
| Sample Depth (ft): 19 | Sample Container Type(s): |
| Sample Date: 12/07/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 13:40 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 5.85 |
| Duplicate ID: | Depth to Water After Sampling: 6.33 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump, YSI Pro DSS 17L100457

Calculations:
Saturated well casing volume: $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $V = \text{Volume (gal/ft)}$
 $\pi = 3.14$
 $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$
 $H = \text{height of water column (ft)}$

$V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $= \pi * (1 \text{ (in)}/12 \text{ (in/ft)})^2 * 14.15 * 7.48 \text{ gal/ft}^3$
 $= 0.6$

Technician Signature:

Notes:
 1.5 gallons added, 4.5 gallons removed before readings

Technician Name (print):
 Kiersten White

QA/QC'd by: _____ **QA/QC Date:** _____

GROUNDWATER SAMPLING RECORD



| | |
|--|-------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/07/2022 |
| Well ID: VAS21-16-20 | Weather Condition: |
| Initial Depth to Water: 5.56 | Well Diameter (inches): 1 |
| Total Depth of Well: 20.0 | 1 Casing Volume (gal): 0.6 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 1.8 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 19 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 14:07 | | 500 | | | | | | | | Pump Started |
| 15:23 | 5.83 | 500.0 | 10.0 | 13.6 | 6.89 | 1.173 | 1.42 | -89.6 | 28.05 | Clear |
| 15:28 | | 500.0 | 10.7 | 13.8 | 6.80 | 1.184 | 1.05 | -88.1 | 18.34 | |
| 15:33 | | 500.0 | 11.4 | 13.8 | 6.78 | 1.185 | 0.88 | -88.1 | 16.04 | |
| 15:38 | | 500.0 | 12.0 | 13.8 | 6.77 | 1.184 | 0.82 | -88.2 | 14.52 | |
| 15:43 | | 500.0 | 12.7 | 13.8 | 6.76 | 1.184 | 0.76 | -88.4 | 12.03 | |
| 15:48 | | 500.0 | 13.3 | 13.7 | 6.76 | 1.185 | 0.71 | -88.6 | 11.07 | |
| 15:53 | | 500.0 | 14.0 | 13.8 | 6.75 | 1.186 | 0.67 | -89.9 | 9.86 | |
| 15:58 | | 500.0 | 14.7 | 13.8 | 6.74 | 1.188 | 0.66 | -88.6 | 8.48 | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |

Stability Reached (Y/N): No If No, Provide Explanation

| | | | | | | |
|----------------------|------|------|-------|------|-------|------|
| Final Values: | 13.8 | 6.74 | 1.188 | 0.66 | -88.6 | 8.48 |
|----------------------|------|------|-------|------|-------|------|

| | |
|--------------------------------------|--|
| Sample ID: VAS21-16-20 | Method of Sampling: Low Flow |
| Sample Depth (ft): 19 | Sample Container Type(s): |
| Sample Date: 12/07/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 16:05 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 5.56 |
| Duplicate ID: | Depth to Water After Sampling: 5.83 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump, YSI Pro DSS 17L100457

Calculations:
Saturated well casing volume: $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $V = \text{Volume (gal/ft)}$
 $\pi = 3.14$
 $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$
 $H = \text{height of water column (ft)}$

$V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $= \pi * (1 \text{ (in)}/12 \text{ (in/ft)})^2 * 14.44 * 7.48 \text{ gal/ft}^3$
 $= 0.6$

Technician Signature:

Notes:
 1.5 gallons added, 4.5 removed before readings? Turbidity did not stabilize

Technician Name (print):
 Kiersten White

QA/QC'd by: _____ **QA/QC Date:** _____

GROUNDWATER SAMPLING RECORD



| | |
|--|-------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/07/2022 |
| Well ID: VAS22-16-20 | Weather Condition: |
| Initial Depth to Water: 6.59 | Well Diameter (inches): 1 |
| Total Depth of Well: 20.0 | 1 Casing Volume (gal): 0.5 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 1.6 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 19 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 16:42 | | 500 | | | | | | | | Pump Started |
| 17:20 | 6.69 | 500.0 | 5.0 | 14.6 | 7.46 | 1.63 | 1.28 | -177.0 | 2.16 | Clear |
| 17:25 | | 500.0 | 5.7 | 14.6 | 7.41 | 1.62 | 1.21 | -161.6 | 3.20 | |
| 17:30 | | 500.0 | 6.3 | 14.6 | 7.39 | 1.63 | 1.23 | -154.9 | 2.37 | |
| 17:35 | | 500.0 | 7.0 | 14.5 | 7.38 | 1.63 | 1.24 | -149.7 | 2.41 | |
| 17:40 | | 500.0 | 7.7 | 14.6 | 7.37 | 1.63 | 1.19 | -146.0 | 1.17 | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |

Stability Reached (Y/N): No If No, Provide Explanation

| | | | | | | |
|----------------------|------|------|------|------|--------|------|
| Final Values: | 14.6 | 7.37 | 1.63 | 1.19 | -146.0 | 1.17 |
|----------------------|------|------|------|------|--------|------|

| | |
|--------------------------------------|--|
| Sample ID: VAS22-16-20 | Method of Sampling: Low Flow |
| Sample Depth (ft): 19 | Sample Container Type(s): |
| Sample Date: 12/07/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 17:45 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 6.59 |
| Duplicate ID: | Depth to Water After Sampling: 6.72 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump, IN SITU Aquatroll 500 928064

Calculations:
Saturated well casing volume: $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $V = \text{Volume (gal/ft)}$
 $\pi = 3.14$
 $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$
 $H = \text{height of water column (ft)}$

$V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $= \pi * (1 \text{ (in)}/12 \text{ (in/ft)})^2 * 13.41 * 7.48 \text{ gal/ft}^3$
 $= 0.5$

Technician Signature:

Notes:
 1.5 gallons added, 4.5 gallons removed before readings. Turbidity did not stabilize

Technician Name (print):
 Kiersten White

QA/QC'd by: _____ **QA/QC Date:** _____

GROUNDWATER SAMPLING RECORD



| | |
|--|-------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/08/2022 |
| Well ID: VAS23-16-20 | Weather Condition: |
| Initial Depth to Water: 5.77 | Well Diameter (inches): 1 |
| Total Depth of Well: 20.0 | 1 Casing Volume (gal): 0.6 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 1.8 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 19 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 09:55 | | 500 | | | | | | | | Pump Started |
| 11:24 | 5.84 | 500.0 | 11.8 | 13.3 | 6.92 | 1.596 | 4.17 | -49.2 | 4.26 | Clear |
| 11:29 | | 500.0 | 12.4 | 13.3 | 6.85 | 1.582 | 3.25 | -47.8 | 3.28 | |
| 11:34 | | 500.0 | 13.1 | 13.3 | 6.82 | 1.580 | 2.78 | -50.0 | 2.14 | |
| 11:39 | | 500.0 | 13.7 | 13.3 | 6.82 | 1.574 | 2.44 | -52.1 | 1.92 | |
| 11:44 | | 500.0 | 14.4 | 13.3 | 6.81 | 1.565 | 2.20 | -54.0 | 1.57 | |
| 11:49 | | 500.0 | 15.1 | 13.4 | 6.81 | 1.567 | 2.09 | -55.0 | 1.67 | |
| 11:54 | | 500.0 | 15.7 | 13.4 | 6.80 | 1.570 | 1.98 | -56.4 | 1.16 | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |

Stability Reached (Y/N): No If No, Provide Explanation

| | | | | | | |
|----------------------|------|------|-------|------|-------|------|
| Final Values: | 13.4 | 6.80 | 1.570 | 1.98 | -56.4 | 1.16 |
|----------------------|------|------|-------|------|-------|------|

| | |
|--------------------------------------|--|
| Sample ID: VAS23-16-20 | Method of Sampling: Low Flow |
| Sample Depth (ft): 19 | Sample Container Type(s): |
| Sample Date: 12/08/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 12:00 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 5.77 |
| Duplicate ID: | Depth to Water After Sampling: 5.75 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump, YSI Pro DSS 17L100457

Calculations:
Saturated well casing volume: $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $V = \text{Volume (gal/ft)}$
 $\pi = 3.14$
 $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$
 $H = \text{height of water column (ft)}$

$V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $= \pi * (1 \text{ (in)}/12 \text{ (in/ft)})^2 * 14.23 * 7.48 \text{ gal/ft}^3$
 $= 0.6$

Technician Signature:

Notes:
 1.5 gallons added, 4.5 gallons removed before readings. Turbidity did not stabilize

Technician Name (print):
 Kiersten White

QA/QC'd by: _____ **QA/QC Date:** _____

GROUNDWATER SAMPLING RECORD



| | |
|--|-------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/08/2022 |
| Well ID: VAS24-16-20 | Weather Condition: |
| Initial Depth to Water: 4.5 | Well Diameter (inches): 1 |
| Total Depth of Well: 20.0 | 1 Casing Volume (gal): 0.6 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 1.9 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 19 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 12:19 | | 500 | | | | | | | | Pump Started |
| 13:30 | 4.48 | 500.0 | 9.4 | 12.8 | 6.83 | 1.691 | 2.46 | -70.5 | 10.08 | |
| 13:35 | 4.48 | 500.0 | 10.0 | 12.8 | 6.80 | 1.690 | 2.09 | -73.2 | 7.63 | |
| 13:40 | 4.48 | 500.0 | 10.7 | 12.8 | 6.80 | 1.691 | 1.91 | -75.0 | 8.87 | |
| 13:45 | 4.48 | 500.0 | 11.4 | 12.9 | 6.80 | 1.694 | 1.77 | -77.4 | 5.13 | |
| 13:50 | 4.48 | 500.0 | 12.0 | 13.0 | 6.80 | 1.697 | 1.66 | -79.3 | 4.14 | |
| 13:55 | 4.48 | 500.0 | 12.7 | 13.0 | 6.80 | 1.699 | 1.57 | -80.7 | 3.77 | |
| 14:00 | 4.48 | 500.0 | 13.3 | 12.9 | 6.80 | 1.699 | 1.49 | -82.1 | 3.32 | |
| 14:05 | 4.48 | 500.0 | 14.0 | 13.0 | 6.80 | 1.701 | 1.43 | -83.7 | 3.13 | |
| 14:10 | 4.48 | 500.0 | 14.7 | 12.9 | 6.80 | 1.701 | 1.38 | -84.7 | 3.21 | |
| | | .0 | | | | | | | | |

Stability Reached (Y/N): Yes If No, Provide Explanation

| | | | | | | |
|----------------------|------|------|-------|------|-------|------|
| Final Values: | 12.9 | 6.80 | 1.701 | 1.38 | -84.7 | 3.21 |
|----------------------|------|------|-------|------|-------|------|

| | |
|--------------------------------------|--|
| Sample ID: VAS24-16-20 | Method of Sampling: Low Flow |
| Sample Depth (ft): 19 | Sample Container Type(s): |
| Sample Date: 12/08/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 14:15 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 4.50 |
| Duplicate ID: | Depth to Water After Sampling: 4.47 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump, YSI Pro DSS 17L100457

Calculations:
Saturated well casing volume: $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $V = \text{Volume (gal/ft)}$
 $\pi = 3.14$
 $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$
 $H = \text{height of water column (ft)}$

$V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $= \pi * (1 \text{ (in)}/12 \text{ (in/ft)})^2 * 15.50 * 7.48 \text{ gal/ft}^3$
 $= 0.6$

Technician Signature:

Notes:

Technician Name (print):
 Kiersten White

QA/QC'd by: _____ **QA/QC Date:** _____

GROUNDWATER SAMPLING RECORD



| | |
|--|------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/08/2022 |
| Well ID: VAS26-4-8 | Weather Condition: |
| Initial Depth to Water: 4.1 | Well Diameter (inches): 1 |
| Total Depth of Well: 8.0 | 1 Casing Volume (gal): 0.2 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 0.5 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 6 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 16:33 | | 400 | | | | | | | | Pump Started |
| 16:38 | 4.1 | 400.0 | 0.5 | 13.7 | 6.19 | 1.203 | 5.33 | 38.0 | 336.81 | Clear |
| 16:43 | | 400.0 | 1.1 | 13.9 | 6.16 | 1.206 | 4.03 | 31.5 | 192.51 | |
| 16:48 | | 400.0 | 1.6 | 13.9 | 6.15 | 1.203 | 3.12 | 24.3 | 98.86 | |
| 16:53 | | 400.0 | 2.1 | 14.0 | 6.15 | 1.205 | 2.72 | 21.0 | 67.12 | |
| 16:58 | | 400.0 | 2.6 | 13.9 | 6.15 | 1.204 | 2.38 | 18.2 | 57.79 | |
| 17:03 | | 400.0 | 3.2 | 14.0 | 6.14 | 1.206 | 2.10 | 16.0 | 73.32 | |
| 17:08 | | 400.0 | 3.7 | 13.8 | 6.14 | 1.207 | 1.99 | 14.9 | 74.85 | |
| 17:13 | | 400.0 | 4.2 | 13.9 | 6.14 | 1.209 | 1.82 | 13.7 | 65.67 | |
| 17:18 | | 400.0 | 4.8 | 13.9 | 6.14 | 1.215 | 1.71 | 12.6 | 72.04 | |
| 17:23 | | 400.0 | 5.3 | 13.9 | 6.14 | 1.217 | 1.59 | 11.4 | 48.25 | |
| 17:28 | | 400.0 | 5.8 | 14.0 | 6.14 | 1.219 | 1.49 | 10.4 | 44.18 | |
| 17:33 | | 400.0 | 6.3 | 13.9 | 6.14 | 1.218 | 1.42 | 9.7 | 28.93 | |
| 17:38 | | 400.0 | 6.9 | 14.1 | 6.15 | 1.216 | 1.36 | 7.7 | 29.45 | |
| 17:43 | | 400.0 | 7.4 | 14.0 | 6.14 | 1.217 | 1.30 | 7.9 | 30.72 | |
| 17:48 | | 400.0 | 7.9 | 13.9 | 6.14 | 1.219 | 1.25 | 7.4 | 26.51 | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |

Stability Reached (Y/N): No If No, Provide Explanation

| | | | | | | |
|----------------------|------|------|-------|------|-----|-------|
| Final Values: | 13.9 | 6.14 | 1.219 | 1.25 | 7.4 | 26.51 |
|----------------------|------|------|-------|------|-----|-------|

| | |
|--------------------------------------|--|
| Sample ID: VAS26-3-7 | Method of Sampling: Low Flow |
| Sample Depth (ft): 6 | Sample Container Type(s): |
| Sample Date: 12/08/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 17:55 | Analysis: PFAS, VOCs, SVOCs, metals |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 4.10 |
| Duplicate ID: | Depth to Water After Sampling: 4.10 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump, YSI Pro DSS 17L100457

Calculations:
Saturated well casing volume: $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $V = \text{Volume (gal/ft)}$
 $\pi = 3.14$
 $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$
 $H = \text{height of water column (ft)}$

$V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $= \pi * (1 \text{ (in)}/12 \text{ (in/ft)})^2 * 3.90 * 7.48 \text{ gal/ft}^3$
 $= 0.2$

Technician Signature:

Notes:
 Turbidity did not stabilize

Technician Name (print):
 Kiersten White

QA/QC'd by: _____ **QA/QC Date:** _____

GROUNDWATER SAMPLING RECORD



| | |
|--|------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/09/2022 |
| Well ID: VAS27-4-8 | Weather Condition: |
| Initial Depth to Water: 3.26 | Well Diameter (inches): 1 |
| Total Depth of Well: 8.0 | 1 Casing Volume (gal): 0.2 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 0.6 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 7 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 09:13 | | 500 | | | | | | | | Pump Started |
| 09:22 | 3.26 | 500.0 | 1.2 | 8.5 | 7.05 | 2.428 | 8.75 | 55.3 | 36.34 | Clear |
| 09:27 | | 500.0 | 1.8 | 6.7 | 7.11 | 2.431 | 7.80 | 26.8 | 42.80 | |
| 09:32 | | 500.0 | 2.5 | 8.4 | 7.14 | 2.406 | 6.71 | 2.3 | 21.65 | |
| 09:37 | | 500.0 | 3.2 | 8.4 | 7.15 | 2.401 | 6.08 | -14.5 | 14.11 | |
| 09:42 | | 500.0 | 3.8 | 8.4 | 7.16 | 2.392 | 5.62 | -26.4 | 10.42 | |
| 09:47 | | 500.0 | 4.5 | 8.4 | 7.17 | 2.381 | 5.03 | -41.0 | 7.14 | |
| 09:52 | | 500.0 | 5.2 | 8.4 | 7.18 | 2.375 | 4.69 | -48.6 | 5.34 | |
| 09:57 | | 500.0 | 5.8 | 8.3 | 7.18 | 2.368 | 4.44 | -54.1 | 4.81 | |
| 10:02 | | 500.0 | 6.5 | 8.3 | 7.18 | 2.362 | 4.10 | -61.4 | 3.56 | |
| 10:07 | | 500.0 | 7.1 | 8.4 | 7.19 | 2.357 | 3.89 | -66.5 | 3.02 | |
| 10:12 | | 500.0 | 7.8 | 8.3 | 7.19 | 2.352 | 3.64 | -74.0 | 2.82 | |
| 10:17 | | 500.0 | 8.5 | 8.4 | 7.19 | 2.348 | 3.40 | -84.4 | 2.27 | |
| 10:22 | | 500.0 | 9.1 | 8.4 | 7.23 | 2.343 | 3.17 | -97.8 | 2.05 | |
| 10:27 | | 500.0 | 9.8 | 8.4 | 7.20 | 2.340 | 2.95 | -110.3 | 2.16 | |

Stability Reached (Y/N): No If No, Provide Explanation

| | | | | | | |
|----------------------|-----|------|-------|------|--------|------|
| Final Values: | 8.4 | 7.20 | 2.340 | 2.95 | -110.3 | 2.16 |
|----------------------|-----|------|-------|------|--------|------|

| | |
|--------------------------------------|--|
| Sample ID: VAS27-4-8 | Method of Sampling: Low Flow |
| Sample Depth (ft): 7 | Sample Container Type(s): |
| Sample Date: 12/09/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 10:30 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: Yes | Initial Depth to Water: 3.26 |
| Duplicate ID: DUP-05-09122022 | Depth to Water After Sampling: 3.26 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI Pro DSS 17L100457

| | |
|--|------------------------------|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft) = (well diameter (in)/12 (in/ft))/2}$ $H = \text{height of water column (ft)}$</p> <p style="text-align: center;"> $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)/12 (in/ft)})^2 * 2 * 4.74 * 7.48 \text{ gal/ft}^3$ $= 0.2$ </p> | |

| | |
|------------------------------|---------------------------------|
| Notes: | Technician Name (print): |
| ORP and DO did not stabilize | Kiersten White |

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|----------------------------------|-------------------------------|
| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/14/2022 |
|----------------------------------|-------------------------------|

GROUNDWATER SAMPLING RECORD



| | |
|--|------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/09/2022 |
| Well ID: VAS28-3-7 | Weather Condition: |
| Initial Depth to Water: 3.96 | Well Diameter (inches): 1 |
| Total Depth of Well: 7.0 | 1 Casing Volume (gal): 0.1 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 0.4 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 6 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 11:42 | | 500 | | | | | | | | Pump Started |
| 11:45 | 3.55 | 500.0 | 0.4 | 11.9 | 7.40 | 2.482 | 5.10 | -82.2 | 33.53 | Clear |
| 11:50 | | 500.0 | 1.1 | 11.8 | 7.55 | 2.529 | 4.05 | -97.5 | 18.85 | |
| 11:55 | | 500.0 | 1.7 | 11.9 | 7.61 | 2.547 | 3.23 | -111.6 | 10.38 | |
| 12:00 | | 500.0 | 2.4 | 11.9 | 7.63 | 2.555 | 2.83 | -118.9 | 8.07 | |
| 12:05 | | 500.0 | 3.0 | 12.0 | 7.64 | 2.558 | 2.51 | -125.6 | 5.89 | |
| 12:10 | | 500.0 | 3.7 | 12.0 | 7.65 | 2.560 | 2.31 | -130.1 | 5.64 | |
| 12:15 | | 500.0 | 4.4 | 12.2 | 7.65 | 2.561 | 2.09 | -135.9 | 5.25 | |
| 12:20 | | 500.0 | 5.0 | 12.2 | 7.66 | 2.563 | 1.98 | -139.1 | 5.06 | |
| 12:25 | | 500.0 | 5.7 | 12.1 | 7.66 | 2.564 | 1.86 | -142.5 | 4.81 | |
| 12:30 | | 500.0 | 6.3 | 12.1 | 7.66 | 2.568 | 1.76 | -145.8 | 4.43 | |
| 12:35 | | 500.0 | 7.0 | 12.2 | 7.67 | 2.570 | 1.64 | -149.5 | 4.00 | |
| 12:40 | | 500.0 | 7.7 | 12.2 | 7.67 | 2.572 | 1.58 | -151.7 | 3.95 | |
| 12:45 | | 500.0 | 8.3 | 12.2 | 7.71 | 2.572 | 1.50 | -154.8 | 3.71 | |

Stability Reached (Y/N): Yes If No, Provide Explanation

| | | | | | | |
|----------------------|------|------|-------|------|--------|------|
| Final Values: | 12.2 | 7.71 | 2.572 | 1.50 | -154.8 | 3.71 |
|----------------------|------|------|-------|------|--------|------|

| | |
|--------------------------------------|--|
| Sample ID: VAS28-3-7 | Method of Sampling: Low Flow |
| Sample Depth (ft): 6 | Sample Container Type(s): |
| Sample Date: 12/9/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 12:50 | Analysis: PFAS, VOCs, SVOCs, metals |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 3.96 |
| Duplicate ID: | Depth to Water After Sampling: 3.98 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI Pro DSS 17L100457

| | |
|---|--|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft) = (well diameter (in)/12 (in/ft))/2}$ $H = \text{height of water column (ft)}$</p> | $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)/12 (in/ft)/2})^2 * 3.04 * 7.48 \text{ gal/ft}^3$ $= 0.1$ |
| | |

| | |
|---------------|---|
| Notes: | Technician Name (print): Kiersten White |
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| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/14/2022 |
|----------------------------------|-------------------------------|

GROUNDWATER SAMPLING RECORD



| | |
|--|------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/12/2022 |
| Well ID: VAS29-4-8 | Weather Condition: |
| Initial Depth to Water: 4.3 | Well Diameter (inches): 1 |
| Total Depth of Well: 8.0 | 1 Casing Volume (gal): 0.2 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 0.5 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 7 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 09:11 | | 450 | | | | | | | | Pump Started |
| 09:20 | 4.38 | 450.0 | 1.1 | 11.6 | 7.34 | 1.749 | 9.02 | 13.3 | 131.33 | Clear |
| 09:25 | | 450.0 | 1.7 | 11.5 | 7.34 | 1.726 | 6.45 | -62.8 | 50.92 | |
| 09:30 | | 450.0 | 2.3 | 11.5 | 7.48 | 1.723 | 5.52 | -93.8 | 40.17 | |
| 09:35 | | 450.0 | 2.9 | 11.4 | 7.57 | 1.720 | 4.55 | -130.2 | 42.62 | |
| 09:40 | | 450.0 | 3.4 | 11.4 | 7.62 | 1.708 | 3.37 | -168.9 | 19.95 | |
| 09:45 | | 450.0 | 4.0 | 11.3 | 7.61 | 1.696 | 1.98 | -212.6 | 9.83 | |
| 09:50 | | 450.0 | 4.6 | 11.3 | 7.61 | 1.697 | 1.07 | -247.3 | 11.85 | |
| 09:55 | | 450.0 | 5.2 | 11.3 | 7.61 | 1.694 | 0.41 | -300.1 | 5.71 | |
| 10:00 | | 450.0 | 5.8 | 11.3 | 7.61 | 1.731 | 0.14 | -317.7 | 3.45 | |
| 10:05 | | 450.0 | 6.4 | 11.3 | 7.60 | 1.735 | 0.00 | -324.4 | 4.67 | |
| 10:10 | | 450.0 | 7.0 | 11.3 | 7.58 | 1.731 | 0.00 | -330.2 | 3.41 | |
| 10:15 | | 450.0 | 7.6 | 11.3 | 7.57 | 1.726 | 0.00 | -336.6 | 2.62 | |

Stability Reached (Y/N): No If No, Provide Explanation: 3 well volumes purged+A1 before sampling

| | | | | | | |
|----------------------|------|------|-------|------|--------|------|
| Final Values: | 11.3 | 7.57 | 1.726 | 0.00 | -336.6 | 2.62 |
|----------------------|------|------|-------|------|--------|------|

| | |
|--------------------------------------|--|
| Sample ID: VAS29-4-8 | Method of Sampling: Low Flow |
| Sample Depth (ft): 7 | Sample Container Type(s): |
| Sample Date: 12/12/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 10:20 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 4.30 |
| Duplicate ID: | Depth to Water After Sampling: 4.10 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI Pro DSS 17L100457

| | |
|--|------------------------------|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft) = (well diameter (in)/12 (in/ft))/2}$ $H = \text{height of water column (ft)}$</p> <p style="text-align: center;"> $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)/12 (in/ft)/2})^2 * 3.70 * 7.48 \text{ gal/ft}^3$ $= 0.2$ </p> | |

| | |
|-----------------------------|---------------------------------|
| Notes: | Technician Name (print): |
| Turbidity did not stabilize | Kiersten White |

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| QA/QC'd by: saamih bashir | QA/QC Date: 12/12/2022 |
|----------------------------------|-------------------------------|

GROUNDWATER SAMPLING RECORD



| | |
|--|-------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/12/2022 |
| Well ID: VAS30-16-20 | Weather Condition: |
| Initial Depth to Water: 6.0 | Well Diameter (inches): 1 |
| Total Depth of Well: 20.0 | 1 Casing Volume (gal): 0.6 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 1.7 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 19 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 11:05 | | 450 | | | | | | | | Pump Started |
| 11:47 | 6.14 | 450.0 | 5.0 | 11.76 | 6.45 | 4.44 | 0.33 | -99.5 | 9.90 | Clear |
| 11:52 | | 450.0 | 5.6 | 11.76 | 6.51 | 4.45 | 0.09 | -111.3 | 25.49 | |
| 11:57 | | 450.0 | 6.2 | 11.78 | 6.50 | 4.45 | 0.05 | -115.3 | 89.62 | |
| 12:02 | | 450.0 | 6.8 | 11.73 | 6.50 | 4.43 | 0.05 | -117.4 | 221.29 | |
| 12:07 | | 450.0 | 7.4 | 11.73 | 6.50 | 4.37 | 0.04 | -118.8 | 349.34 | |
| 12:12 | | 450.0 | 8.0 | 11.80 | 6.49 | 4.46 | 0.04 | -119.7 | 4.01 | |
| 12:17 | | 450.0 | 8.6 | 11.90 | 6.49 | 4.53 | 0.04 | -121.3 | 37.20 | |
| 12:22 | | 450.0 | 9.2 | 11.92 | 6.49 | 4.53 | 0.04 | -122.3 | 128.54 | |
| 12:27 | | 450.0 | 9.7 | 11.84 | 6.49 | 4.49 | 0.03 | -123.1 | 198.67 | |
| 12:32 | | 450.0 | 10.3 | 11.86 | 6.49 | 4.45 | 0.03 | -124.0 | 326.38 | |
| 12:37 | | 400.0 | 10.9 | 11.68 | 6.48 | 4.61 | 0.04 | -124.5 | 37.46 | |
| 12:42 | | 400.0 | 11.4 | 11.63 | 6.48 | 4.55 | 0.04 | -124.9 | 86.59 | |
| 12:47 | | 400.0 | 11.9 | 11.59 | 6.49 | 4.54 | 0.04 | -125.3 | 177.93 | |
| 12:52 | | 400.0 | 12.5 | 11.64 | 6.49 | 4.50 | 0.04 | -125.8 | 443.55 | |
| 12:57 | | 400.0 | 13.0 | 11.63 | 6.49 | 4.52 | 0.04 | -126.1 | 558.76 | |
| 13:02 | | 400.0 | 13.5 | 11.56 | 6.49 | 4.47 | 0.04 | -126.6 | 362.79 | |

Stability Reached (Y/N): No If No, Provide Explanation: 3 well volumes before sampling

| | | | | | | |
|----------------------|-------|------|------|------|--------|--------|
| Final Values: | 11.56 | 6.49 | 4.47 | 0.04 | -126.6 | 362.79 |
|----------------------|-------|------|------|------|--------|--------|

| | |
|--------------------------------------|--|
| Sample ID: VAS30-16-20 | Method of Sampling: Low Flow |
| Sample Depth (ft): 19 | Sample Container Type(s): |
| Sample Date: 12/12/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 13:05 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 6.0 |
| Duplicate ID: | Depth to Water After Sampling: 6.53 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI Pro DSS 17L100457

| | |
|---|-------------------------------------|
| <p>Calculations:</p> <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$ $H = \text{height of water column (ft)}$</p> <p style="text-align: right;"> $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)}/12 \text{ (in/ft)})^2 * 2 * 14.00 * 7.48 \text{ gal/ft}^3$ $= 0.6$ </p> | <p>Technician Signature:</p> |
|---|-------------------------------------|

| | |
|---|--|
| <p>Notes:</p> <p style="text-align: center;">1.5 gallons added, 4.5 gallons removed before readings. Turbidity did not stabilize</p> | <p>Technician Name (print):</p> <p>Kiersten White</p> |
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|----------------------------------|-------------------------------|
| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/12/2022 |
|----------------------------------|-------------------------------|

GROUNDWATER SAMPLING RECORD



| | |
|--|-------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/12/2022 |
| Well ID: VAS31-16-20 | Weather Condition: |
| Initial Depth to Water: 3.02 | Well Diameter (inches): 1 |
| Total Depth of Well: 20.0 | 1 Casing Volume (gal): 0.7 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 2.1 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 19 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 14:20 | | 450 | | | | | | | | Pump Started |
| 14:28 | 2.88 | 450.0 | 1.0 | 11.28 | 7.00 | 3.55 | 0.11 | -123.1 | 790.91 | Clear |
| 14:33 | | 450.0 | 1.5 | 11.39 | 7.00 | 3.55 | 0.05 | -128.9 | 724.71 | |
| 14:43 | | 450.0 | 2.7 | 11.2 | 6.88 | 2.604 | 7.85 | -56.6 | 220.69 | Meter died, switched to YSI |
| 14:48 | | 450.0 | 3.3 | 11.1 | 6.76 | 2.625 | 5.85 | -59.0 | 197.88 | |
| 14:53 | | 450.0 | 3.9 | 11.3 | 6.74 | 2.638 | 4.71 | -60.3 | 164.15 | |
| 14:58 | | 450.0 | 4.5 | 11.3 | 6.73 | 2.651 | 3.86 | -62.3 | 140.33 | |
| 15:03 | | 450.0 | 5.1 | 11.3 | 6.73 | 2.656 | 3.48 | -63.7 | 150.44 | |
| 15:08 | | 450.0 | 5.7 | 11.2 | 6.73 | 2.662 | 3.09 | -65.4 | 130.19 | |
| 15:13 | | 450.0 | 6.3 | 11.2 | 6.72 | 2.666 | 2.80 | -67.0 | 117.61 | |
| 15:18 | | 450.0 | 6.9 | 11.3 | 6.72 | 2.670 | 2.50 | -69.4 | 116.91 | |
| 15:23 | | 450.0 | 7.5 | 11.2 | 6.72 | 2.671 | 2.33 | -71.0 | 110.96 | |
| 15:28 | | 450.0 | 8.1 | 11.3 | 6.72 | 2.674 | 2.18 | -72.8 | 123.59 | |
| 15:33 | | 450.0 | 8.7 | 11.3 | 6.72 | 2.675 | 2.04 | -74.8 | 103.18 | |
| 15:38 | | 450.0 | 9.3 | 11.2 | 6.72 | 2.678 | 1.91 | -76.6 | 91.27 | |

Stability Reached (Y/N): No If No, Provide Explanation: 3 well volumes purged before sampling

| | | | | | | |
|----------------------|------|------|-------|------|-------|-------|
| Final Values: | 11.2 | 6.72 | 2.678 | 1.91 | -76.6 | 91.27 |
|----------------------|------|------|-------|------|-------|-------|

| | |
|--------------------------------------|--|
| Sample ID: VAS31-16-20 | Method of Sampling: Low Flow |
| Sample Depth (ft): 19 | Sample Container Type(s): |
| Sample Date: 12/12/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 15:45 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 3.02 |
| Duplicate ID: | Depth to Water After Sampling: 2.87 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump, YSI Pro DSS 17L100298

| | |
|--|------------------------------|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$ $H = \text{height of water column (ft)}$</p> <p style="text-align: center;"> $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)}/12 \text{ (in/ft)})^2 * 2 * 16.98 * 7.48 \text{ gal/ft}^3$ $= 0.7$ </p> | |

| | |
|---|---------------------------------|
| Notes: | Technician Name (print): |
| 1.5 gallons added, 4.5 gallons removed before readings. Turbidity did not stabilize | Kiersten White |

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| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/13/2022 |
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GROUNDWATER SAMPLING RECORD



| | |
|--|------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/12/2022 |
| Well ID: VAS32-3-7 | Weather Condition: |
| Initial Depth to Water: 4.31 | Well Diameter (inches): 1 |
| Total Depth of Well: 7.0 | 1 Casing Volume (gal): 0.1 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 0.3 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 6 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|------------|------------|---|-----------|----------|------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 15:58 | | 500 | | | | | | | | Pump Started |
| 16:06 | 4.31 | 500.0 | 1.1 | 9.0 | 7.09 | 0.696 | 7.08 | -33.6 | 55.31 | Clear |
| 16:11 | | 500.0 | 1.7 | 9.1 | 7.18 | 0.682 | 5.32 | -67.8 | 35.13 | |
| 16:16 | | 500.0 | 2.4 | 9.1 | 7.22 | 0.681 | 4.10 | -82.5 | 24.06 | |
| 16:21 | | 500.0 | 3.0 | 9.2 | 7.23 | 0.682 | 3.41 | -89.8 | 22.18 | |
| 16:26 | | 500.0 | 3.7 | 9.2 | 7.24 | 0.682 | 2.95 | -95.1 | 19.36 | |
| 16:31 | | 500.0 | 4.4 | 9.2 | 7.24 | 0.683 | 2.61 | -99.6 | 33.08 | |
| 16:36 | | 500.0 | 5.0 | 9.2 | 7.24 | 0.684 | 2.39 | -103.2 | 16.97 | |
| 16:41 | | 500.0 | 5.7 | 9.1 | 7.24 | 0.684 | 2.19 | -106.7 | 16.77 | |
| 16:46 | | 500.0 | 6.3 | 9.2 | 7.24 | 0.685 | 1.97 | -111.5 | 16.84 | |
| 16:51 | | 500.0 | 7.0 | 9.2 | 7.25 | 0.685 | 1.87 | -113.6 | 17.17 | |
| 16:56 | | 500.0 | 7.7 | 9.2 | 7.25 | 0.686 | 1.77 | -116.0 | 16.84 | |

Stability Reached (Y/N): No If No, Provide Explanation: 3 well volumes purged before collecting a sample

| | | | | | | |
|----------------------|-----|------|-------|------|--------|-------|
| Final Values: | 9.2 | 7.25 | 0.686 | 1.77 | -116.0 | 16.84 |
|----------------------|-----|------|-------|------|--------|-------|

| | |
|--------------------------------------|--|
| Sample ID: VAS32-3-7 | Method of Sampling: Low Flow |
| Sample Depth (ft): 6 | Sample Container Type(s): |
| Sample Date: 12/12/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 17:00 | Analysis: PFAS, VOCs, SVOCs, metals |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 4.31 |
| Duplicate ID: | Depth to Water After Sampling: 4.12 |

Instruments (Manufacturer, Model, and Serial No.):
Water Quality Meter, Water Level Meter, PID, Peristaltic Pump, YSI Pro DSS 17L100457

| | |
|---|--|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft) = (well diameter (in)/12 (in/ft))/2}$ $H = \text{height of water column (ft)}$</p> | <p>$V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)/12 (in/ft)/2})^2 * 2.69 * 7.48 \text{ gal/ft}^3$ $= 0.1$</p> |

| | |
|--|---|
| Notes: Turbidity did not stabilize | Technician Name (print): Kiersten White |
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| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/13/2022 |
|----------------------------------|-------------------------------|

GROUNDWATER SAMPLING RECORD



| | |
|--|-------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/12/2022 |
| Well ID: VAS32-16-20 | Weather Condition: |
| Initial Depth to Water: 4.12 | Well Diameter (inches): 1 |
| Total Depth of Well: 20.0 | 1 Casing Volume (gal): 0.7 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 2.0 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 19 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 16:30 | | 500 | | | | | | | | Pump Started |
| 17:16 | 4.28 | 500.0 | 6.1 | 11.5 | 6.90 | 1.088 | 4.54 | -97.5 | 391.78 | Cloudy, brownish yellow |
| 17:21 | | 500.0 | 6.7 | 11.7 | 7.02 | 1.110 | 3.20 | -117.0 | 137.54 | |
| 17:26 | | 500.0 | 7.4 | 11.7 | 7.04 | 1.112 | 2.59 | -118.5 | 112.60 | |
| 17:31 | | 500.0 | 8.1 | 11.8 | 7.04 | 1.114 | 2.16 | -121.4 | 81.39 | |
| 17:36 | | 500.0 | 8.7 | 11.7 | 7.05 | 1.116 | 1.92 | -123.7 | 72.35 | |
| 17:46 | | 500.0 | 10.0 | 11.8 | 7.05 | 1.116 | 1.60 | -128.3 | 61.58 | |
| 17:51 | | 500.0 | 10.7 | 11.8 | 7.05 | 1.116 | 1.47 | -130.8 | 70.55 | |
| 17:56 | | 500.0 | 11.4 | 11.8 | 7.05 | 1.112 | 1.37 | -133.0 | 70.15 | |
| 18:01 | | 500.0 | 12.0 | 11.7 | 7.05 | 1.117 | 1.32 | -134.4 | 71.60 | |

Stability Reached (Y/N): No If No, Provide Explanation: 3 well volume purged before sampling

| | | | | | | |
|----------------------|------|------|-------|------|--------|-------|
| Final Values: | 11.7 | 7.05 | 1.117 | 1.32 | -134.4 | 71.60 |
|----------------------|------|------|-------|------|--------|-------|

| | |
|--------------------------------------|--|
| Sample ID: VAS32-16-20 | Method of Sampling: Low Flow |
| Sample Depth (ft): 19 | Sample Container Type(s): |
| Sample Date: 12/12/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 18:05 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 4.12 |
| Duplicate ID: | Depth to Water After Sampling: 4.23 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI Pro DSS 17L100457

| | |
|--|------------------------------|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H = 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$ $H = \text{height of water column (ft)}$</p> <p style="text-align: center;"> $V = \pi(R^2)H = 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)}/12 \text{ (in/ft)})^2 * 2 * 15.88 * 7.48 \text{ gal/ft}^3$ $= 0.7$ </p> | |

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|---|---------------------------------|
| Notes: | Technician Name (print): |
| 1.5 gallons added, 4.5 gallons removed before readings. Turbidity did not stabilize | Kiersten White |

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| QA/QC'd by: Saamih | QA/QC Date: 12/12/2022 |
|---------------------------|-------------------------------|

GROUNDWATER SAMPLING RECORD



| | |
|--|------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/13/2022 |
| Well ID: VAS33-3-7 | Weather Condition: |
| Initial Depth to Water: 3.28 | Well Diameter (inches): 1 |
| Total Depth of Well: 7.0 | 1 Casing Volume (gal): 0.2 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 0.5 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 6 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 08:51 | | 500 | | | | | | | | Pump Started |
| 08:56 | 3.28 | 500.0 | 0.7 | 8.2 | 6.74 | 1.184 | 9.71 | 43.2 | 185.68 | Clear |
| 09:01 | | 500.0 | 1.3 | 8.2 | 7.28 | 1.165 | 7.76 | -41.7 | 168.93 | |
| 09:06 | | 500.0 | 2.0 | 8.2 | 7.42 | 1.147 | 6.53 | -72.3 | 158.36 | |
| 09:11 | | 500.0 | 2.6 | 8.2 | 7.46 | 1.143 | 5.76 | -83.8 | 147.24 | |
| 09:16 | | 500.0 | 3.3 | 8.0 | 7.49 | 1.139 | 5.09 | -92.0 | 129.45 | |
| 09:21 | | 500.0 | 4.0 | 8.1 | 7.51 | 1.138 | 4.62 | -97.9 | 114.93 | |
| 09:26 | | 500.0 | 4.6 | 8.2 | 7.52 | 1.139 | 4.23 | -104.2 | 105.61 | |
| 09:31 | | 500.0 | 5.3 | 8.2 | 7.52 | 1.141 | 3.95 | -109.6 | 104.88 | |
| 09:36 | | 500.0 | 5.9 | 8.1 | 7.52 | 1.141 | 3.64 | -116.2 | 90.52 | |
| 09:41 | | 500.0 | 6.6 | 8.1 | 7.53 | 1.142 | 3.37 | -122.9 | 83.14 | |
| 09:46 | | 500.0 | 7.3 | 8.2 | 7.53 | 1.141 | 3.21 | -127.0 | 88.47 | |
| 09:51 | | 500.0 | 7.9 | 8.1 | 7.53 | 1.143 | 3.01 | -132.1 | 76.20 | |
| 09:56 | | 500.0 | 8.6 | 8.3 | 7.58 | 1.142 | 2.83 | -137.2 | 68.31 | |
| 10:01 | | 500.0 | 9.2 | 8.2 | 7.54 | 1.141 | 2.69 | -140.1 | 62.96 | |

Stability Reached (Y/N): No If No, Provide Explanation: 3 well volumes purged before sampling

| | | | | | | |
|----------------------|-----|------|-------|------|--------|-------|
| Final Values: | 8.2 | 7.54 | 1.141 | 2.69 | -140.1 | 62.96 |
|----------------------|-----|------|-------|------|--------|-------|

| | |
|--------------------------------------|--|
| Sample ID: VAS33-3-7 | Method of Sampling: Low Flow |
| Sample Depth (ft): 6 | Sample Container Type(s): |
| Sample Date: 12/13/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 10:05 | Analysis: PFAS, VOCs, SVOCs, metals |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 3.28 |
| Duplicate ID: | Depth to Water After Sampling: 3.20 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI Pro DSS 17L100457

| | |
|--|------------------------------|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft) = (well diameter (in)/12 (in/ft))/2}$ $H = \text{height of water column (ft)}$</p> <p style="text-align: center;"> $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)/12 (in/ft)/2})^2 * 3.72 * 7.48 \text{ gal/ft}^3$ $= 0.2$ </p> | |

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| Notes: | Technician Name (print): |
| DO and turbidity did not stabilize | Kiersten White |

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| QA/QC'd by: saamih bashir | QA/QC Date: 12/14/2022 |
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GROUNDWATER SAMPLING RECORD



| | |
|--|-------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/13/2022 |
| Well ID: VAS34-16-20 | Weather Condition: |
| Initial Depth to Water: 4.2 | Well Diameter (inches): 1 |
| Total Depth of Well: 20.0 | 1 Casing Volume (gal): 0.6 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 1.9 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 19 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 12:06 | | 500 | | | | | | | | Pump Started |
| 12:13 | 4.41 | 500.0 | 0.9 | 11.43 | 7.32 | 1.91 | 0.18 | -137.7 | 125.43 | Clear |
| 12:16 | | 500.0 | 1.3 | 11.64 | 7.29 | 1.92 | 0.13 | -140.1 | 55.36 | |
| 12:19 | | 500.0 | 1.7 | 11.58 | 7.28 | 1.92 | 0.13 | -141.1 | 45.61 | |
| 12:22 | | 500.0 | 2.1 | 11.67 | 7.28 | 1.92 | 0.12 | -141.8 | 33.47 | |
| 12:25 | | 500.0 | 2.5 | 11.67 | 7.27 | 1.92 | 0.12 | -142.3 | 32.31 | |
| 12:28 | | 500.0 | 2.9 | 11.67 | 7.27 | 1.93 | 0.12 | -142.5 | 27.05 | |
| 12:31 | | 500.0 | 3.3 | 11.78 | 7.26 | 1.93 | 0.11 | -142.7 | 23.90 | |
| 12:34 | | 500.0 | 3.7 | 11.71 | 7.26 | 1.93 | 0.12 | -143.0 | 18.25 | |
| 12:37 | | 500.0 | 4.1 | 11.78 | 7.26 | 1.94 | 0.11 | -143.1 | 16.94 | |
| 12:40 | | 500.0 | 4.5 | 11.67 | 7.26 | 1.95 | 0.12 | -143.3 | 13.74 | |
| 12:43 | | 500.0 | 4.9 | 11.62 | 7.26 | 1.95 | 0.12 | -143.0 | 12.80 | |
| 12:46 | | 500.0 | 5.3 | 11.60 | 7.26 | 1.95 | 0.12 | -143.2 | 12.62 | |

Stability Reached (Y/N): No If No, Provide Explanation: Turbidity stabilized greater than 10 -3 well volumes purged

| | | | | | | |
|----------------------|-------|------|------|------|--------|-------|
| Final Values: | 11.60 | 7.26 | 1.95 | 0.12 | -143.2 | 12.62 |
|----------------------|-------|------|------|------|--------|-------|

| | |
|--------------------------------------|--|
| Sample ID: VAS34-16-20 | Method of Sampling: Low Flow |
| Sample Depth (ft): 19 | Sample Container Type(s): |
| Sample Date: 12/13/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 12:50 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 4.20 |
| Duplicate ID: | Depth to Water After Sampling: 4.30 |

Instruments (Manufacturer, Model, and Serial No.):
Water Quality Meter, Water Level Meter, PID, Peristaltic Pump, In-Situ Aqua TROLL 500 928064

| | |
|---|----------------------------------|
| Calculations: Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft) = (well diameter (in)/12 (in/ft))/2}$ $H = \text{height of water column (ft)}$ | Technician Signature: |
| $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)/12 (in/ft)})^2 * 2 * 15.80 * 7.48 \text{ gal/ft}^3$ $= 0.6$ | |

| | |
|---|---|
| Notes: 1.5 gallons added, 4.5 gallons removed before readings. Turbidity stabilized greater than 10 | Technician Name (print): Kiersten White |
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| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/15/2022 |
|----------------------------------|-------------------------------|

GROUNDWATER SAMPLING RECORD



| | |
|--|------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/13/2022 |
| Well ID: VAS35-1-5 | Weather Condition: |
| Initial Depth to Water: 1.65 | Well Diameter (inches): 1 |
| Total Depth of Well: 5.0 | 1 Casing Volume (gal): 0.1 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 0.4 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 4 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 13:11 | | 500 | | | | | | | | Pump Started |
| 13:18 | 1.65 | 500.0 | 0.9 | 8.53 | 7.24 | 1.02 | 0.21 | -113.8 | 291.65 | Clear |
| 13:23 | | 500.0 | 1.6 | 8.50 | 7.21 | 1.05 | 0.08 | -128.9 | 218.12 | |
| 13:28 | | 350.0 | 2.0 | 8.36 | 7.22 | 1.06 | 0.07 | -136.4 | 169.75 | |
| 13:33 | | 350.0 | 2.5 | 8.24 | 7.22 | 1.07 | 0.06 | -137.7 | 132.21 | |
| 13:38 | | 350.0 | 3.0 | 8.34 | 7.22 | 1.07 | 0.05 | -140.7 | 112.32 | |
| 13:43 | | 350.0 | 3.4 | 8.24 | 7.23 | 1.08 | 0.05 | -142.3 | 78.29 | |
| 13:48 | | 350.0 | 3.9 | 8.14 | 7.23 | 1.08 | 0.05 | -143.6 | 73.69 | |
| 13:57 | | 350.0 | 4.7 | 8.07 | 7.24 | 1.10 | 0.34 | -132.3 | 57.17 | |
| 14:02 | | 350.0 | 5.2 | 8.30 | 7.24 | 1.09 | 0.10 | -138.8 | 52.42 | |
| 14:07 | | 350.0 | 5.7 | 8.31 | 7.25 | 1.10 | 0.06 | -143.1 | 45.28 | |
| 14:12 | | 350.0 | 6.1 | 8.33 | 7.25 | 1.10 | 0.04 | -145.2 | 40.86 | |
| 14:17 | | 350.0 | 6.6 | 8.33 | 7.26 | 1.10 | 0.04 | -146.9 | 36.18 | |
| 14:22 | | 350.0 | 7.0 | 8.36 | 7.26 | 1.10 | 0.04 | -148.2 | 43.33 | |
| 14:27 | | 350.0 | 7.5 | 8.34 | 7.25 | 1.10 | 0.04 | -148.6 | 34.49 | |

Stability Reached (Y/N): No If No, Provide Explanation: Turbidity did not stabilize - Sample collected after 3 well volume purged

| | | | | | | |
|----------------------|-------------|-------------|-------------|-------------|---------------|--------------|
| Final Values: | 8.34 | 7.25 | 1.10 | 0.04 | -148.6 | 34.49 |
|----------------------|-------------|-------------|-------------|-------------|---------------|--------------|

| | |
|--------------------------------------|--|
| Sample ID: VAS35-1-5 | Method of Sampling: Low Flow |
| Sample Depth (ft): 4 | Sample Container Type(s): |
| Sample Date: 12/13/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 14:30 | Analysis: PFAS, VOCs, SVOCs, metals |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: Yes | Initial Depth to Water: 1.65 |
| Duplicate ID: DUP-07-13122022 | Depth to Water After Sampling: 1.60 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , In-Situ Aqua TROLL 500 928064

| | |
|---|--|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft) = (well diameter (in)/12 (in/ft))/2}$ $H = \text{height of water column (ft)}$</p> | <p>$V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)/12 (in/ft)/2})^2 * 3.35 * 7.48 \text{ gal/ft}^3$ $= 0.1$</p> |

| | |
|-----------------------------|---------------------------------|
| Notes: | Technician Name (print): |
| Turbidity did not stabilize | Kiersten White |

| | |
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| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/15/2022 |
|----------------------------------|-------------------------------|

GROUNDWATER SAMPLING RECORD



| | |
|--|-------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/13/2022 |
| Well ID: VAS35-16-20 | Weather Condition: |
| Initial Depth to Water: 1.6 | Well Diameter (inches): 1 |
| Total Depth of Well: 5.0 | 1 Casing Volume (gal): 0.1 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 0.4 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 19 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 13:11 | | 450 | | | | | | | | Pump Started |
| 15:00 | 1.63 | 450.0 | 13.0 | 10.46 | 7.05 | 2.11 | 0.08 | -111.0 | 1449.8 | Cloudy, dark brown |
| 15:06 | | 350.0 | 13.5 | 10.31 | 7.05 | 2.12 | 0.07 | -117.0 | 1322.1 | |
| 15:09 | | 350.0 | 13.8 | 10.19 | 7.05 | 2.11 | 0.06 | -118.8 | 1596.4 | |
| 15:12 | | 350.0 | 14.1 | 10.16 | 7.04 | 2.11 | 0.05 | -120.3 | 1334.0 | |
| 15:15 | | 350.0 | 14.3 | 10.23 | 7.04 | 2.12 | 0.05 | -121.4 | 1197.3 | |
| 15:20 | | 350.0 | 14.8 | 10.30 | 7.04 | 2.12 | 0.45 | -112.4 | 1098.8 | |
| 15:23 | | 350.0 | 15.1 | 10.40 | 7.03 | 2.12 | 0.04 | -117.5 | 1074.9 | |
| 15:26 | | 350.0 | 15.4 | 10.35 | 7.03 | 2.12 | 0.04 | -119.7 | 1070.9 | |
| 15:29 | | 350.0 | 15.6 | 10.23 | 7.03 | 2.12 | 0.04 | -121.4 | 969.12 | |
| 15:37 | | 350.0 | 16.4 | 10.25 | 7.01 | 2.13 | 0.29 | -100.5 | 795.52 | |
| 15:40 | | 350.0 | 16.7 | 10.34 | 7.03 | 2.12 | 0.06 | -109.2 | 693.60 | |
| 15:43 | | 350.0 | 16.9 | 10.29 | 7.03 | 2.12 | 0.05 | -113.4 | 783.32 | |
| 15:46 | | 350.0 | 17.2 | 10.23 | 7.03 | 2.12 | 0.04 | -116.3 | 719.96 | |
| 15:49 | | 350.0 | 17.5 | 10.26 | 7.02 | 2.12 | 0.04 | -118.1 | 743.84 | |
| 15:52 | | 350.0 | 17.8 | 10.31 | 7.03 | 2.12 | 0.04 | -119.7 | 705.24 | |

Stability Reached (Y/N): No If No, Provide Explanation: Turbidity stabilized greater than 10 NTUs

Final Values: 10.31 7.03 2.12 0.04 -119.7 705.24

| | |
|--------------------------------------|--|
| Sample ID: VAS35-16-20 | Method of Sampling: Low Flow |
| Sample Depth (ft): 19 | Sample Container Type(s): |
| Sample Date: 12/13/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 15:55 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 1.60 |
| Duplicate ID: | Depth to Water After Sampling: 1.60 |

Instruments (Manufacturer, Model, and Serial No.):
Water Quality Meter, Water Level Meter, PID, Peristaltic Pump, In-Situ Aqua TROLL 500 928064

| | |
|--|------------------------------|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft) = (well diameter (in)/12 (in/ft))/2}$ $H = \text{height of water column (ft)}$</p> <p style="text-align: center;">$V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)/12 (in/ft)})^2 * 2 * 3.40 * 7.48 \text{ gal/ft}^3$ $= 0.1$</p> | |

| | |
|--|---|
| Notes: 1.5 gallons added, 4.5 gallons removed before readings. Turbidity stabilized greater than 10 NTUs | Technician Name (print): Kiersten White |
|--|---|

QA/QC'd by: Saamih Bashir **QA/QC Date:** 12/15/2022

GROUNDWATER SAMPLING RECORD



| | |
|--|-------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/13/2022 |
| Well ID: VAS36-16-20 | Weather Condition: |
| Initial Depth to Water: 4.05 | Well Diameter (inches): 1 |
| Total Depth of Well: 20.0 | 1 Casing Volume (gal): 0.7 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 2.0 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 19 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 16:54 | | 500 | | | | | | | | Pump Started |
| 16:56 | 4.0 | 500.0 | 0.3 | 11.52 | 6.80 | 1.77 | 0.18 | -112.1 | 179.03 | Clear |
| 16:59 | | 500.0 | 0.7 | 11.58 | 6.82 | 1.77 | 0.09 | -115.5 | 126.61 | |
| 17:02 | | 500.0 | 1.1 | 11.66 | 6.82 | 1.77 | 0.07 | -117.3 | 88.04 | |
| 17:05 | | 500.0 | 1.5 | 11.74 | 6.81 | 1.77 | 0.05 | -119.0 | 51.25 | |
| 17:08 | | 500.0 | 1.8 | 11.80 | 6.81 | 1.77 | 0.05 | -120.4 | 37.86 | |
| 17:11 | | 500.0 | 2.2 | 11.73 | 6.81 | 1.77 | 0.05 | -121.3 | 23.50 | |
| 17:16 | | 500.0 | 2.9 | 11.71 | 6.81 | 1.77 | 0.04 | -122.9 | 6.61 | |
| 17:19 | | 500.0 | 3.3 | 11.74 | 6.81 | 1.77 | 0.04 | -123.6 | 3.88 | |
| 17:21 | | 500.0 | 3.6 | 11.63 | 6.81 | 1.77 | 0.04 | -124.1 | 3.94 | |
| 17:24 | | 500.0 | 4.0 | 11.75 | 6.81 | 1.77 | 0.04 | -124.7 | 3.63 | |

Stability Reached (Y/N): Yes If No, Provide Explanation

| | | | | | | |
|----------------------|-------|------|------|------|--------|------|
| Final Values: | 11.75 | 6.81 | 1.77 | 0.04 | -124.7 | 3.63 |
|----------------------|-------|------|------|------|--------|------|

| | |
|--------------------------------------|--|
| Sample ID: VAS36-16-20 | Method of Sampling: Low Flow |
| Sample Depth (ft): 19 | Sample Container Type(s): |
| Sample Date: 12/13/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 17:30 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 4.05 |
| Duplicate ID: | Depth to Water After Sampling: 4.11 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , In-Situ Aqua TROLL 500 928064

| | |
|--|------------------------------|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft) = (well diameter (in)/12 (in/ft))/2}$ $H = \text{height of water column (ft)}$</p> <p style="text-align: right;"> $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)/12 (in/ft)})^2 * 15.95 * 7.48 \text{ gal/ft}^3$ $= 0.7$ </p> | |

| | |
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| Notes: | Technician Name (print): |
| 1.5 gallons added, 4.5 gallons removed before readings | Kiersten White |

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| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/15/2022 |
|----------------------------------|-------------------------------|

GROUNDWATER SAMPLING RECORD



| | |
|--|------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/14/2022 |
| Well ID: VAS37-4-8 | Weather Condition: |
| Initial Depth to Water: 4.1 | Well Diameter (inches): 1 |
| Total Depth of Well: 8.0 | 1 Casing Volume (gal): 0.2 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 0.5 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 7 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 08:30 | | 450 | | | | | | | | Pump Started |
| 08:41 | 4.20 | 450.0 | 1.3 | 8.9 | 6.06 | 1.191 | 8.23 | 61.8 | 85.54 | Clear |
| 08:46 | | 450.0 | 1.9 | 8.9 | 6.08 | 1.184 | 7.10 | 41.0 | 76.77 | |
| 08:51 | | 450.0 | 2.5 | 8.9 | 6.09 | 1.180 | 6.36 | 30.5 | 84.07 | |
| 08:56 | | 450.0 | 3.1 | 8.9 | 6.10 | 1.174 | 5.56 | 21.8 | 92.54 | |
| 09:01 | | 450.0 | 3.7 | 8.9 | 6.11 | 1.170 | 5.17 | 18.0 | 111.55 | |
| 09:06 | | 450.0 | 4.3 | 8.9 | 6.11 | 1.169 | 4.82 | 15.0 | 113.76 | |
| 09:11 | | 450.0 | 4.9 | 9.0 | 6.12 | 1.166 | 4.42 | 11.7 | 95.86 | |
| 09:16 | | 450.0 | 5.5 | 9.0 | 6.12 | 1.166 | 4.15 | 9.6 | 107.58 | |
| 09:21 | | 450.0 | 6.1 | 9.0 | 6.12 | 1.168 | 3.91 | 7.8 | 112.71 | |
| 09:26 | | 450.0 | 6.7 | 9.0 | 6.12 | 1.170 | 3.73 | 6.5 | 123.80 | |
| 09:31 | | 450.0 | 7.3 | 9.0 | 6.12 | 1.171 | 3.55 | 5.2 | 102.41 | |
| 09:36 | | 450.0 | 7.8 | 9.0 | 6.13 | 1.174 | 3.41 | 4.0 | 89.07 | |
| 09:41 | | 450.0 | 8.4 | 9.0 | 6.13 | 1.174 | 3.26 | 2.9 | 108.92 | |
| 09:46 | | 450.0 | 9.0 | 9.0 | 6.17 | 1.175 | 3.13 | 1.0 | 122.71 | |

Stability Reached (Y/N): No If No, Provide Explanation Turbidity and ORP not stabilized . Sample collected after 3 well volume purged

| | | | | | | |
|----------------------|------------|-------------|--------------|-------------|------------|---------------|
| Final Values: | 9.0 | 6.17 | 1.175 | 3.13 | 1.0 | 122.71 |
|----------------------|------------|-------------|--------------|-------------|------------|---------------|

| | |
|--------------------------------------|--|
| Sample ID: VAS37-4-8 | Method of Sampling: Low Flow |
| Sample Depth (ft): 7 | Sample Container Type(s): |
| Sample Date: 12/14/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 09:50 | Analysis: PFAS, VOCs, SVOCs, metals |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 4.10 |
| Duplicate ID: | Depth to Water After Sampling: 3.78 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI Pro DSS 17L100457

| | |
|--|------------------------------|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft) = (well diameter (in)/12 (in/ft))/2}$ $H = \text{height of water column (ft)}$</p> <p style="text-align: center;"> $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)/12 (in/ft)})^2 * 3.90 * 7.48 \text{ gal/ft}^3$ $= 0.2$ </p> | |

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| Notes: | Technician Name (print): |
| Turbidity and ORP not stabilized | Kiersten White |

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| QA/QC'd by: saamih bashir | QA/QC Date: 12/15/2022 |
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GROUNDWATER SAMPLING RECORD



| | |
|--|------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/14/2022 |
| Well ID: VAS38-5-9 | Weather Condition: |
| Initial Depth to Water: 5.56 | Well Diameter (inches): 1 |
| Total Depth of Well: 9.0 | 1 Casing Volume (gal): 0.1 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 0.4 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 8 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 10:40 | | 450 | | | | | | | | Pump Started |
| 10:47 | 5.60 | 450.0 | 0.8 | 10.0 | 7.22 | 0.973 | 5.55 | -19.7 | 25.93 | Clear |
| 10:52 | | 450.0 | 1.4 | 10.1 | 7.32 | 0.974 | 4.50 | -41.0 | 17.89 | |
| 10:58 | | 450.0 | 2.1 | 10.2 | 7.35 | 0.973 | 3.88 | -57.6 | 14.13 | |
| 11:03 | | 450.0 | 2.7 | 10.2 | 7.36 | 0.974 | 3.52 | -67.4 | 13.45 | |
| 11:08 | | 450.0 | 3.3 | 10.2 | 7.36 | 0.977 | 3.23 | -75.8 | 13.11 | |
| 11:13 | | 450.0 | 3.9 | 10.2 | 7.37 | 0.977 | 3.06 | -81.3 | 13.23 | |
| 11:18 | | 450.0 | 4.5 | 10.2 | 7.37 | 0.979 | 2.90 | -87.3 | 12.36 | |
| 11:21 | | 450.0 | 4.9 | 10.1 | 7.37 | 0.980 | 2.82 | -90.5 | 12.78 | |
| 11:24 | | 450.0 | 5.2 | 10.1 | 7.37 | 0.979 | 2.74 | -93.7 | 13.80 | |
| 11:27 | | 450.0 | 5.6 | 10.1 | 7.37 | 0.981 | 2.66 | -96.9 | 12.59 | |

Stability Reached (Y/N): No If No, Provide Explanation: Turbidity stabilized greater than 10 NTUs . 3 well volume purged

| | | | | | | |
|----------------------|------|------|-------|------|-------|-------|
| Final Values: | 10.1 | 7.37 | 0.981 | 2.66 | -96.9 | 12.59 |
|----------------------|------|------|-------|------|-------|-------|

| | |
|--------------------------------------|--|
| Sample ID: VAS38-5-9 | Method of Sampling: Low Flow |
| Sample Depth (ft): 8 | Sample Container Type(s): |
| Sample Date: 12/14/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 11:30 | Analysis: PFAS, VOCs, SVOCs, metals |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 5.56 |
| Duplicate ID: | Depth to Water After Sampling: 5.58 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI ProDSS 17L100457

| | |
|---|--|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft) = (well diameter (in)/12 (in/ft))/2}$ $H = \text{height of water column (ft)}$</p> | <p>$V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)/12 (in/ft)/2})^2 * 3.44 * 7.48 \text{ gal/ft}^3$ $= 0.1$</p> |

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|---|---------------------------------|
| Notes: | Technician Name (print): |
| Turbidity stabilized greater than 10 NTUs | Kiersten White |

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| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/15/2022 |
|----------------------------------|-------------------------------|

GROUNDWATER SAMPLING RECORD



| | |
|--|-------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/14/2022 |
| Well ID: VAS38-16-20 | Weather Condition: |
| Initial Depth to Water: 5.58 | Well Diameter (inches): 1 |
| Total Depth of Well: 20.0 | 1 Casing Volume (gal): 0.6 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 1.8 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 19 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 11:45 | | 500 | | | | | | | | Pump Started |
| 11:46 | 5.58 | 500.0 | 0.1 | 11.6 | 6.56 | 1.670 | 3.33 | -47.8 | 150.68 | Clear |
| 11:51 | | 500.0 | 0.8 | 11.5 | 6.55 | 1.672 | 2.99 | -52.4 | 172.57 | |
| 11:56 | | 500.0 | 1.5 | 11.6 | 6.55 | 1.675 | 2.73 | -55.4 | 150.80 | |
| 12:01 | | 500.0 | 2.1 | 11.6 | 6.55 | 1.674 | 2.55 | -57.7 | 212.35 | |
| 12:04 | | 500.0 | 2.5 | 11.5 | 6.54 | 1.673 | 2.47 | -58.7 | 59.66 | |
| 12:08 | | 400.0 | 2.9 | 11.3 | 6.55 | 1.674 | 2.36 | -60.0 | 44.98 | |
| 12:11 | | 400.0 | 3.2 | 11.4 | 6.54 | 1.672 | 2.31 | -61.2 | 39.61 | |
| 12:14 | | 400.0 | 3.6 | 11.4 | 6.54 | 1.672 | 2.24 | -61.9 | 23.84 | |
| 12:17 | | 400.0 | 3.9 | 11.5 | 6.54 | 1.672 | 2.18 | -63.0 | 49.56 | |
| 12:20 | | 400.0 | 4.2 | 11.4 | 6.54 | 1.672 | 2.14 | -63.8 | 35.77 | |
| 12:23 | | 400.0 | 4.5 | 11.4 | 6.54 | 1.670 | 2.09 | -64.8 | 53.45 | |
| 12:28 | | 400.0 | 5.0 | 11.5 | 6.55 | 1.674 | 2.03 | -66.2 | 49.63 | |
| 12:33 | | 400.0 | 5.6 | 11.4 | 6.55 | 1.674 | 1.96 | -67.7 | 36.87 | |
| 12:38 | | 400.0 | 6.1 | 11.5 | 6.55 | 1.666 | 1.89 | -69.4 | 15.60 | |
| 12:43 | | 400.0 | 6.6 | 11.5 | 6.55 | 1.647 | 3.72 | -39.7 | 90.10 | |
| 12:48 | | 400.0 | 7.2 | 11.3 | 6.54 | 1.662 | 3.59 | -38.5 | 72.44 | |
| 12:53 | | 400.0 | 7.7 | 11.5 | 6.53 | 1.671 | 2.95 | -45.6 | 46.90 | |

Stability Reached (Y/N): No If No, Provide Explanation DO, ORP, turbidity did not stabilize. Issues with pump and air bubbles impacted readings-Sample collected after more than 3 well volumes purged

| | | | | | | |
|----------------------|------|------|-------|------|-------|-------|
| Final Values: | 11.5 | 6.53 | 1.671 | 2.95 | -45.6 | 46.90 |
|----------------------|------|------|-------|------|-------|-------|

| | |
|--------------------------------------|--|
| Sample ID: VAS38-16-20 | Method of Sampling: Low Flow |
| Sample Depth (ft): 19 | Sample Container Type(s): |
| Sample Date: 12/14/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 12:55 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 5.58 |
| Duplicate ID: | Depth to Water After Sampling: 5.51 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI ProDSS 17L100457

| | |
|--|---|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H^3 \cdot 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$ $H = \text{height of water column (ft)}$</p> | <p>$V = \pi(R^2)H^3 \cdot 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)}/12 \text{ (in/ft)})^2 * 14.42 * 7.48 \text{ gal/ft}^3$ $= 0.6$</p> |

| | |
|---|---|
| Notes: 1.5 gallons added, 4.5 gallons removed before readings. DO, ORP, turbidity did not stabilize. Issues with pump and air bubbles impacted readings. Sample collected after more than 3 well volumes purged | Technician Name (print): Kiersten White |
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|----------------------------------|-------------------------------|
| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/15/2022 |
|----------------------------------|-------------------------------|

GROUNDWATER SAMPLING RECORD



| | |
|--|------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/14/2022 |
| Well ID: VAS39-1-5 | Weather Condition: |
| Initial Depth to Water: 2.65 | Well Diameter (inches): 1 |
| Total Depth of Well: 5.0 | 1 Casing Volume (gal): 0.1 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 0.3 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 4 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 13:03 | | 400 | | | | | | | | Pump Started |
| 13:09 | 3.02 | 400.0 | 0.6 | 7.3 | 6.66 | 1.469 | 4.75 | -19.1 | 48.07 | Clear |
| 13:14 | | 400.0 | 1.2 | 7.5 | 6.63 | 1.464 | 3.90 | -19.9 | 38.07 | |
| 13:19 | | 400.0 | 1.7 | 7.5 | 6.63 | 1.463 | 3.45 | -26.1 | 35.26 | |
| 13:24 | | 400.0 | 2.2 | 7.5 | 6.63 | 1.468 | 3.15 | -30.9 | 32.95 | |
| 13:29 | | 400.0 | 2.7 | 7.5 | 6.63 | 1.464 | 2.92 | -34.8 | 36.57 | |
| 13:34 | | 400.0 | 3.3 | 7.7 | 6.63 | 1.463 | 2.73 | -38.0 | 33.40 | |
| 13:39 | | 400.0 | 3.8 | 7.7 | 6.63 | 1.470 | 2.57 | -40.8 | 27.49 | |
| 13:42 | | 400.0 | 4.1 | 7.7 | 6.64 | 1.468 | 2.49 | -42.5 | 32.94 | |
| 13:45 | | 400.0 | 4.4 | 7.7 | 6.64 | 1.468 | 2.42 | -43.7 | 31.05 | |
| 13:48 | | 400.0 | 4.8 | 7.7 | 6.64 | 1.470 | 2.36 | -45.0 | 28.51 | |
| 13:51 | | 400.0 | 5.1 | 7.7 | 6.64 | 1.469 | 2.31 | -46.1 | 27.21 | |
| 13:54 | | 400.0 | 5.4 | 7.6 | 6.64 | 1.473 | 2.25 | -47.3 | 23.15 | |
| 13:57 | | 400.0 | 5.7 | 7.6 | 6.64 | 1.470 | 2.20 | -48.5 | 23.19 | |
| 14:00 | | 400.0 | 6.0 | 7.6 | 6.64 | 1.472 | 2.16 | -49.4 | 21.96 | |
| 14:03 | | 400.0 | 6.3 | 7.7 | 6.64 | 1.472 | 2.11 | -50.6 | 22.41 | |

Stability Reached (Y/N): No If No, Provide Explanation Turbidity stabilized greater than 10 NTUs

| | | | | | | |
|----------------------|-----|------|-------|------|-------|-------|
| Final Values: | 7.7 | 6.64 | 1.472 | 2.11 | -50.6 | 22.41 |
|----------------------|-----|------|-------|------|-------|-------|

| | |
|--------------------------------------|--|
| Sample ID: VAS39-1-5 | Method of Sampling: Low Flow |
| Sample Depth (ft): 4 | Sample Container Type(s): |
| Sample Date: 12/14/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 14:10 | Analysis: PFAS, VOCs, SVOCs, metals |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 2.65 |
| Duplicate ID: | Depth to Water After Sampling: 2.72 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI ProDSS 17L100457

| | |
|---|--|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft) = (well diameter (in)/12 (in/ft))/2}$ $H = \text{height of water column (ft)}$</p> | <p>$V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)/12 (in/ft)})^2 * 2.35 * 7.48 \text{ gal/ft}^3$ $= 0.1$</p> |

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|---|---------------------------------|
| Notes: | Technician Name (print): |
| Turbidity stabilized greater than 10 NTUs | Kiersten White |

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| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/15/2022 |
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GROUNDWATER SAMPLING RECORD



| | |
|--|-------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/14/2022 |
| Well ID: VAS39-16-20 | Weather Condition: |
| Initial Depth to Water: 2.72 | Well Diameter (inches): 1 |
| Total Depth of Well: 20.0 | 1 Casing Volume (gal): 0.7 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 2.1 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 19 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 13:16 | | 400 | | | | | | | | Pump Started |
| 14:19 | 2.72 | 400.0 | 6.7 | 11.4 | 6.70 | 1.405 | 3.25 | -123.4 | 61.70 | Clear |
| 14:27 | | 400.0 | 7.5 | 11.5 | 6.70 | 1.401 | 2.60 | -137.5 | 52.92 | |
| 14:30 | | 400.0 | 7.8 | 11.4 | 6.70 | 1.402 | 2.45 | -139.8 | 48.49 | |
| 14:33 | | 400.0 | 8.1 | 11.6 | 6.70 | 1.401 | 2.33 | -141.0 | 46.51 | |
| 14:36 | | 400.0 | 8.5 | 11.5 | 6.70 | 1.371 | 2.24 | -142.0 | 42.57 | |
| 14:39 | | 400.0 | 8.8 | 11.5 | 6.70 | 1.352 | 2.16 | -142.2 | 43.73 | |
| 14:42 | | 400.0 | 9.1 | 11.6 | 6.70 | 1.347 | 2.10 | -142.5 | 50.57 | |
| 14:45 | | 400.0 | 9.4 | 11.6 | 6.70 | 1.344 | 2.04 | -142.5 | 48.69 | |
| 14:48 | | 400.0 | 9.7 | 11.6 | 6.69 | 1.359 | 1.99 | -142.3 | 32.81 | |
| 14:51 | | 400.0 | 10.0 | 11.6 | 6.69 | 1.355 | 1.95 | -142.7 | 37.19 | |
| 14:54 | | 400.0 | 10.4 | 11.6 | 6.69 | 1.359 | 1.90 | -142.8 | 38.50 | |
| 14:57 | | 400.0 | 10.7 | 11.6 | 6.69 | 1.364 | 1.86 | -142.8 | 39.62 | |

Stability Reached (Y/N): No If No, Provide Explanation: Turbidity stabilized greater than 10 NTUs

| | | | | | | |
|----------------------|------|------|-------|------|--------|-------|
| Final Values: | 11.6 | 6.69 | 1.364 | 1.86 | -142.8 | 39.62 |
|----------------------|------|------|-------|------|--------|-------|

| | |
|--------------------------------------|--|
| Sample ID: VAS39-16-20 | Method of Sampling: Low Flow |
| Sample Depth (ft): 19 | Sample Container Type(s): |
| Sample Date: 12/14/2022 | Well Head PID Reading (ppm): 0 |
| Sample Collection Time: 15:00 | Analysis: PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 2.72 |
| Duplicate ID: | Depth to Water After Sampling: 4.49 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI ProDSS 17L100457

| | |
|--|---|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$ $H = \text{height of water column (ft)}$</p> | <p>$V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (1 \text{ (in)}/12 \text{ (in/ft)})^2 * 2 * 17.28 * 7.48 \text{ gal/ft}^3$ $= 0.7$</p> |

| | |
|---|---------------------------------|
| Notes: | Technician Name (print): |
| 1.5 gallons added, 4.5 gallons removed before readings. | Kiersten White |

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| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/15/2022 |
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DECEMBER 2023

MW-33 and MW-34 MONITORING WELL GROUNDWATER SAMPLE RECORDS

GROUNDWATER SAMPLING RECORD



| | |
|--|--------------------------------------|
| Project Name: Former JB Sims Generating Station - Harbor Island | Project Number: 3650220203 |
| Sample Technician: Kiersten White | Date: 12/15/2022 |
| Well ID: MW-34 | Weather Condition: |
| Initial Depth to Water: 4.21 | Well Diameter (inches): 2 |
| Total Depth of Well: 12.0 | 1 Casing Volume (gal): 1.3 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 3.8 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 9.5 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 10:32 | | 450 | | | | | | | | Pump Started |
| 10:35 | 4.36 | 450.0 | 0.4 | 11.6 | 6.42 | 1.407 | 8.35 | 175.9 | 30.08 | Clear |
| 10:46 | 4.38 | 450.0 | 1.7 | 11.9 | 6.38 | 1.434 | 6.39 | 145.8 | 27.90 | |
| 10:51 | 4.39 | 450.0 | 2.3 | 11.9 | 6.39 | 1.444 | 5.79 | 131.3 | 28.71 | |
| 10:56 | 4.40 | 450.0 | 2.9 | 12.0 | 6.40 | 1.470 | 5.34 | 117.3 | 26.21 | |
| 11:01 | 4.39 | 450.0 | 3.4 | 12.0 | 6.40 | 1.487 | 5.01 | 106.4 | 29.75 | |
| 11:06 | 4.39 | 450.0 | 4.0 | 12.0 | 6.41 | 1.501 | 4.72 | 95.7 | 28.29 | |
| 11:11 | 4.39 | 450.0 | 4.6 | 12.0 | 6.41 | 1.520 | 4.44 | 84.7 | 28.06 | |
| 11:16 | 4.39 | 450.0 | 5.2 | 12.0 | 6.42 | 1.529 | 4.24 | 76.6 | 28.83 | |
| 11:21 | 4.39 | 450.0 | 5.8 | 12.0 | 6.42 | 1.536 | 4.05 | 68.9 | 30.71 | |
| 11:26 | 4.39 | 450.0 | 6.4 | 11.9 | 6.43 | 1.547 | 3.87 | 62.0 | 30.69 | |
| 11:31 | 4.39 | 450.0 | 7.0 | 12.0 | 6.43 | 1.560 | 3.72 | 56.2 | 29.02 | |
| 11:36 | 4.39 | 450.0 | 7.6 | 12.0 | 6.45 | 1.561 | 3.58 | 43.6 | 29.81 | |
| 11:41 | 4.39 | 450.0 | 8.2 | 12.0 | 6.43 | 1.573 | 3.48 | 43.0 | 19.04 | |
| 11:46 | 4.39 | 450.0 | 8.8 | 12.1 | 6.43 | 1.576 | 3.33 | 38.9 | 21.18 | |
| 11:51 | 4.39 | 450.0 | 9.4 | 12.0 | 6.44 | 1.584 | 3.23 | 36.1 | 21.85 | |

Stability Reached (Y/N): No If No, Provide Explanation: Turbidity did not stabilize . 3 well volume was purged

| | | | | | | |
|----------------------|------|------|-------|------|------|-------|
| Final Values: | 12.0 | 6.44 | 1.584 | 3.23 | 36.1 | 21.85 |
|----------------------|------|------|-------|------|------|-------|

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|--------------------------------------|--|
| Sample ID: MW-34-20221215 | Method of Sampling: Low Flow |
| Sample Depth (ft): 9.5 | Sample Container Type(s): |
| Sample Date: 12/15/2022 | Well Head PID Reading (ppm): 1 |
| Sample Collection Time: 11:55 | Analysis: SVOCs, metals |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 4.21 |
| Duplicate ID: | Depth to Water After Sampling: 4.20 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI ProDSS 17L100457

| | |
|---|--|
| Calculations: | Technician Signature: |
| <p>Saturated well casing volume: $V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft) = (well diameter (in)/12 (in/ft))/2}$ $H = \text{height of water column (ft)}$</p> | <p>$V = \pi(R^2)H * 7.48 \text{ gal/ft}^3$ $= \pi * (2 \text{ (in)/12 (in/ft)})^2 * 7.79 * 7.48 \text{ gal/ft}^3$ $= 1.3$</p> |

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|--|---|
| Notes: Turbidity did not stabilize | Technician Name (print): Kiersten White |
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| QA/QC'd by: Saamih Bashir | QA/QC Date: 12/16/2022 |
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JANUARY-FEBRUARY 2023
MONITORING WELL GROUNDWATER SAMPLE RECORDS

GROUNDWATER SAMPLING RECORD



| | |
|--|---|
| Project Name: Former JB Sims Generating Station, Harbor Island, Grand Haven, MI | Project Number: 3650220203.02.02 |
| Sample Technician: Kiersten White | Date: 01/30/2023 |
| Well ID: MW-07 | Weather Condition: |
| Initial Depth to Water: 6.85 | Well Diameter (inches): 2 |
| Total Depth of Well: 18.8 | 1 Casing Volume (gal): 2.0 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 5.9 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 15.5 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 16:24 | | 350 | | | | | | | | Pump Started |
| 16:26 | 7.00 | 350.0 | 0.2 | 8.5 | 7.30 | 1.206 | 1.19 | 57.6 | 82.34 | Clear |
| 16:31 | 7.01 | 350.0 | 0.6 | 8.2 | 7.26 | 1.222 | 0.70 | 14.0 | 35.76 | |
| 16:36 | 7.01 | 350.0 | 1.1 | 8.5 | 7.25 | 1.222 | 0.61 | -5.8 | 24.32 | |
| 16:41 | 7.02 | 350.0 | 1.6 | 8.6 | 7.24 | 1.224 | 0.53 | -25.6 | 19.23 | |
| 16:46 | 7.02 | 350.0 | 2.0 | 9.0 | 7.23 | 1.231 | 0.47 | -42.5 | 16.97 | |
| 16:51 | 7.02 | 350.0 | 2.5 | 8.4 | 7.22 | 1.228 | 0.45 | -48.1 | 17.47 | |
| 16:56 | 7.02 | 350.0 | 3.0 | 8.9 | 7.23 | 1.229 | 0.43 | -54.5 | 16.80 | |
| 17:01 | 7.02 | 350.0 | 3.4 | 9.1 | 7.22 | 1.233 | 0.42 | -58.5 | 14.55 | |
| 17:06 | 7.02 | 350.0 | 3.9 | 8.8 | 7.21 | 1.229 | 0.41 | -62.2 | 15.21 | |
| 17:11 | 7.02 | 350.0 | 4.3 | 9.1 | 7.21 | 1.232 | 0.40 | -66.2 | 14.47 | |
| 17:16 | 7.02 | 350.0 | 4.8 | 9.0 | 7.22 | 1.234 | 0.39 | -69.1 | 11.96 | |
| 17:21 | 7.02 | 350.0 | 5.3 | 9.1 | 7.21 | 1.233 | 0.38 | -71.7 | 14.09 | |
| 17:26 | 7.02 | 350.0 | 5.7 | 9.0 | 7.19 | 1.231 | 0.38 | -73.9 | 13.53 | |
| 17:31 | 7.02 | 350.0 | 6.2 | 8.8 | 7.19 | 1.232 | 0.37 | -75.9 | 12.26 | |

Stability Reached (Y/N): No If No, Provide Explanation: Purge 3 well volumes

| | | | | | | |
|----------------------|-----|------|-------|------|-------|-------|
| Final Values: | 8.8 | 7.19 | 1.232 | 0.37 | -75.9 | 12.26 |
|----------------------|-----|------|-------|------|-------|-------|

| | |
|--------------------------------------|---|
| Sample ID: MW-07-01302023 | Method of Sampling: Low Flow |
| Sample Depth: 15.50 | Sample Container Type(s): 3 - 15 ml centrifuge tubes |
| Sample Date: 01/30/2023 | Preservative(s): None |
| Sample Collection Time: 17:35 | Analysis/Method(s): PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 6.85 |
| Duplicate ID: | Depth to Water After Sampling: 6.88 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump, YSI Pro DSS 22B104573

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|--|-------------------------------------|
| <p>Calculations:</p> <p>Saturated well casing volume: $V = \pi(R^2)H = 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$ $H = \text{height of water column (ft)}$</p> <p style="text-align: center;"> $V = \pi(R^2)H = 7.48 \text{ gal/ft}^3$ $= \pi * (2 \text{ (in)}/12 \text{ (in/ft)})/2^2 * 11.95 * 7.48 \text{ gal/ft}^3$ $= 2.0$ </p> | <p>Technician Signature:</p> |
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|---|---|
| Notes: Turbidity did not stabilize, sample collected after 3 well volumes | Technician Name (print): Kiersten White |
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|----------------------------------|-----------------------------|
| QA/QC'd by: Jared Walbert | QA/QC Date: 2/9/2023 |
|----------------------------------|-----------------------------|

GROUNDWATER SAMPLING RECORD



| | | | |
|--|---|----------------------------------|------------------|
| Project Name: | Former JB Sims Generating Station, Harbor Island, Grand Haven, MI | Project Number: | 3650220203.02.02 |
| Sample Technician: | Andi Johns | Date: | 01/31/2023 |
| Well ID: | MW-34 | Weather Condition: | |
| Initial Depth to Water: | 4.37 | Well Diameter (inches): | 2 |
| Total Depth of Well: | 12.5 | 1 Casing Volume (gal): | 1.3 |
| Method of Purging: | Pumping | 3 Casing Volumes (gal): | 4.0 |
| Measuring Point (toc, tor, etc.): | Top of Casing | Pump Intake Depth (feet): | 10.5 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|------------|------------|---|-----------|----------|------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 09:26 | | 200 | | | | | | | | Pump Started |
| 09:33 | 4.47 | 200.0 | 0.4 | 6.7 | 6.35 | 1.920 | 2.43 | 133.4 | 5.12 | Clear, odor |
| 09:38 | 4.47 | 200.0 | 0.6 | 8.7 | 6.52 | 1.943 | 0.66 | 58.7 | 5.76 | Odor |
| 09:43 | 4.47 | 200.0 | 0.9 | 8.9 | 6.54 | 1.954 | 0.53 | 6.4 | 9.63 | Odor |
| 09:48 | 4.47 | 200.0 | 1.2 | 8.7 | 6.55 | 1.958 | 0.50 | -10.0 | 9.41 | |
| 09:53 | 4.47 | 200.0 | 1.4 | 8.7 | 6.56 | 1.967 | 0.47 | -27.9 | 13.92 | |
| 09:58 | 4.47 | 200.0 | 1.7 | 8.8 | 6.57 | 1.971 | 0.45 | -39.2 | 18.23 | |
| 10:03 | 4.47 | 200.0 | 2.0 | 8.8 | 6.57 | 1.977 | 0.43 | -49.1 | 9.34 | |
| 10:08 | 4.47 | 200.0 | 2.2 | 8.7 | 6.58 | 1.980 | 0.41 | -55.1 | 9.76 | |
| 10:13 | 4.47 | 200.0 | 2.5 | 8.6 | 6.58 | 1.982 | 0.40 | -60.9 | 6.94 | |
| 10:18 | 4.47 | 200.0 | 2.7 | 8.9 | 6.58 | 1.984 | 0.38 | -65.9 | 9.04 | |
| 10:23 | 4.47 | 200.0 | 3.0 | 8.7 | 6.59 | 1.985 | 0.38 | -70.1 | 5.75 | |
| 10:28 | 4.47 | 200.0 | 3.3 | 8.5 | 6.59 | 1.987 | 0.38 | -74.3 | 1.98 | |
| 10:33 | 4.47 | 200.0 | 3.5 | 8.5 | 6.59 | 1.987 | 0.37 | -77.7 | 6.46 | |
| 10:38 | 4.47 | 200.0 | 3.8 | 8.6 | 6.59 | 1.987 | 0.37 | -80.8 | 7.78 | |
| 10:43 | 4.47 | 200.0 | 4.1 | 8.5 | 6.59 | 1.992 | 0.36 | -83.8 | 6.48 | |
| 10:48 | 4.47 | 200.0 | 4.3 | 8.6 | 6.60 | 1.999 | 0.36 | -86.7 | 1.27 | |
| 10:53 | 4.47 | 200.0 | 4.6 | 8.6 | 6.60 | 2.000 | 0.36 | -88.0 | 7.62 | |

Stability Reached (Y/N): Yes If No, Provide Explanation

| | | | | | | |
|----------------------|-----|------|-------|------|-------|------|
| Final Values: | 8.6 | 6.60 | 2.000 | 0.36 | -88.0 | 7.62 |
|----------------------|-----|------|-------|------|-------|------|

| | |
|--------------------------------------|---|
| Sample ID: MW-34-01312023 | Method of Sampling: Low Flow |
| Sample Depth: 10.5 | Sample Container Type(s): 3 - 15 ml centrifuge tubes |
| Sample Date: 01/31/2023 | Preservative(s): None |
| Sample Collection Time: 10:55 | Analysis/Method(s): PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 4.37 |
| Duplicate ID: | Depth to Water After Sampling: 4.40 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID
 , YSI ProDSS FA05093

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| <p>Calculations:</p> <p>Saturated well casing volume: $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$ $H = \text{height of water column (ft)}$</p> <p style="text-align: right;">$V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$ $= \pi * (2 \text{ (in)}/12 \text{ (in/ft)})^2 * 8.13 * 7.48 \text{ gal/ft}^3$ $= 1.3$</p> | <p>Technician Signature:</p> |
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| Notes: Purged water had natural gas odor and apparent iron oxidizing bacteria on surface of water. | Technician Name (print): Andi Johns |
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| QA/QC'd by: Jared Walbert | QA/QC Date: 2/10/2023 |
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GROUNDWATER SAMPLING RECORD



| | |
|--|---|
| Project Name: Former JB Sims Generating Station Harbor Island | Project Number: 3650220203.02.02 |
| Sample Technician: Kiersten White | Date: 02/01/2023 |
| Well ID: MW-37 | Weather Condition: |
| Initial Depth to Water: 9.29 | Well Diameter (inches): 2 |
| Total Depth of Well: 12.95 | 1 Casing Volume (gal): 0.6 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 1.8 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 11.12 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|------------------------|--------------------|--------------------|--------------------|------------|------------|---|-----------|----------|------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 09:29 | | 200 | | | | | | | | Pump Started |
| 09:31 | 9.33 | 200.0 | 0.1 | 6.3 | 8.83 | 1.899 | 6.13 | 67.8 | 40.15 | Clear |
| 09:36 | 9.37 | 200.0 | 0.4 | 6.7 | 8.29 | 1.907 | 2.09 | 51.6 | 25.66 | |
| 09:41 | 9.37 | 200.0 | 0.6 | 7.0 | 8.17 | 1.922 | 1.41 | 30.4 | 17.68 | |
| 09:46 | 9.37 | 200.0 | 0.9 | 6.9 | 8.12 | 1.933 | 1.19 | 15.2 | 15.75 | |
| 09:51 | 9.37 | 200.0 | 1.2 | 7.1 | 8.06 | 1.941 | 0.96 | -4.6 | 9.53 | |
| 09:56 | 9.39 | 200.0 | 1.4 | 7.1 | 8.03 | 1.947 | 0.86 | -16.1 | 6.82 | |
| 10:01 | 9.36 | 200.0 | 1.7 | 7.2 | 8.01 | 1.936 | 0.76 | -24.7 | 4.90 | |
| 10:06 | 9.38 | 200.0 | 2.0 | 7.3 | 7.99 | 1.937 | 0.70 | -32.4 | 3.64 | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |

Stability Reached (Y/N): No If No, Provide Explanation Purged 3 well volumes

| | | | | | | |
|----------------------|-----|------|-------|------|-------|------|
| Final Values: | 7.3 | 7.99 | 1.937 | 0.70 | -32.4 | 3.64 |
|----------------------|-----|------|-------|------|-------|------|

| | |
|--------------------------------------|---|
| Sample ID: MW-37-02012023 | Method of Sampling: Low Flow |
| Sample Depth: 11.12 | Sample Container Type(s): 3 - 15 ml centrifuge tubes |
| Sample Date: 02/01/2023 | Preservative(s): None |
| Sample Collection Time: 10:10 | Analysis/Method(s): PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: Yes | Initial Depth to Water: 9.29 |
| Duplicate ID: DUP-02-02012023 | Depth to Water After Sampling: 9.27 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump, YSI Pro DSS 22B104573

Calculations:
Saturated well casing volume: $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $V = \text{Volume (gal/ft)}$
 $\pi = 3.14$
 $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$
 $H = \text{height of water column (ft)}$

$V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $= \pi * (2 \text{ (in)}/12 \text{ (in/ft)})^2 * 3.66 * 7.48 \text{ gal/ft}^3$
 $= 0.6$

Technician Signature:

Notes:
 DO, ORP, and turbidity did not stabilize. Sample collected after 3 well volumes

Technician Name (print):
 Kiersten White

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|----------------------------------|------------------------------|
| QA/QC'd by: Jared Walbert | QA/QC Date: 2/10/2023 |
|----------------------------------|------------------------------|

GROUNDWATER SAMPLING RECORD



| | |
|--|---|
| Project Name: Former JB Sims Generating Station Harbor Island | Project Number: 3650220203.02.02 |
| Sample Technician: Kiersten White | Date: 02/01/2023 |
| Well ID: MW-40 | Weather Condition: |
| Initial Depth to Water: 5.41 | Well Diameter (inches): 2 |
| Total Depth of Well: 10.45 | 1 Casing Volume (gal): 0.8 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 2.5 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 7.95 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|------------|------------|---|-----------|----------|------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 14:37 | | 350 | | | | | | | | Pump Started |
| 14:38 | 5.91 | 350.0 | 0.1 | 4.9 | 12.55 | 3.325 | 7.91 | 8.0 | 72.15 | Clear |
| 14:43 | 6.02 | 350.0 | 0.6 | 5.7 | 13.56 | 5.550 | 3.55 | -39.2 | 117.59 | |
| 14:48 | 6.08 | 350.0 | 1.0 | 6.2 | 13.95 | 8.063 | 2.30 | -61.1 | 67.58 | |
| 14:53 | 6.09 | 350.0 | 1.5 | 6.6 | 14.13 | 8.980 | 1.68 | -73.6 | 51.44 | |
| 14:58 | 6.11 | 350.0 | 1.9 | 6.6 | 14.27 | 9.391 | 1.28 | -83.9 | 34.88 | |
| 15:03 | 6.11 | 350.0 | 2.4 | 6.8 | 14.32 | 9.406 | 1.11 | -90.2 | 27.97 | |
| 15:08 | 6.13 | 350.0 | 2.9 | 6.8 | 14.37 | 9.474 | 0.96 | -95.3 | 23.40 | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |

Stability Reached (Y/N): No If No, Provide Explanation: Purged 3 well volumes

| | | | | | | |
|----------------------|-----|-------|-------|------|-------|-------|
| Final Values: | 6.8 | 14.37 | 9.474 | 0.96 | -95.3 | 23.40 |
|----------------------|-----|-------|-------|------|-------|-------|

| | |
|--------------------------------------|---|
| Sample ID: MW-40-02012023 | Method of Sampling: Low Flow |
| Sample Depth: 7.95 | Sample Container Type(s): 3 - 15 ml centrifuge tubes |
| Sample Date: 02/01/2023 | Preservative(s): None |
| Sample Collection Time: 15:15 | Analysis/Method(s): PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 5.41 |
| Duplicate ID: | Depth to Water After Sampling: 5.83 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump, YSI Pro DSS 22B104573

Calculations:
Saturated well casing volume: $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $V = \text{Volume (gal/ft)}$
 $\pi = 3.14$
 $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$
 $H = \text{height of water column (ft)}$
 $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $= \pi * (2 \text{ (in)}/12 \text{ (in/ft)})^2 * 5.04 * 7.48 \text{ gal/ft}^3$
 $= 0.8$

Technician Signature:

Notes:
 DO, ORP, and turbidity did not stabilize. Sample collected after 3 volumes

Technician Name (print):
 Kiersten White

QA/QC'd by: Jared Walbert **QA/QC Date:** 2/10/2023

GROUNDWATER SAMPLING RECORD



| | |
|--|---|
| Project Name: Former JB Sims Generating Station Harbor Island | Project Number: 3650220203.02.02 |
| Sample Technician: Kiersten White | Date: 02/02/2023 |
| Well ID: PZ-15 | Weather Condition: |
| Initial Depth to Water: 12.31 | Well Diameter (inches): 2 |
| Total Depth of Well: 21.27 | 1 Casing Volume (gal): 1.5 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 4.4 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 18.77 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|------------|------------|---|-----------|----------|------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 11:49 | | 350 | | | | | | | | Pump Started |
| 11:50 | 13.19 | 350.0 | 0.1 | 10.7 | 7.52 | 1.680 | 5.36 | 120.3 | 29.43 | Clear |
| 11:55 | 13.27 | 350.0 | 0.6 | 10.8 | 7.51 | 2.041 | 1.91 | 105.7 | 22.34 | |
| 12:00 | 13.27 | 350.0 | 1.0 | 10.6 | 7.52 | 2.143 | 1.34 | 92.1 | 19.30 | |
| 12:05 | 13.27 | 350.0 | 1.5 | 10.8 | 7.56 | 2.291 | 1.03 | 72.7 | 16.37 | |
| 12:10 | 13.27 | 350.0 | 1.9 | 10.8 | 7.59 | 2.386 | 0.89 | 58.0 | 11.73 | |
| 12:15 | 13.27 | 350.0 | 2.4 | 10.9 | 7.61 | 2.508 | 0.80 | 45.3 | 10.08 | |
| 12:20 | 13.27 | 350.0 | 2.9 | 10.8 | 7.65 | 2.674 | 0.73 | 27.9 | 8.71 | |
| 12:25 | 13.27 | 350.0 | 3.3 | 10.8 | 7.65 | 2.721 | 0.70 | 20.1 | 6.93 | |
| 12:30 | 13.27 | 350.0 | 3.8 | 10.7 | 7.67 | 2.819 | 0.67 | 11.2 | 5.47 | |
| 12:35 | 13.27 | 350.0 | 4.3 | 10.7 | 7.68 | 2.891 | 0.64 | 2.2 | 5.17 | |
| 12:40 | 13.27 | 350.0 | 4.7 | 10.7 | 7.70 | 2.981 | 0.61 | -8.0 | 3.97 | |

Stability Reached (Y/N): No If No, Provide Explanation Purged 3 well volumes

| | | | | | | |
|----------------------|------|------|-------|------|------|------|
| Final Values: | 10.7 | 7.70 | 2.981 | 0.61 | -8.0 | 3.97 |
|----------------------|------|------|-------|------|------|------|

| | |
|--------------------------------------|---|
| Sample ID: PZ-15-02022023 | Method of Sampling: Low Flow |
| Sample Depth: 18.77 | Sample Container Type(s): 3 - 15 ml centrifuge tubes |
| Sample Date: 02/02/2023 | Preservative(s): None |
| Sample Collection Time: 12:45 | Analysis/Method(s): PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 12.31 |
| Duplicate ID: | Depth to Water After Sampling: 12.91 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump, YSI Pro DSS 22B104573

Calculations:
Saturated well casing volume: $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $V = \text{Volume (gal/ft)}$
 $\pi = 3.14$
 $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$
 $H = \text{height of water column (ft)}$
 $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $= \pi * (2 \text{ (in)}/12 \text{ (in/ft)})^2 * 8.96 * 7.48 \text{ gal/ft}^3$
 $= 1.5$

Technician Signature:

Notes:
 ORP and turbidity did not stabilize, sample collected after 3 volumes

Technician Name (print):
 Kiersten White

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|----------------------------------|------------------------------|
| QA/QC'd by: Jared Walbert | QA/QC Date: 2/10/2023 |
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GROUNDWATER SAMPLING RECORD



| | |
|--|---|
| Project Name: Former JB Sims Generating Station Harbor Island | Project Number: 3650220203.02.02 |
| Sample Technician: Kiersten White | Date: 02/01/2023 |
| Well ID: PZ-20 | Weather Condition: |
| Initial Depth to Water: 5.89 | Well Diameter (inches): 2 |
| Total Depth of Well: 11.18 | 1 Casing Volume (gal): 0.9 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 2.6 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 8.68 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|------------|------------|---|-----------|----------|------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 12:15 | | 250 | | | | | | | | Pump Started |
| 12:19 | 5.91 | 250.0 | 0.3 | 6.7 | 7.93 | 1.933 | 6.39 | 92.9 | 16.97 | Clear |
| 12:28 | 5.91 | 250.0 | 0.9 | 6.2 | 7.89 | 1.267 | 2.05 | 60.0 | 38.52 | |
| 12:33 | 5.91 | 250.0 | 1.2 | 6.3 | 7.75 | 1.358 | 1.86 | 49.7 | 25.81 | |
| 12:38 | 5.91 | 250.0 | 1.5 | 6.2 | 7.82 | 1.260 | 1.34 | 32.3 | 11.45 | |
| 12:43 | 5.91 | 250.0 | 1.8 | 6.1 | 7.82 | 1.254 | 1.07 | 14.9 | 6.92 | |
| 12:48 | 5.91 | 250.0 | 2.2 | 6.1 | 7.81 | 1.254 | 0.94 | -0.1 | 4.76 | |
| 12:53 | 5.91 | 250.0 | 2.5 | 6.3 | 7.81 | 1.254 | 0.85 | -12.6 | 4.60 | |
| 12:58 | 5.91 | 250.0 | 2.8 | 6.2 | 7.81 | 1.253 | 0.77 | -22.0 | 4.77 | |
| 13:03 | 5.91 | 250.0 | 3.2 | 6.1 | 7.81 | 1.250 | 0.73 | -29.4 | 4.23 | |

Stability Reached (Y/N): No If No, Provide Explanation Purged 3 well volumes

| | | | | | | |
|----------------------|-----|------|-------|------|-------|------|
| Final Values: | 6.1 | 7.81 | 1.250 | 0.73 | -29.4 | 4.23 |
|----------------------|-----|------|-------|------|-------|------|

| | |
|--------------------------------------|---|
| Sample ID: PZ-20-02012023 | Method of Sampling: Low Flow |
| Sample Depth: 8.68 | Sample Container Type(s): 3 - 15 ml centrifuge tubes |
| Sample Date: 02/01/2023 | Preservative(s): None |
| Sample Collection Time: 13:05 | Analysis/Method(s): PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 5.89 |
| Duplicate ID: | Depth to Water After Sampling: 5.88 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump
 , YSI Pro DSS 22B104573

Calculations:
Saturated well casing volume: $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $V = \text{Volume (gal/ft)}$
 $\pi = 3.14$
 $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$
 $H = \text{height of water column (ft)}$

$V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $= \pi * (2 \text{ (in)}/12 \text{ (in/ft)})^2 * 5.29 * 7.48 \text{ gal/ft}^3$
 $= 0.9$

Technician Signature:

Notes:
 DO and ORP did not stabilize. Sample collected after 3 volumes

Technician Name (print):
 Kiersten White

| | |
|----------------------------------|------------------------------|
| QA/QC'd by: Jared Walbert | QA/QC Date: 2/10/2023 |
|----------------------------------|------------------------------|

GROUNDWATER SAMPLING RECORD



| | | | |
|--|---|----------------------------------|------------------|
| Project Name: | Former JB Sims Generating Station, Harbor Island, Grand Haven, MI | Project Number: | 3650220203.02.02 |
| Sample Technician: | Andi Johns | Date: | 01/30/2023 |
| Well ID: | PZ-24 | Weather Condition: | |
| Initial Depth to Water: | 7.07 | Well Diameter (inches): | 2 |
| Total Depth of Well: | 12.42 | 1 Casing Volume (gal): | 0.9 |
| Method of Purging: | Pumping | 3 Casing Volumes (gal): | 2.6 |
| Measuring Point (toc, tor, etc.): | Top of Casing | Pump Intake Depth (feet): | 9.92 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|------------|------------|---|-----------|----------|------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 13:55 | | 200 | | | | | | | | Pump Started |
| 13:58 | 7.15 | 200.0 | 0.2 | 4.1 | 6.84 | 1.857 | 2.80 | 129.7 | 13.89 | Odor |
| 14:03 | 7.15 | 200.0 | 0.4 | 4.4 | 6.86 | 1.883 | 0.78 | 46.1 | 9.74 | Odor |
| 14:08 | 7.15 | 200.0 | 0.7 | 4.5 | 6.87 | 1.878 | 0.67 | 25.3 | 6.14 | Odor |
| 14:13 | 7.15 | 200.0 | 1.0 | 4.6 | 6.87 | 1.890 | 0.59 | 5.9 | 5.11 | Odor |
| 14:18 | 7.15 | 200.0 | 1.2 | 4.6 | 6.87 | 1.890 | 0.54 | -9.0 | 7.21 | Odor |
| 14:23 | 7.15 | 200.0 | 1.5 | 4.7 | 6.87 | 1.896 | 0.50 | -20.8 | 9.96 | Odor |
| 14:28 | 7.15 | 200.0 | 1.7 | 4.4 | 6.87 | 1.894 | 0.48 | -30.6 | 4.36 | Odor |
| 14:33 | 7.15 | 200.0 | 2.0 | 4.8 | 6.87 | 1.895 | 0.45 | -38.4 | 3.80 | Odor |
| 14:38 | 7.15 | 200.0 | 2.3 | 4.9 | 6.87 | 1.896 | 0.44 | -45.9 | 4.42 | |
| 14:43 | 7.15 | 200.0 | 2.5 | 4.8 | 6.87 | 1.899 | 0.43 | -51.4 | 8.53 | |
| 14:48 | 7.15 | 200.0 | 2.8 | 4.8 | 6.87 | 1.900 | 0.42 | -55.7 | 5.22 | |
| 14:53 | 7.15 | 200.0 | 3.1 | 4.5 | 6.87 | 1.894 | 0.42 | -61.3 | 2.11 | |
| 14:58 | 7.15 | 200.0 | 3.3 | 4.8 | 6.87 | 1.899 | 0.41 | -64.9 | 2.68 | |
| 15:03 | 7.15 | 200.0 | 3.6 | 4.9 | 6.87 | 1.897 | 0.40 | -68.7 | 2.91 | |

Stability Reached (Y/N): Yes If No, Provide Explanation

| | | | | | | |
|----------------------|-----|------|-------|------|-------|------|
| Final Values: | 4.9 | 6.87 | 1.897 | 0.40 | -68.7 | 2.91 |
|----------------------|-----|------|-------|------|-------|------|

| | |
|--------------------------------------|---|
| Sample ID: PZ-24-01302023 | Method of Sampling: Low Flow |
| Sample Depth: 9.92 | Sample Container Type(s): 3 - 15 ml centrifuge tubes |
| Sample Date: 01/30/2023 | Preservative(s): None |
| Sample Collection Time: 15:05 | Analysis/Method(s): PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 7.07 |
| Duplicate ID: | Depth to Water After Sampling: 7.10 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID
 , YSI ProDSS FA05093

| | |
|--|-------------------------------------|
| <p>Calculations:</p> <p>Saturated well casing volume: $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$</p> <p>$V = \text{Volume (gal/ft)}$ $\pi = 3.14$ $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$ $H = \text{height of water column (ft)}$</p> <p style="text-align: right;">$V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$ $= \pi * (2 \text{ (in)}/12 \text{ (in/ft)})^2 * 5.35 * 7.48 \text{ gal/ft}^3$ $= 0.9$</p> | <p>Technician Signature:</p> |
|--|-------------------------------------|

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|---------------|---|
| Notes: | Technician Name (print): Andi Johns |
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|----------------------------------|------------------------------|
| QA/QC'd by: Jared Walbert | QA/QC Date: 2/10/2023 |
|----------------------------------|------------------------------|

GROUNDWATER SAMPLING RECORD



| | |
|--|---|
| Project Name: Former JB Sims Generating Station Harbor Island | Project Number: 3650220203.02.02 |
| Sample Technician: Kiersten White | Date: 01/31/2023 |
| Well ID: PZ-31 | Weather Condition: |
| Initial Depth to Water: 6.5 | Well Diameter (inches): 2 |
| Total Depth of Well: 12.25 | 1 Casing Volume (gal): 0.9 |
| Method of Purging: Pumping | 3 Casing Volumes (gal): 2.8 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 9.75 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|------------|------------|---|-----------|----------|------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 15:15 | | 300 | | | | | | | | Pump Started |
| 15:22 | 6.5 | 300.0 | 0.6 | 4.8 | 8.54 | 1.381 | 6.52 | 65.4 | 3.67 | Clear |
| 15:50 | 6.5 | 200.0 | 2.0 | 4.3 | 8.55 | 1.365 | 5.85 | 58.5 | 13.79 | |
| 15:55 | | 200.0 | 2.3 | 4.6 | 8.55 | 1.336 | 6.59 | 61.1 | 5.34 | |
| 16:00 | | 200.0 | 2.6 | 4.4 | 8.56 | 1.340 | 6.73 | 61.5 | 6.65 | |
| 16:05 | | 200.0 | 2.8 | 5.1 | 8.45 | 1.388 | 3.08 | 57.6 | 8.23 | |
| 16:10 | | 200.0 | 3.1 | 4.8 | 8.52 | 1.363 | 4.98 | 60.1 | 9.29 | |
| 16:15 | | 200.0 | 3.4 | 5.0 | 8.54 | 1.342 | 6.36 | 62.0 | 4.15 | |
| 16:20 | | 200.0 | 3.6 | 4.7 | 8.54 | 1.344 | 6.73 | 61.5 | 6.65 | |

Stability Reached (Y/N): No If No, Provide Explanation Purge 3 well volumes

| | | | | | | |
|----------------------|-----|------|-------|------|------|------|
| Final Values: | 4.7 | 8.54 | 1.344 | 6.73 | 61.5 | 6.65 |
|----------------------|-----|------|-------|------|------|------|

| | |
|--------------------------------------|---|
| Sample ID: PZ-31-01312023 | Method of Sampling: Low Flow |
| Sample Depth: 9.75 | Sample Container Type(s): 3 - 15 ml centrifuge tubes |
| Sample Date: 01/31/2023 | Preservative(s): None |
| Sample Collection Time: 16:25 | Analysis/Method(s): PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 6.50 |
| Duplicate ID: | Depth to Water After Sampling: 6.50 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, PID, Peristaltic Pump, YSI Pro DSS 22B104573

Calculations:
Saturated well casing volume: $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $V = \text{Volume (gal/ft)}$
 $\pi = 3.14$
 $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$
 $H = \text{height of water column (ft)}$

$$V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$$

$$= \pi * (2 \text{ (in)}/12 \text{ (in/ft)})^2 * 5.75 * 7.48 \text{ gal/ft}^3$$

$$= 0.9$$

Technician Signature:

Notes:
 Turbidity and DO did not stabilize. Sample collected after 3 well volumes

Technician Name (print):
 Kiersten White

QA/QC'd by: Jared Walbert **QA/QC Date:** 2/9/2023

MAY 2023

MONITORING WELL GROUNDWATER SAMPLE RECORDS

GROUNDWATER SAMPLING RECORD



| | |
|--|---|
| Project Name: Harbor Island | Project Number: 3650220203.02.03 |
| Sample Technician: Lara Devine | Date: 05/02/2023 |
| Well ID: MW-04 | Well Diameter (inches): 2 |
| Initial Depth to Water: 10.89 | Screen Interval (feet): |
| Total Depth of Well: 17.84 | 1 Casing Volume (gal): 1.1 |
| Method of Purging: | 3 Casing Volumes (gal): 3.4 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 15.34 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 10:15 | | 250 | | | | | | | | Pump Started |
| 10:15 | 10.89 | 250.0 | 0.0 | 8.0 | 8.01 | 2.325 | 6.40 | -68.1 | 45.97 | |
| 10:32 | 11.91 | 250.0 | 1.1 | 8.4 | 7.68 | 2.849 | 0.96 | -171.8 | 11.75 | |
| 10:37 | 11.91 | 250.0 | 1.5 | 8.4 | 7.66 | 2.855 | 0.82 | -182.6 | 15.34 | |
| 10:42 | 11.91 | 250.0 | 1.8 | 8.4 | 7.64 | 2.850 | 0.79 | -190.0 | 14.10 | |
| 10:47 | 11.91 | 250.0 | 2.1 | 8.4 | 7.63 | 2.865 | 0.75 | -195.3 | 13.89 | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |

Stability Reached (Y/N): Yes If No, Provide Explanation

| | | | | | | |
|----------------------|------------|-------------|--------------|-------------|---------------|--------------|
| Final Values: | 8.4 | 7.63 | 2.865 | 0.75 | -195.3 | 13.89 |
|----------------------|------------|-------------|--------------|-------------|---------------|--------------|

| | |
|----------------------------------|---|
| Sample ID: MW-04-05022023 | Method of Sampling: Low Flow |
| Sample Depth: 15.34 | Sample Container Type(s): |
| Sample Date: | PID (ppm): 0 |
| Sample Collection Time: | Analysis/Method(s): PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 10.89 |
| Duplicate ID: | Depth to Water After Sampling: 11.91 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, Peristaltic Pump
 , YSI ProDSS 21E102389

Calculations:
Saturated well casing volume: $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $V = \text{Volume (gal/ft)}$
 $\pi = 3.14$
 $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$
 $H = \text{height of water column (ft)}$

$V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $= \pi * (2 \text{ (in)}/12 \text{ (in/ft)})^2 * 6.95 * 7.48 \text{ gal/ft}^3$
 $= 1.1$

Technician Signature:

Notes:

Technician Name (print):
 Lara Devine

QA/QC'd by: _____ **QA/QC Date:** _____

GROUNDWATER SAMPLING RECORD



| | |
|--|---|
| Project Name: Harbor Island | Project Number: 3650220203.02.03 |
| Sample Technician: Lara Devine | Date: 05/02/2023 |
| Well ID: MW-10 | Well Diameter (inches): 2 |
| Initial Depth to Water: 6.32 | Screen Interval (feet): |
| Total Depth of Well: 12.29 | 1 Casing Volume (gal): 1.0 |
| Method of Purging: | 3 Casing Volumes (gal): 2.9 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 9.79 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 12:43 | | 250 | | | | | | | | Pump Started |
| 12:43 | 6.32 | 250.0 | 0.0 | 7.5 | 8.04 | 3.135 | 4.81 | -72.8 | 14.02 | Water clear |
| 12:59 | 6.49 | 250.0 | 1.1 | 7.3 | 7.97 | 2.668 | 0.92 | -185.3 | 4.06 | |
| 13:04 | 6.49 | 250.0 | 1.4 | 7.3 | 8.00 | 2.635 | 0.76 | -207.1 | 4.03 | |
| 13:09 | 6.49 | 250.0 | 1.7 | 7.3 | 8.03 | 2.611 | 0.70 | -216.9 | 3.79 | |
| 13:14 | 6.49 | 250.0 | 2.0 | 7.3 | 8.05 | 2.590 | 0.69 | -227.4 | 3.64 | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |

Stability Reached (Y/N): Yes If No, Provide Explanation

| | | | | | | |
|----------------------|-----|------|-------|------|--------|------|
| Final Values: | 7.3 | 8.05 | 2.590 | 0.69 | -227.4 | 3.64 |
|----------------------|-----|------|-------|------|--------|------|

| | |
|----------------------------------|--|
| Sample ID: MW-10-05022023 | Method of Sampling: Low Flow |
| Sample Depth: 9.79 | Sample Container Type(s): |
| Sample Date: | PID (ppm): 0 |
| Sample Collection Time: | Analysis/Method(s): PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 6.32 |
| Duplicate ID: | Depth to Water After Sampling: 6.49 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, Peristaltic Pump
 , YSI ProDSS 21E102389

Calculations:
Saturated well casing volume: $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $V = \text{Volume (gal/ft)}$
 $\pi = 3.14$
 $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$
 $H = \text{height of water column (ft)}$

$V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $= \pi * (2 \text{ (in)}/12 \text{ (in/ft)})^2 * 5.97 * 7.48 \text{ gal/ft}^3$
 $= 1.0$

Technician Signature:

Notes:

Technician Name (print):
 Lara Devine

QA/QC'd by: _____ **QA/QC Date:** _____

GROUNDWATER SAMPLING RECORD



| | |
|--|---|
| Project Name: Harbor Island | Project Number: 3650220203.02.03 |
| Sample Technician: Lara Devine | Date: 05/02/2023 |
| Well ID: MW-35 | Well Diameter (inches): 2 |
| Initial Depth to Water: 6.85 | Screen Interval (feet): |
| Total Depth of Well: 11.33 | 1 Casing Volume (gal): 0.7 |
| Method of Purging: | 3 Casing Volumes (gal): 2.2 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 8.83 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 16:13 | | 250 | | | | | | | | Pump Started |
| 16:13 | 6.85 | 250.0 | 0.0 | 9.2 | 7.48 | 1.464 | 6.27 | -58.9 | 11.00 | Water clear |
| 16:24 | 7.14 | 250.0 | 0.7 | 9.3 | 6.96 | 1.924 | 1.25 | -119.6 | 5.63 | |
| 16:29 | 7.14 | 250.0 | 1.1 | 9.3 | 6.93 | 1.992 | 0.92 | -138.6 | 6.03 | |
| 16:34 | 7.14 | 250.0 | 1.4 | 9.5 | 6.91 | 2.032 | 0.71 | -150.4 | 7.14 | |
| 16:39 | 7.14 | 250.0 | 1.7 | 9.4 | 6.90 | 2.070 | 0.68 | -156.8 | 7.06 | |
| 16:44 | 7.14 | 250.0 | 2.0 | 9.6 | 6.89 | 2.092 | 0.65 | -162.9 | 6.54 | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |

Stability Reached (Y/N): Yes If No, Provide Explanation

| | | | | | | |
|----------------------|-----|------|-------|------|--------|------|
| Final Values: | 9.6 | 6.89 | 2.092 | 0.65 | -162.9 | 6.54 |
|----------------------|-----|------|-------|------|--------|------|

| | |
|----------------------------------|--|
| Sample ID: MW-35-05022023 | Method of Sampling: Low Flow |
| Sample Depth: 8.83 | Sample Container Type(s): |
| Sample Date: | PID (ppm): 0 |
| Sample Collection Time: | Analysis/Method(s): PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 6.85 |
| Duplicate ID: | Depth to Water After Sampling: 7.14 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, Peristaltic Pump
 , YSI ProDSS 21E102389

Calculations:
Saturated well casing volume: $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $V = \text{Volume (gal/ft)}$
 $\pi = 3.14$
 $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$
 $H = \text{height of water column (ft)}$

$V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $= \pi * (2 \text{ (in)}/12 \text{ (in/ft)})^2 * 4.48 * 7.48 \text{ gal/ft}^3$
 $= 0.7$

Technician Signature:

Notes:

Technician Name (print):
 Lara Devine

QA/QC'd by: _____ **QA/QC Date:** _____

GROUNDWATER SAMPLING RECORD



| | |
|--|---|
| Project Name: Harbor Island | Project Number: 3650220203.02.03 |
| Sample Technician: Lara Devine | Date: 05/01/2023 |
| Well ID: MW-36 | Well Diameter (inches): 2 |
| Initial Depth to Water: 8.24 | Screen Interval (feet): |
| Total Depth of Well: 12.25 | 1 Casing Volume (gal): 0.7 |
| Method of Purging: | 3 Casing Volumes (gal): 2.0 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 9.75 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 15:34 | | 250 | | | | | | | | Pump Started |
| 15:37 | 8.24 | 250.0 | 0.2 | 7.6 | 10.78 | 1.243 | 7.14 | -6.0 | 79.46 | |
| 15:48 | 8.37 | 250.0 | 0.9 | 7.8 | 10.76 | 0.711 | 1.27 | -7.0 | 15.60 | |
| 15:53 | 8.37 | 250.0 | 1.3 | 7.9 | 10.50 | 0.711 | 0.98 | -2.1 | 14.94 | |
| 15:58 | 8.37 | 250.0 | 1.6 | 7.7 | 10.28 | 0.710 | 0.81 | 1.8 | 12.66 | |
| 16:03 | 8.37 | 250.0 | 1.9 | 7.8 | 10.25 | 0.709 | 0.74 | 1.9 | 12.12 | |
| 16:08 | 8.37 | 250.0 | 2.2 | 7.8 | 10.20 | 0.712 | 0.73 | 1.9 | 12.03 | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |

Stability Reached (Y/N): Yes If No, Provide Explanation

| | | | | | | |
|----------------------|-----|-------|-------|------|-----|-------|
| Final Values: | 7.8 | 10.20 | 0.712 | 0.73 | 1.9 | 12.03 |
|----------------------|-----|-------|-------|------|-----|-------|

| | |
|----------------------------------|--|
| Sample ID: MW-36-05012023 | Method of Sampling: Low Flow |
| Sample Depth: 9.75 | Sample Container Type(s): |
| Sample Date: | PID (ppm): 0 |
| Sample Collection Time: | Analysis/Method(s): PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 8.24 |
| Duplicate ID: | Depth to Water After Sampling: 8.37 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, Peristaltic Pump
 , YSI ProDSS 21E102389

Calculations:
Saturated well casing volume: $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $V = \text{Volume (gal/ft)}$
 $\pi = 3.14$
 $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$
 $H = \text{height of water column (ft)}$

$V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $= \pi * (2 \text{ (in)}/12 \text{ (in/ft)})^2 * 4.01 * 7.48 \text{ gal/ft}^3$
 $= 0.7$

Technician Signature:

Notes:

Technician Name (print):
 Lara Devine

QA/QC'd by: _____ **QA/QC Date:** _____

GROUNDWATER SAMPLING RECORD



| | |
|--|---|
| Project Name: Harbor Island | Project Number: 3650220203.02.03 |
| Sample Technician: Lara Devine | Date: 05/01/2023 |
| Well ID: MW-37 | Well Diameter (inches): 2 |
| Initial Depth to Water: 8.72 | Screen Interval (feet): |
| Total Depth of Well: 12.82 | 1 Casing Volume (gal): 0.7 |
| Method of Purging: | 3 Casing Volumes (gal): 2.0 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 10.32 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 14:37 | | 200 | | | | | | | | Pump Started |
| 14:37 | 8.72 | 200.0 | 0.0 | 8.7 | 12.53 | 0.789 | 11.13 | -34.5 | 116.7 | |
| 14:51 | 8.79 | 200.0 | 0.7 | 8.0 | 8.78 | 1.739 | 1.56 | 26.3 | 22.51 | |
| 14:56 | 8.79 | 200.0 | 1.0 | 8.0 | 8.42 | 1.783 | 1.33 | 35.4 | 14.90 | |
| 15:01 | 8.79 | 200.0 | 1.3 | 8.0 | 8.14 | 1.800 | 1.22 | 42.0 | 12.97 | |
| 15:06 | 8.79 | 200.0 | 1.5 | 8.0 | 7.96 | 1.811 | 1.15 | 46.9 | 13.72 | |
| 15:11 | 8.79 | 200.0 | 1.8 | 8.0 | 7.83 | 1.807 | 1.14 | 50.3 | 13.16 | |
| 15:16 | 8.79 | 200.0 | 2.1 | 7.8 | 7.65 | 1.809 | 1.14 | 51.9 | 12.14 | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |

Stability Reached (Y/N): No If No, Provide Explanation: 3 well volumes purged. Turbidity, ORP, pH did not stabilize.

| | | | | | | |
|----------------------|-----|------|-------|------|------|-------|
| Final Values: | 7.8 | 7.65 | 1.809 | 1.14 | 51.9 | 12.14 |
|----------------------|-----|------|-------|------|------|-------|

| | |
|----------------------------------|--|
| Sample ID: MW-37-05012023 | Method of Sampling: Low Flow |
| Sample Depth: 10.32 | Sample Container Type(s): |
| Sample Date: | PID (ppm): 0 |
| Sample Collection Time: | Analysis/Method(s): PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 8.72 |
| Duplicate ID: | Depth to Water After Sampling: 8.71 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, Peristaltic Pump, YSI ProDSS 21E102389

Calculations:
Saturated well casing volume: $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $V = \text{Volume (gal/ft)}$
 $\pi = 3.14$
 $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$
 $H = \text{height of water column (ft)}$

$V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $= \pi * (2 \text{ (in)}/12 \text{ (in/ft)})^2 * 4.10 * 7.48 \text{ gal/ft}^3$
 $= 0.7$

Technician Signature:

Notes:

Technician Name (print):
 Lara Devine

QA/QC'd by: _____ **QA/QC Date:** _____

GROUNDWATER SAMPLING RECORD



| | |
|--|---|
| Project Name: Harbor Island | Project Number: 3650220203.02.03 |
| Sample Technician: Lara Devine | Date: 05/01/2023 |
| Well ID: MW-38 | Well Diameter (inches): 2 |
| Initial Depth to Water: 9.65 | Screen Interval (feet): |
| Total Depth of Well: 13.16 | 1 Casing Volume (gal): 0.6 |
| Method of Purging: | 3 Casing Volumes (gal): 1.7 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 10.66 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 13:50 | | 250 | | | | | | | | Pump Started |
| 13:50 | 9.65 | 250.0 | 0.0 | 8.6 | 11.33 | 7.113 | 5.12 | 65.1 | 17.36 | Water clear |
| 14:00 | 12.08 | 250.0 | 0.7 | 8.2 | 12.82 | 5.831 | 1.71 | -46.7 | 15.14 | |
| 14:05 | 12.08 | 250.0 | 1.0 | 7.7 | 12.88 | 4.984 | 2.85 | -72.6 | 10.88 | |
| 14:10 | 12.08 | 250.0 | 1.3 | 7.5 | 12.87 | 4.127 | 3.48 | -80.1 | 10.32 | |
| 14:15 | 12.08 | 250.0 | 1.7 | 7.6 | 12.83 | 4.006 | 3.76 | -85.5 | 10.46 | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |

Stability Reached (Y/N): No If No, Provide Explanation: 3 well volumes purged. ORP, DO, specific conductance did not stabilize.

Final Values: 7.6 12.83 4.006 3.76 -85.5 10.46

| | |
|----------------------------------|---|
| Sample ID: MW-38-05012023 | Method of Sampling: Low Flow |
| Sample Depth: 10.66 | Sample Container Type(s): |
| Sample Date: | PID (ppm): 0 |
| Sample Collection Time: | Analysis/Method(s): PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 9.65 |
| Duplicate ID: | Depth to Water After Sampling: 11.71 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, Peristaltic Pump, YSI ProDSS 21E102389

Calculations:
Saturated well casing volume: $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $V = \text{Volume (gal/ft)}$
 $\pi = 3.14$
 $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$
 $H = \text{height of water column (ft)}$
 $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $= \pi * (2 \text{ (in)}/12 \text{ (in/ft)})^2 * 3.51 * 7.48 \text{ gal/ft}^3$
 $= 0.6$

Technician Signature:

Notes:

Technician Name (print):
 Lara Devine

QA/QC'd by: _____ **QA/QC Date:** _____

GROUNDWATER SAMPLING RECORD



| | |
|--|---|
| Project Name: Harbor Island | Project Number: 3650220203.02.03 |
| Sample Technician: Lara Devine | Date: 05/01/2023 |
| Well ID: MW-39 | Well Diameter (inches): 2 |
| Initial Depth to Water: 6.45 | Screen Interval (feet): |
| Total Depth of Well: 11.08 | 1 Casing Volume (gal): 0.8 |
| Method of Purging: | 3 Casing Volumes (gal): 2.3 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 8.58 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 16:20 | | 250 | | | | | | | | Pump Started |
| 16:23 | 6.45 | 250.0 | 0.2 | 7.9 | 8.97 | 1.954 | 5.16 | 15.5 | 418.9 | |
| 16:36 | 6.81 | 250.0 | 1.1 | 8.1 | 7.95 | 1.776 | 0.99 | -82.5 | 44.78 | |
| 16:41 | 6.81 | 250.0 | 1.4 | 8.0 | 7.87 | 1.735 | 0.83 | -122.9 | 25.39 | |
| 16:46 | 6.81 | 250.0 | 1.7 | 8.1 | 7.81 | 1.727 | 0.75 | -130.9 | 16.62 | |
| 16:51 | 6.81 | 250.0 | 2.0 | 8.1 | 7.77 | 1.668 | 0.67 | -145.2 | 9.54 | |
| 16:56 | 6.81 | 250.0 | 2.4 | 8.0 | 7.75 | 1.656 | 0.65 | -151.2 | 8.87 | |
| 17:01 | 6.81 | 250.0 | 2.7 | 8.0 | 7.73 | 1.633 | 0.61 | -159.6 | 8.59 | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |

Stability Reached (Y/N): Yes If No, Provide Explanation

| | | | | | | |
|----------------------|------------|-------------|--------------|-------------|---------------|-------------|
| Final Values: | 8.0 | 7.73 | 1.633 | 0.61 | -159.6 | 8.59 |
|----------------------|------------|-------------|--------------|-------------|---------------|-------------|

| | |
|----------------------------------|--|
| Sample ID: MW-39-05012023 | Method of Sampling: Low Flow |
| Sample Depth: 8.58 | Sample Container Type(s): |
| Sample Date: | PID (ppm): 0 |
| Sample Collection Time: | Analysis/Method(s): PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 6.45 |
| Duplicate ID: | Depth to Water After Sampling: 6.81 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, Peristaltic Pump
 , YSI ProDSS 21E102389

Calculations:
Saturated well casing volume: $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $V = \text{Volume (gal/ft)}$
 $\pi = 3.14$
 $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$
 $H = \text{height of water column (ft)}$

$V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $= \pi * (2 \text{ (in)}/12 \text{ (in/ft)})^2 * 4.63 * 7.48 \text{ gal/ft}^3$
 $= 0.8$

Technician Signature:

Notes:

Technician Name (print):
 Lara Devine

QA/QC'd by: _____ **QA/QC Date:** _____

GROUNDWATER SAMPLING RECORD



| | |
|--|---|
| Project Name: Harbor Island | Project Number: 3650220203.02.03 |
| Sample Technician: Lara Devine | Date: 05/01/2023 |
| Well ID: MW-40 | Well Diameter (inches): 2 |
| Initial Depth to Water: 5.22 | Screen Interval (feet): |
| Total Depth of Well: 10.39 | 1 Casing Volume (gal): 0.8 |
| Method of Purging: | 3 Casing Volumes (gal): 2.5 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 7.79 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 17:13 | | 250 | | | | | | | | Pump Started |
| 17:15 | 5.22 | 250.0 | 0.1 | 8.3 | 11.79 | 7.885 | 3.93 | -178.2 | 45.09 | |
| 17:28 | 5.88 | 250.0 | 1.0 | 8.4 | 13.04 | 9.042 | 1.03 | -303.7 | 41.52 | |
| 17:33 | 5.88 | 250.0 | 1.3 | 8.3 | 13.10 | 9.041 | 0.98 | -328.2 | 24.17 | |
| 17:38 | 5.88 | 250.0 | 1.7 | 8.2 | 13.12 | 8.946 | 0.95 | -343.7 | 20.78 | |
| 17:43 | 5.88 | 250.0 | 2.0 | 8.2 | 13.14 | 8.887 | 0.93 | -355.2 | 19.88 | |
| 17:48 | 5.88 | 250.0 | 2.3 | 8.2 | 13.15 | 8.958 | 0.89 | -361.5 | 18.76 | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |

Stability Reached (Y/N): Yes If No, Provide Explanation

| | | | | | | |
|----------------------|-----|-------|-------|------|--------|-------|
| Final Values: | 8.2 | 13.15 | 8.958 | 0.89 | -361.5 | 18.76 |
|----------------------|-----|-------|-------|------|--------|-------|

| | |
|----------------------------------|--|
| Sample ID: MW-40-05012023 | Method of Sampling: Low Flow |
| Sample Depth: 7.79 | Sample Container Type(s): |
| Sample Date: | PID (ppm): 0 |
| Sample Collection Time: | Analysis/Method(s): PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 5.22 |
| Duplicate ID: | Depth to Water After Sampling: 5.88 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, Peristaltic Pump
 , YSI ProDSS 21E102389

Calculations:
Saturated well casing volume: $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $V = \text{Volume (gal/ft)}$
 $\pi = 3.14$
 $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$
 $H = \text{height of water column (ft)}$

$V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $= \pi * (2 \text{ (in)}/12 \text{ (in/ft)})^2 * 5.17 * 7.48 \text{ gal/ft}^3$
 $= 0.8$

Technician Signature:

Notes:

Technician Name (print):
 Lara Devine

QA/QC'd by: _____ **QA/QC Date:** _____

GROUNDWATER SAMPLING RECORD



| | |
|--|---|
| Project Name: Harbor Island | Project Number: 3650220203.02.03 |
| Sample Technician: Lara Devine | Date: 05/02/2023 |
| Well ID: PZ-14 | Well Diameter (inches): 2 |
| Initial Depth to Water: 5.81 | Screen Interval (feet): |
| Total Depth of Well: 11.2 | 1 Casing Volume (gal): 0.9 |
| Method of Purging: | 3 Casing Volumes (gal): 2.7 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 8.7 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 08:26 | | 250 | | | | | | | | Pump Started |
| 08:28 | 5.81 | 250.0 | 0.1 | 8.6 | 9.54 | 1.018 | 6.98 | 95.6 | 28.32 | Water clear |
| 08:42 | 5.94 | 250.0 | 1.1 | 8.2 | 8.56 | 1.702 | 1.29 | -55.6 | 4.45 | |
| 08:47 | 5.94 | 250.0 | 1.4 | 8.2 | 8.47 | 1.770 | 1.40 | -113.1 | 4.39 | |
| 08:52 | 5.94 | 250.0 | 1.7 | 8.2 | 8.40 | 1.896 | 1.01 | -183.2 | 4.33 | |
| 08:57 | 5.94 | 250.0 | 2.0 | 8.2 | 8.33 | 1.952 | 0.92 | -197.5 | 4.28 | |
| 09:02 | 5.94 | 250.0 | 2.4 | 8.2 | 8.30 | 1.952 | 0.91 | -203.4 | 4.21 | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |

Stability Reached (Y/N): Yes If No, Provide Explanation

| | | | | | | |
|----------------------|-----|------|-------|------|--------|------|
| Final Values: | 8.2 | 8.30 | 1.952 | 0.91 | -203.4 | 4.21 |
|----------------------|-----|------|-------|------|--------|------|

| | |
|----------------------------------|--|
| Sample ID: PZ-14-05022023 | Method of Sampling: Low Flow |
| Sample Depth: 8.7 | Sample Container Type(s): |
| Sample Date: | PID (ppm): 0 |
| Sample Collection Time: | Analysis/Method(s): PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: Yes | Initial Depth to Water: 5.81 |
| Duplicate ID: DUP-01 | Depth to Water After Sampling: 5.94 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, Peristaltic Pump
 , YSI ProDSS 21E102389

Calculations:
Saturated well casing volume: $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $V = \text{Volume (gal/ft)}$
 $\pi = 3.14$
 $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$
 $H = \text{height of water column (ft)}$

$V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $= \pi * (2 \text{ (in)}/12 \text{ (in/ft)})^2 * 5.39 * 7.48 \text{ gal/ft}^3$
 $= 0.9$

Technician Signature:

Notes:

Technician Name (print):
 Lara Devine

QA/QC'd by: _____ **QA/QC Date:** _____

GROUNDWATER SAMPLING RECORD



| | |
|--|---|
| Project Name: Harbor Island | Project Number: 3650220203.02.03 |
| Sample Technician: Lara Devine | Date: 05/03/2023 |
| Well ID: PZ-23 | Well Diameter (inches): 2 |
| Initial Depth to Water: 6.82 | Screen Interval (feet): |
| Total Depth of Well: 11.36 | 1 Casing Volume (gal): 0.7 |
| Method of Purging: | 3 Casing Volumes (gal): 2.2 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 8.86 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 10:48 | | 250 | | | | | | | | Pump Started |
| 10:48 | 6.82 | 250.0 | 0.0 | 9.5 | 7.68 | 0.584 | 6.89 | 1.1 | 69.02 | |
| 10:59 | 6.94 | 250.0 | 0.7 | 9.0 | 7.25 | 0.977 | 1.97 | -21.7 | 10.13 | |
| 11:04 | 6.94 | 250.0 | 1.1 | 9.0 | 7.22 | 1.040 | 1.81 | -27.3 | 5.68 | |
| 11:09 | 6.94 | 250.0 | 1.4 | 9.0 | 7.17 | 1.124 | 1.64 | -54.6 | 4.02 | |
| 11:14 | 6.94 | 250.0 | 1.7 | 9.0 | 7.17 | 1.147 | 1.52 | -56.9 | 3.79 | |
| 11:19 | 6.94 | 250.0 | 2.0 | 9.0 | 7.16 | 1.153 | 1.49 | -59.2 | 3.75 | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |

Stability Reached (Y/N): Yes If No, Provide Explanation

| | | | | | | |
|----------------------|-----|------|-------|------|-------|------|
| Final Values: | 9.0 | 7.16 | 1.153 | 1.49 | -59.2 | 3.75 |
|----------------------|-----|------|-------|------|-------|------|

| | |
|----------------------------------|--|
| Sample ID: PZ-23-05032023 | Method of Sampling: Low Flow |
| Sample Depth: 8.86 | Sample Container Type(s): |
| Sample Date: | PID (ppm): 0 |
| Sample Collection Time: | Analysis/Method(s): PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 6.82 |
| Duplicate ID: | Depth to Water After Sampling: 6.94 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, Peristaltic Pump
 , YSI ProDSS 21E102389

Calculations:
Saturated well casing volume: $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $V = \text{Volume (gal/ft)}$
 $\pi = 3.14$
 $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$
 $H = \text{height of water column (ft)}$

$V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $= \pi * (2 \text{ (in)}/12 \text{ (in/ft)})^2 * 4.54 * 7.48 \text{ gal/ft}^3$
 $= 0.7$

Technician Signature:

Notes:

Technician Name (print):
 Lara Devine

QA/QC'd by: _____ **QA/QC Date:** _____

GROUNDWATER SAMPLING RECORD



| | |
|--|---|
| Project Name: Harbor Island | Project Number: 3650220203.02.03 |
| Sample Technician: Lara Devine | Date: 05/02/2023 |
| Well ID: PZ-28 | Well Diameter (inches): 2 |
| Initial Depth to Water: 7.0 | Screen Interval (feet): |
| Total Depth of Well: 11.89 | 1 Casing Volume (gal): 0.8 |
| Method of Purging: | 3 Casing Volumes (gal): 2.4 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 9.39 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 15:25 | | 250 | | | | | | | | Pump Started |
| 15:25 | 7.0 | 250.0 | 0.0 | 8.0 | 7.37 | 1.271 | 5.47 | -72.2 | 9.10 | Water clear |
| 15:38 | 8.01 | 250.0 | 0.9 | 8.0 | 7.24 | 1.210 | 1.04 | -137.8 | 6.52 | |
| 15:43 | 8.01 | 250.0 | 1.2 | 8.0 | 7.22 | 1.203 | 0.76 | -149.5 | 6.75 | |
| 15:48 | 8.01 | 250.0 | 1.5 | 7.9 | 7.21 | 1.202 | 0.74 | -158.3 | 6.32 | |
| 15:53 | 8.01 | 250.0 | 1.8 | 8.0 | 7.19 | 1.208 | 0.69 | -163.4 | 6.12 | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |

Stability Reached (Y/N): Yes If No, Provide Explanation

| | | | | | | |
|----------------------|------------|-------------|--------------|-------------|---------------|-------------|
| Final Values: | 8.0 | 7.19 | 1.208 | 0.69 | -163.4 | 6.12 |
|----------------------|------------|-------------|--------------|-------------|---------------|-------------|

| | |
|----------------------------------|--|
| Sample ID: PZ-28-05022023 | Method of Sampling: Low Flow |
| Sample Depth: 9.39 | Sample Container Type(s): |
| Sample Date: | PID (ppm): 0 |
| Sample Collection Time: | Analysis/Method(s): PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 7.0 |
| Duplicate ID: | Depth to Water After Sampling: 8.01 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, Peristaltic Pump
 , YSI ProDSS 21E102389

Calculations:
Saturated well casing volume: $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $V = \text{Volume (gal/ft)}$
 $\pi = 3.14$
 $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$
 $H = \text{height of water column (ft)}$

$V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $= \pi * (2 \text{ (in)}/12 \text{ (in/ft)})^2 * 4.89 * 7.48 \text{ gal/ft}^3$
 $= 0.8$

Technician Signature:

Notes:

Technician Name (print):
 Lara Devine

QA/QC'd by: _____ **QA/QC Date:** _____

GROUNDWATER SAMPLING RECORD



| | |
|--|---|
| Project Name: Harbor Island | Project Number: 3650220203.02.03 |
| Sample Technician: Lara Devine | Date: 05/02/2023 |
| Well ID: PZ-32 | Well Diameter (inches): 2 |
| Initial Depth to Water: 5.82 | Screen Interval (feet): |
| Total Depth of Well: 11.23 | 1 Casing Volume (gal): 0.9 |
| Method of Purging: | 3 Casing Volumes (gal): 2.7 |
| Measuring Point (toc, tor, etc.): Top of Casing | Pump Intake Depth (feet): 8.73 |

| Time | Water Level (feet) | Flow Rate (mL/min) | Cum. Volume (gal.) | Temp. (°C) | pH (units) | Specific Electrical Conductance (mS/cm) | DO (mg/L) | ORP (mV) | Turbidity (NTU) | Comments/Observations During Purging (color, sediment, odor, etc.) |
|-------------------------------|--------------------|--------------------|--------------------|---------------|-------------|---|-------------|-------------|----------------------------|--|
| Stabilization Criteria | | | | ±0.5°C | ±0.1 | ±3% | ±10% | ±10% | ±10% and <10 NTU | |
| 13:39 | | 250 | | | | | | | | Pump Started |
| 13:39 | 5.82 | 250.0 | 0.0 | 8.1 | 8.01 | 1.538 | 4.77 | -78.2 | 20.67 | Water clear |
| 13:54 | 5.89 | 250.0 | 1.0 | 8.2 | 7.81 | 1.314 | 0.89 | -185.3 | 6.50 | |
| 13:59 | 5.89 | 250.0 | 1.3 | 8.3 | 7.80 | 1.306 | 0.76 | -199.4 | 6.03 | |
| 14:04 | 5.89 | 250.0 | 1.7 | 8.3 | 7.79 | 1.308 | 0.65 | -209.2 | 4.73 | |
| 14:09 | 5.89 | 250.0 | 2.0 | 8.3 | 7.78 | 1.298 | 0.60 | -218.5 | 4.41 | |
| 14:14 | 5.89 | 250.0 | 2.3 | 8.3 | 7.78 | 1.302 | 0.59 | -222.1 | 4.39 | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |
| | | .0 | | | | | | | | |

Stability Reached (Y/N): Yes If No, Provide Explanation

| | | | | | | |
|----------------------|-----|------|-------|------|--------|------|
| Final Values: | 8.3 | 7.78 | 1.302 | 0.59 | -222.1 | 4.39 |
|----------------------|-----|------|-------|------|--------|------|

| | |
|----------------------------------|--|
| Sample ID: PZ-32-05022023 | Method of Sampling: Low Flow |
| Sample Depth: 8.73 | Sample Container Type(s): |
| Sample Date: | PID (ppm): 0 |
| Sample Collection Time: | Analysis/Method(s): PFAS |
| QA/QC Samples: | Blank ID(s): |
| Duplicate Collected: No | Initial Depth to Water: 5.82 |
| Duplicate ID: | Depth to Water After Sampling: 5.89 |

Instruments (Manufacturer, Model, and Serial No.):
 Water Quality Meter, Water Level Meter, Peristaltic Pump
 , YSI ProDSS 21E102389

Calculations:
Saturated well casing volume: $V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $V = \text{Volume (gal/ft)}$
 $\pi = 3.14$
 $R = \text{well radius (ft)} = (\text{well diameter (in)}/12 \text{ (in/ft)})/2$
 $H = \text{height of water column (ft)}$

$V = \pi(R^2)H \cdot 7.48 \text{ gal/ft}^3$
 $= \pi * (2 \text{ (in)}/12 \text{ (in/ft)})^2 * 5.41 * 7.48 \text{ gal/ft}^3$
 $= 0.9$

Technician Signature:

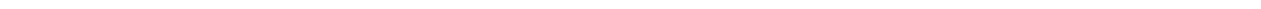
Notes:

Technician Name (print):
 Lara Devine

QA/QC'd by: _____ **QA/QC Date:** _____

Appendix D

Monitoring Well Construction Logs



SCREENED WELL CONSTRUCTION FORM



Site Name: Former JB Sims Generating Station-Harbor Island
Well ID: MW-33
Drilling Subcontractor: JSS
Drilling Personnel: Dave Mokma
Technician Name: Kiersten White
Other Amec Foster Wheeler Representatives: Saamih Bashir

Project Number: 3650220203
Location ID: SB /MW-33
Installation Date: 11/28/2022
Decon Performed: Yes
Drilling Method: DPT pe pack screen

Measurement Point (riser)
Elevation (ft msl): _____
Land Surface Elevation (ft): _____
Approximate Diameter of Borehole (in): 4.5
Depth to Water (ft): 2
During Drilling: 2.25
Date: 11/30/2022
Post Development: 2.40
Date: 11/30/2022

Hydrologic Unit: _____

Water added during drilling (gal): 3.0
Water removed during development (gal): _____

Top of Bentonite Seal (ft): 1
Top of Filter Pack (ft): 1.5
Top of Screen Interval (ft): 2
Bottom of Screened Interval (ft): 7
Bottom of Filter Pack (ft): 2
Bottom of Borehole (ft): 7.5

Notes: sunny

Protective Casing:
Type: _____
Dimensions (in): _____
Stickup (ft): _____
Length (ft): _____
Guard Post: _____

Surface Pad:
Dimensions: 2 ft circle
Type: Concrete

Annular Seal (grout above well seal):
Material: BENTONITE
Installation Method: Gravity

Bentonite Seal:
Manufacturer: Baroid
Material: BENTONITE
Type: Chips
Installation Method: Gravity
Hydration time (hrs): 1

Filter Pack Material:
Manufacturer: K&E
Material: #2 Well Gravel
Size: 0.03
Installation Method: Gravity
Surging time: 2.5

Well Casing (Riser):
Manufacturer: _____
Type/Material: _____
Length: _____
Diameter (in): _____

Well Screen:
Manufacturer: Johnson
Type/Material: POLYVINYL CHLORIDE (PVC)
Diameter (in): 2
Slot Size (in): 0.010
Slot Type: Factory Slot

Sump/End Cap: Point

Technician Signature: 

Technician Name (print): Kiersten White

Depths and heights are referenced to ground surface unless specified TOC.
 All elevations are referenced to MSL (NAVD 88).

QA/QC'd by: _____ **QA/QC Date:** _____



SCREENED WELL CONSTRUCTION FORM

Site Name: Former JB Sims Generating Station-Harbor Island

Well ID: MW-34

Drilling Subcontractor: JSS

Drilling Personnel: Dave M and Trevon Lynch

Technician Name: Kiersten White

Other Amec Foster Wheeler Representatives: _____

Project Number: 3650220203

Location ID: SB /MW-34

Installation Date: 11/28/2022

Decon Performed: Yes

Drilling Method: DPT pre pack screen

_____ Saamih Bashir

Measurement Point (riser)
Elevation (ft msl): _____

Land Surface Elevation (ft): _____

Approximate Diameter of Borehole (in): 4.25

Depth to Water (ft): 9.5

During Drilling: 4.55

Date: 11/30/2022

Post Development: 4.55

Date: 11/30/2022

Hydrologic Unit: _____

Water added during drilling (gal): 7.0

Water removed during development (gal): _____

Top of Bentonite Seal (ft): 1

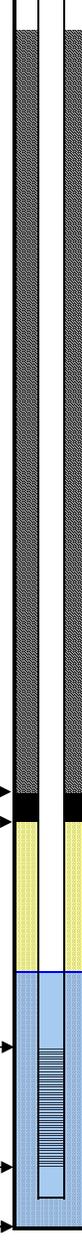
Top of Filter Pack (ft): 5.5

Top of Screen Interval (ft): 7.5

Bottom of Screened Interval (ft): 12.5

Bottom of Filter Pack (ft): 13

Bottom of Borehole (ft): 13



Protective Casing:
Type: _____
Dimensions (in): _____
Stickup (ft): _____
Length (ft): _____
Guard Post: _____

Surface Pad:
Dimensions: 2 feet circle
Type: Concrete

Annular Seal (grout above well seal):
Material: BENTONITE
Installation Method: Gravity

Bentonite Seal:
Manufacturer: Baroid
Material: BENTONITE
Type: Chips
Installation Method: Gravity
Hydration time (hrs): 1

Filter Pack Material:
Manufacturer: K&E
Material: #2 Well Gravel
Size: 0.03
Installation Method: Gravity
Surging time: 2

Well Casing (Riser):
Manufacturer: _____
Type/Material: _____
Length: _____
Diameter (in): _____

Well Screen:
Manufacturer: Johnson
Type/Material: POLYVINYL CHLORIDE (PVC)
Diameter (in): 2
Slot Size (in): 0.010
Slot Type: Factory Slot

Sump/End Cap: Point

Notes: sunny

Technician Signature:

Technician Name (print): Kiersten White

Depths and heights are referenced to ground surface unless specified TOC.
All elevations are referenced to MSL (NAVD 88).

QA/QC'd by: _____ QA/QC Date: _____



SCREENED WELL CONSTRUCTION FORM

Site Name: Former JB Sims Generating Station, Harbor Island, Grand Haven, MI

Well ID: MW-35

Drilling Subcontractor: Job Site Services

Drilling Personnel: David Mokma & Jeremiah Chapman

Technician Name: Jared Walbert

Other Amec Foster Wheeler Representatives: _____

Project Number: 3650220203.02.02

Location ID: GP-01

Installation Date: 01/30/2023

Decon Performed: Yes

Drilling Method: Direct Push

Measurement Point (riser)
Elevation (ft msl): 589.724

Land Surface Elevation (ft): 590.421

Approximate Diameter of Borehole (in): 3.75 inches

Depth to Water (ft): 9.20

 During Drilling: 8.30

 Date: 01/30/2023

 Post Development: 8.30

 Date: 01/31/2023

Hydrologic Unit: NA

Water added during drilling (gal): .0

Water removed during development (gal): 20

Protective Casing:
Type: Flush Mount

Dimensions (in): 8

Stickup (ft): 0

Length (ft): 1

Guard Post: None

Surface Pad:
Dimensions: 12"x12"

Type: Concrete

Annular Seal (grout above well seal):
Material: BENTONITE

Installation Method: Gravity

Bentonite Seal:
Manufacturer: Baroid

Material: BENTONITE 3/8"

Type: Chips

Installation Method: Gravity

Hydration time (hrs): 24

Filter Pack Material:
Manufacturer: K&E

Material: #2 Well Gravel

Size: 0.03

Installation Method: Gravity

Surging time: 0.33

Well Casing (Riser):
Manufacturer: ECT Manufacturing Inc

Type/Material: POLYVINYL CHLORIDE (PVC)

Length: 7.3'

Diameter (in): 2

Well Screen:
Manufacturer: Johnson Screens

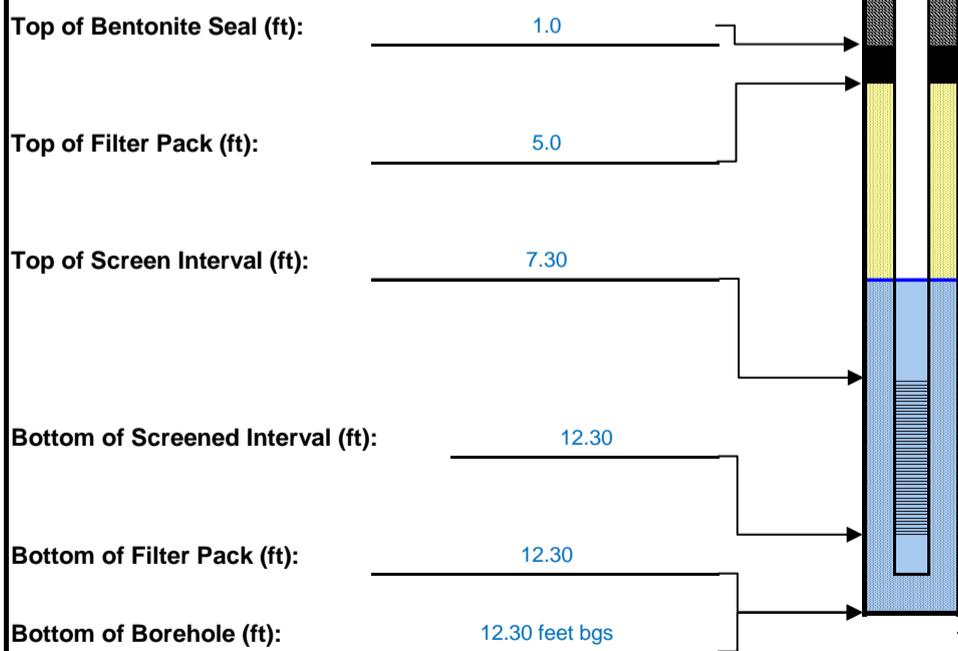
Type/Material: POLYVINYL CHLORIDE (PVC)

Diameter (in): 2

Slot Size (in): 0.010

Slot Type: Factory Slot

Sump/End Cap: Point



Notes: None.

Technician Signature: Jared Walbert

Depths and heights are referenced to ground surface unless specified TOC.
All elevations are referenced to MSL (NAVD 88).

Technician Name (print): Jared Walbert

QA/QC'd by: _____ QA/QC Date: _____



SCREENED WELL CONSTRUCTION FORM

Site Name: Former JB Sims Generating Station, Harbor Island, Grand Haven, MI

Well ID: MW-36

Drilling Subcontractor: Job Site Services

Drilling Personnel: David Mokma & Jeremiah Chapman

Technician Name: Jared Walbert

Other Amec Foster Wheeler Representatives: _____

Project Number: 3650220203.02.02

Location ID: VAS20

Installation Date: 01/30/2023

Decon Performed: Yes

Drilling Method: Direct Push

Measurement Point (riser)
Elevation (ft msl): 589.121

Land Surface Elevation (ft): 585.615

Approximate Diameter of Borehole (in): 3.75 Inches

Depth to Water (ft): 5.60

 During Drilling: 5.60

 Date: 01/30/2023

 Post Development: 5.08

 Date: 02/01/2023

Hydrologic Unit: _____

Water added during drilling (gal): .0

Water removed during development (gal): 15

Protective Casing:
Type: Round Well Monument

Dimensions (in): 4

Stickup (ft): 4

Length (ft): 5

Guard Post: None

Surface Pad:
Dimensions: 12"x12"x6"

Type: Concrete

Annular Seal (grout above well seal):
Material: BENTONITE

Installation Method: Gravity

Bentonite Seal:
Manufacturer: Baroid

Material: BENTONITE 3/8"

Type: Chips

Installation Method: Gravity

Hydration time (hrs): 24

Filter Pack Material:
Manufacturer: K&E

Material: #2 Well Gravel

Size: 0.03

Installation Method: Gravity

Surging time: 0.5

Well Casing (Riser):
Manufacturer: ECT Manufacturing Inc

Type/Material: POLYVINYL CHLORIDE (PVC)

Length: 4'

Diameter (in): 2

Well Screen:
Manufacturer: Johnson Screens

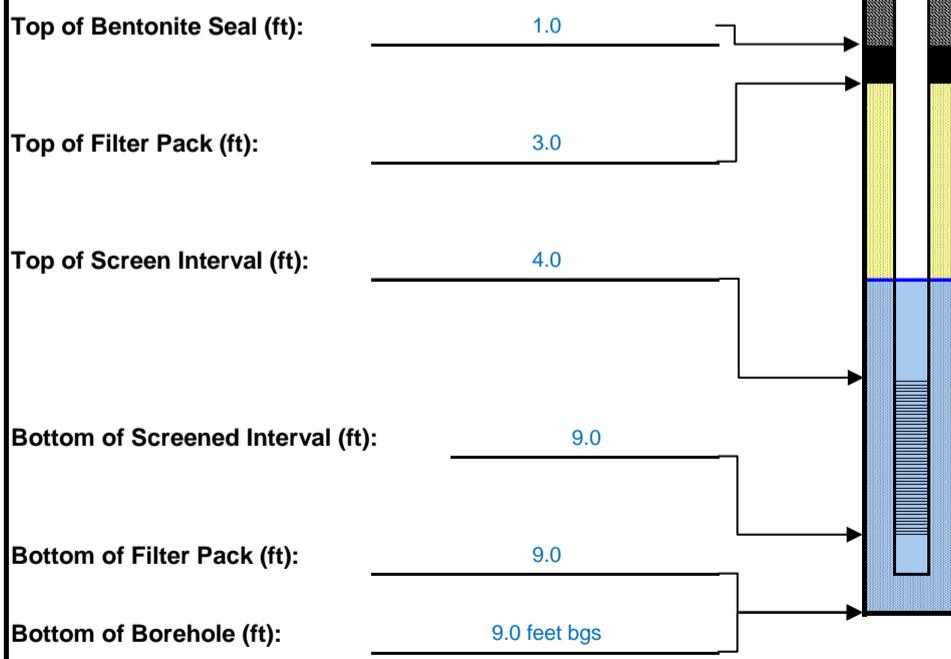
Type/Material: POLYVINYL CHLORIDE (PVC)

Diameter (in): 2

Slot Size (in): 0.010

Slot Type: Factory Slot

Sump/End Cap: Point



Notes: None.

Technician Signature: Jared Walbert

Depths and heights are referenced to ground surface unless specified TOC.
All elevations are referenced to MSL (NAVD 88).

Technician Name (print): Jared Walbert

QA/QC'd by: _____ QA/QC Date: _____



SCREENED WELL CONSTRUCTION FORM

Site Name: Former JB Sims Generating Station, Harbor Island, Grand Haven, MI

Well ID: MW-37

Drilling Subcontractor: Job Site Services

Drilling Personnel: David Mokma & Jeremiah Chapman

Technician Name: Jared Walbert

Other Amec Foster Wheeler Representatives: _____

Project Number: 3650220203.02.02

Location ID: VAS21

Installation Date: 01/30/2023

Decon Performed: Yes

Drilling Method: Direct Push

Measurement Point (riser)
Elevation (ft msl): 589.619

Land Surface Elevation (ft): 585.59

Approximate Diameter of Borehole (in): 3.75 inches

Depth to Water (ft): 5.30

 During Drilling: 5.30

 Date: 01/30/2023

 Post Development: 5.60

 Date: 02/01/2023

Hydrologic Unit: NA

Water added during drilling (gal): .0

Water removed during development (gal): 15

Top of Bentonite Seal (ft): 1.0

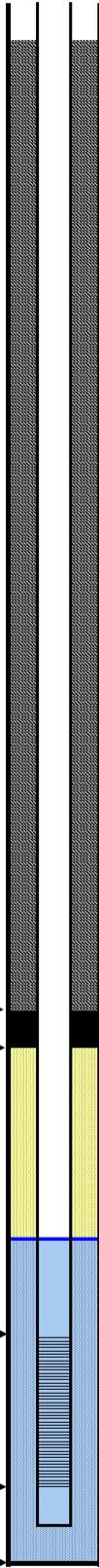
Top of Filter Pack (ft): 3.0

Top of Screen Interval (ft): 4.0

Bottom of Screened Interval (ft): 9.0

Bottom of Filter Pack (ft): 9.0

Bottom of Borehole (ft): 9.0 feet bgs



Protective Casing:
Type: Round Well Monument

Dimensions (in): 4

Stickup (ft): 4

Length (ft): 5

Guard Post: None

Surface Pad:
Dimensions: 12"x12"x6"

Type: Concrete

Annular Seal (grout above well seal):
Material: BENTONITE

Installation Method: Gravity

Bentonite Seal:
Manufacturer: Baroid

Material: BENTONITE 3/8"

Type: Chips

Installation Method: Gravity

Hydration time (hrs): 24

Filter Pack Material:
Manufacturer: K&E

Material: #2 Well Gravel

Size: 0.03

Installation Method: Gravity

Surging time: 0.25

Well Casing (Riser):
Manufacturer: ECT Manufacturing Inc

Type/Material: POLYVINYL CHLORIDE (PVC)

Length: 4

Diameter (in): 2

Well Screen:
Manufacturer: Johnson Screens

Type/Material: POLYVINYL CHLORIDE (PVC)

Diameter (in): 2

Slot Size (in): 0.010

Slot Type: Factory Slot

Sump/End Cap: Point

Notes: None

Technician Signature: Jared Walbert

Depths and heights are referenced to ground surface unless specified TOC.
All elevations are referenced to MSL (NAVD 88).

Technician Name (print): Jared Walbert

QA/QC'd by: _____ QA/QC Date: _____

SCREENED WELL CONSTRUCTION FORM



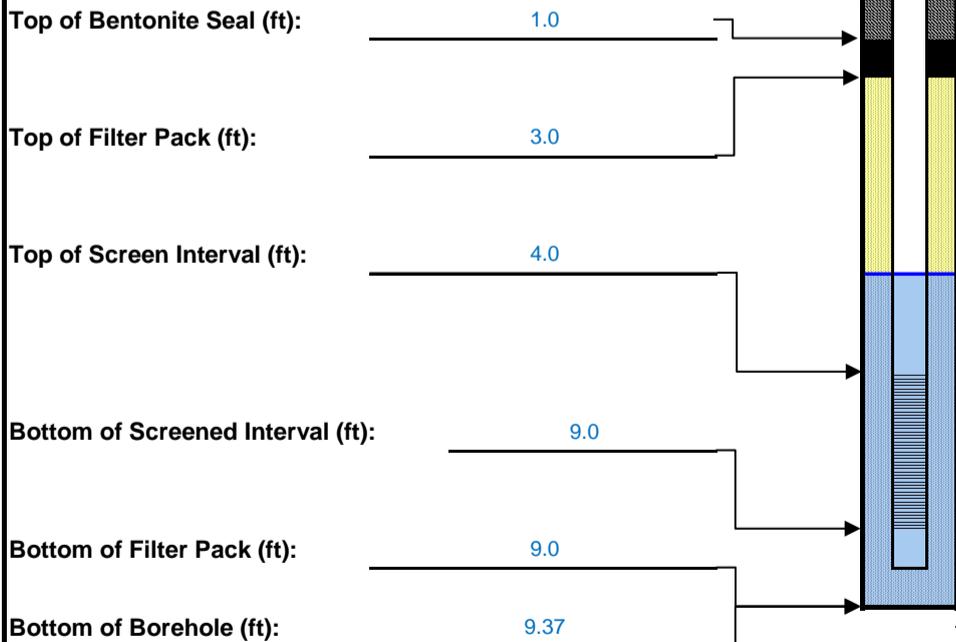
Site Name: Former JB sims generating station, Harbor Island, Grand Haven, MI
Well ID: MW-38
Drilling Subcontractor: Job Site Services
Drilling Personnel: David Mokma & Jeremiah Chapman
Technician Name: Jared Walbert

Project Number: 3650220203.02.02
Location ID: VAS22
Installation Date: 01/30/2023
Decon Performed: Yes
Drilling Method: Direct Push

Other Amec Foster Wheeler Representatives: _____

Measurement Point (riser)
Elevation (ft msl): 590.51
Land Surface Elevation (ft): 586.258
Approximate Diameter of Borehole (in): 3.75
Depth to Water (ft): 5.90
 During Drilling: 5.90
 Date: 01/30/2023
 Post Development: 6.37
 Date: 02/01/2023
Hydrologic Unit: NA

Water added during drilling (gal): .0
Water removed during development (gal): 10.5



Notes:
None.

Protective Casing:
Type: Round Well Monument
Dimensions (in): 4
Stickup (ft): 4
Length (ft): 5
Guard Post: None

Surface Pad:
Dimensions: 12"x12"x6"
Type: Concrete

Annular Seal (grout above well seal):
Material: BENTONITE
Installation Method: Gravity

Bentonite Seal:
Manufacturer: Baroid
Material: BENTONITE 3/8"
Type: Chips
Installation Method: Gravity
Hydration time (hrs): 24

Filter Pack Material:
Manufacturer: K&E
Material: #2 Well Gravel
Size: 0.03
Installation Method: Gravity
Surging time: 0.5

Well Casing (Riser):
Manufacturer: ECT manufacturing inc
Type/Material: POLYVINYL CHLORIDE (PVC)
Length: 4'
Diameter (in): 2

Well Screen:
Manufacturer: Johnson Screens
Type/Material: POLYVINYL CHLORIDE (PVC)
Diameter (in): 2
Slot Size (in): 0.010
Slot Type: Factory Slot

Sump/End Cap: Point

Technician Signature: Jared Walbert

Technician Name (print): Jared Walbert

Depths and heights are referenced to ground surface unless specified TOC.
 All elevations are referenced to MSL (NAVD 88).

QA/QC'd by: _____

QA/QC Date: _____



SCREENED WELL CONSTRUCTION FORM

Site Name: Former JB Sims Generating Station, Harbor Island, Grand Haven, MI

Well ID: MW-39

Drilling Subcontractor: Job Site Services

Drilling Personnel: David Mokma & Jeremiah Chapman

Technician Name: Jared Walbert

Other Amec Foster Wheeler Representatives: _____

Project Number: 3650220203.02.02

Location ID: VAS15

Installation Date: 01/31/2023

Decon Performed: Yes

Drilling Method: Direct Push

Measurement Point (riser)
Elevation (ft msl): 587.359

Land Surface Elevation (ft): 583.272

Approximate Diameter of Borehole (in): 3.75 inches

Depth to Water (ft): 3.10

 During Drilling: 2.76

 Date: 01/31/2023

 Post Development: 3.17

 Date: 02/01/2023

Hydrologic Unit: NA

Water added during drilling (gal): .0

Water removed during development (gal): 15

Protective Casing:
Type: Round Well Monument

Dimensions (in): 4

Stickup (ft): 4.5

Length (ft): 5

Guard Post: None

Surface Pad:
Dimensions: 12"x12"x6"

Type: Concrete

Annular Seal (grout above well seal):
Material: BENTONITE

Installation Method: Gravity

Bentonite Seal:
Manufacturer: Baroid

Material: BENTONITE

Type: Chips

Installation Method: Gravity

Hydration time (hrs): 24

Filter Pack Material:
Manufacturer: K&E

Material: #2 Well Gravel

Size: 0.03

Installation Method: Gravity

Surging time: 0.5

Well Casing (Riser):
Manufacturer: ECT Manufacturing inc

Type/Material: POLYVINYL CHLORIDE (PVC)

Length: 2'

Diameter (in): 2

Well Screen:
Manufacturer: Johnson Screens

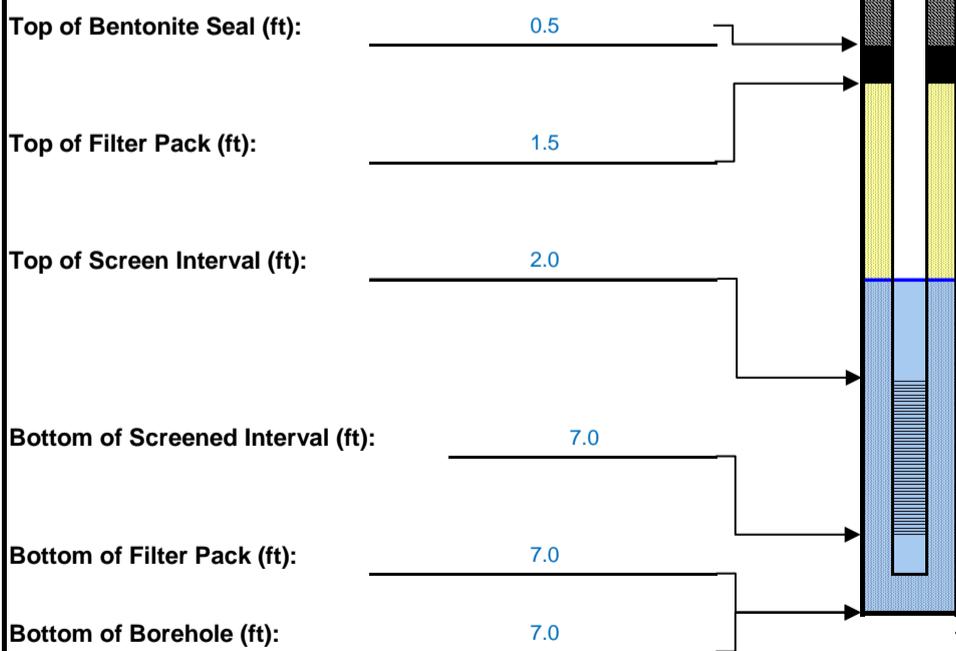
Type/Material: POLYVINYL CHLORIDE (PVC)

Diameter (in): 2

Slot Size (in): 0.010

Slot Type: Factory Slot

Sump/End Cap: Point



Notes: None.

Technician Signature: Jared Walbert

Depths and heights are referenced to ground surface unless specified TOC.
All elevations are referenced to MSL (NAVD 88).

Technician Name (print): Jared Walbert

QA/QC'd by: _____ QA/QC Date: _____

SCREENED WELL CONSTRUCTION FORM



| | |
|---|---|
| Site Name: Former JB Sims Generating Station | Project Number: 3650220203.02.02 |
| Well ID: MW-40 | Location ID: VAS16 |
| Drilling Subcontractor: Job Site Services | Installation Date: 01/31/2023 |
| Drilling Personnel: David Mokma & Jeremiah Chapman | Decon Performed: Yes |
| Technician Name: Jared Walbert | Drilling Method: Direct Push |
| Other Amec Foster Wheeler Representatives: _____ | None. |

| | |
|--|--|
| Measurement Point (riser) | |
| Elevation (ft msl): 586.783 | |
| Land Surface Elevation (ft): 582.748 | |
| Approximate Diameter of Borehole (in): 3.75 | |
| Depth to Water (ft): 3.10 | |
| During Drilling: 1.50 | |
| Date: 01/31/2023 | |
| Post Development: 1.46 | |
| Date: 02/01/2023 | |
| Hydrologic Unit: NA | |
| Water added during drilling (gal): .0 | |
| Water removed during development (gal): 10 | |
| Top of Bentonite Seal (ft): 0.5 | |
| Top of Filter Pack (ft): 1.25 | |
| Top of Screen Interval (ft): 1.5 | |
| Bottom of Screened Interval (ft): 6.5 | |
| Bottom of Filter Pack (ft): 6.5 | |
| Bottom of Borehole (ft): 6.5 | |

| | |
|--|--|
| Protective Casing: | |
| Type: Round Well Monument | |
| Dimensions (in): 4 | |
| Stickup (ft): 4 | |
| Length (ft): 5 | |
| Guard Post: None | |
| Surface Pad: | |
| Dimensions: 12"x12"x6" | |
| Type: Concrete | |
| Annular Seal (grout above well seal): | |
| Material: BENTONITE | |
| Installation Method: Gravity | |
| Bentonite Seal: | |
| Manufacturer: Baroid | |
| Material: BENTONITE 3/8" | |
| Type: Chips | |
| Installation Method: Gravity | |
| Hydration time (hrs): 24 | |
| Filter Pack Material: | |
| Manufacturer: K&E | |
| Material: #2 Well Gravel | |
| Size: 0.03 | |
| Installation Method: Gravity | |
| Surging time: 0.5 | |
| Well Casing (Riser): | |
| Manufacturer: ECT Manufacturing | |
| Type/Material: POLYVINYL CHLORIDE (PVC) | |
| Length: 1.5 | |
| Diameter (in): 2 | |
| Well Screen: | |
| Manufacturer: Johnson Screens | |
| Type/Material: POLYVINYL CHLORIDE (PVC) | |
| Diameter (in): 2 | |
| Slot Size (in): 0.010 | |
| Slot Type: Factory Slot | |
| Sump/End Cap: Point | |

Notes: None

Technician Signature:

Technician Name (print): Jared Walbert

QA/QC'd by: _____ QA/QC Date: _____

Depths and heights are referenced to ground surface unless specified TOC.
All elevations are referenced to MSL (NAVD 88).

Appendix E

Monitoring Well Development Logs

Appendix F

Laboratory Analytical Reports



Analytical Laboratory Report

Revised Report

Report ID: S43008.01(02)
Generated on 01/10/2023
Replaces report S43008.01(01) generated on 12/27/2022

Report to

Attention: Saamih Bashir
WSP
45850 Magellan Drive, Suite 190
Novi, MI 48377

Phone: n/a FAX:
Email: Saamih.Bashir@wsp.com

Additional Contacts: Jared Walbert

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S43008.01-S43008.10
Project: Former JB Sims Generating Station, Harbor Island, GrandHaven
Collected Date(s): 11/29/2022 - 12/01/2022
Submitted Date/Time: 12/02/2022 08:15
Sampled by: Jared Walbert
P.O. #: C012407104

Table of Contents

- Cover Page (Page 1)
- General Report Notes (Page 2)
- Report Narrative (Page 2)
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- Method Summary (Page 4)
- Sample Summary (Page 5)

Maya Murshak
Technical Director



General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

Report Narrative

Reported down to MDL



Laboratory Certifications

| Authority | Certification ID |
|---------------------|------------------|
| Michigan DEQ | #9956 |
| DOD ELAP/ISO 17025 | #69699 |
| WBENC | #2005110032 |
| Ohio VAP | #CL0002 |
| Indiana DOH | #C-MI-07 |
| New York NELAC | #11814 |
| North Carolina DENR | #680 |
| North Carolina DOH | #26702 |
| Alaska CSLAP | #17-001 |
| Pennsylvania DEP | #68-05884 |
| Wisconsin DNR | FID# 399147320 |

Qualifier Descriptions

| Qualifier | Description |
|-----------|---|
| ! | Result is outside of stated limit criteria |
| B | Compound also found in associated method blank |
| E | Concentration exceeds calibration range |
| F | Analysis run outside of holding time |
| G | Estimated result due to extraction run outside of holding time |
| H | Sample submitted and run outside of holding time |
| I | Matrix interference with internal standard |
| J | Estimated value less than reporting limit, but greater than MDL |
| L | Elevated reporting limit due to low sample amount |
| M | Result reported to MDL not RDL |
| O | Analysis performed by outside laboratory. See attached report. |
| R | Preliminary result |
| S | Surrogate recovery outside of control limits |
| T | No correction for total solids |
| X | Elevated reporting limit due to matrix interference |
| Y | Elevated reporting limit due to high target concentration |
| b | Value detected less than reporting limit, but greater than MDL |
| e | Reported value estimated due to interference |
| j | Analyte also found in associated method blank |
| p | Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak. |
| x | Preserved from bulk sample |

Glossary of Abbreviations

| Abbreviation | Description |
|--------------|--|
| RL/RDL | Reporting Limit |
| MDL | Method Detection Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| SW | EPA SW 846 (Soil and Wastewater) Methods |
| E | EPA Methods |
| SM | Standard Methods |
| LN | Linear |
| BR | Branched |

Method Summary

| Method | Version |
|---------------|---|
| ASTMD7979-19M | ASTM Method D7979 - 19 Modified (Isotopic Dilution) |

Parameter Summary

| Parameter | Synonym | Cas # |
|------------------|--|--------------|
| PFBA | Perfluorobutanoic Acid | 375-22-4 |
| PFPeA | Perfluoropentanoic Acid | 2706-90-3 |
| 4:2 FTSA | 4:2 Fluorotelomer Sulfonic Acid | 757124-72-4 |
| PFHxA | Perfluorohexanoic Acid | 307-24-4 |
| PFBS | Perfluorobutane sulfonic Acid | 375-73-5 |
| PFHpA | Perfluoroheptanoic Acid | 375-85-9 |
| PFPeS | Perfluoropentane Sulfonic Acid | 2706-91-4 |
| 6:2 FTSA | 6:2 Fluorotelomer Sulfonic Acid | 27619-97-2 |
| PFOA | Perfluorooctanoic Acid | 335-67-1 |
| PFHxS | Perfluorohexane Sulfonic Acid | 355-46-4 |
| PFHxS-LN | Perfluorohexane Sulfonic Acid - LN | 355-46-4-LN |
| PFHxS-BR | Perfluorohexane Sulfonic Acid - BR | 355-46-4-BR |
| PFNA | Perfluorononanoic Acid | 375-95-1 |
| 8:2 FTSA | 8:2 Fluorotelomer Sulfonic Acid | 39108-34-4 |
| PFHpS | Perfluoroheptane Sulfonic Acid | 375-92-8 |
| PFDA | Perfluorodecanoic Acid | 335-76-2 |
| N-MeFOSAA | N-methyl perfluorooctanesulfonamidoacetic acid | 2355-31-9 |
| EtFOSAA | N-Ethyl Perfluorooctane Sulfonamidoacetic Acid | 2991-50-6 |
| PFOS | Perfluorooctane Sulfonic Acid | 1763-23-1 |
| PFOS-LN | Perfluorooctane Sulfonic Acid - LN | 1763-23-1-LN |
| PFOS-BR | Perfluorooctane Sulfonic Acid - BR | 1763-23-1-BR |
| PFUnDA | Perfluoroundecanoic Acid | 2058-94-8 |
| PFNS | Perfluorononane Sulfonic Acid | 68259-12-1 |
| PFDoDA | Perfluorododecanoic Acid | 307-55-1 |
| PFDS | Perfluorodecane Sulfonic Acid | 335-77-3 |
| PFTTrDA | Perfluorotridecanoic Acid | 72629-94-8 |
| FOSA | Perfluorooctane Sulfonamide | 754-91-6 |
| PFTeDA | Perfluorotetradecanoic Acid | 376-06-7 |
| 11Cl-PF3OUdS | 11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid | 763051-92-9 |
| 9Cl-PF3ONS | 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid | 756426-58-1 |
| ADONA | 4,8-dioxa-3H-perfluorononanoic acid | 919005-14-4 |
| HFPO-DA | Hexafluoropropylene oxide dimer | 13252-13-6 |
| FHpPA (7:3 FTCA) | 3-Perfluoroheptyl propanoic acid | 812-70-4 |
| FPePA (5:3 FTCA) | 3-Perfluoropentyl propanoic acid | 914637-49-3 |
| FPrPA (3:3 FTCA) | 3-Perfluoropropyl propanoic acid | 356-02-5 |
| PFBSA | Perfluorobutanesulfonamide | 30334-69-1 |
| PFECHS | Perfluoro-4-ethylcyclohexanesulfonate | 67584-42-3 |
| PFHxSA | Perfluorohexanesulfonamide | 41997-13-1 |



Sample Summary (10 samples)

| Sample ID | Sample Tag | Matrix | Collected Date/Time |
|-----------|-----------------|-------------|---------------------|
| S43008.01 | GP-01 | Groundwater | 11/29/22 09:50 |
| S43008.02 | GP-02 | Groundwater | 11/29/22 11:40 |
| S43008.03 | VAS01-3-7 | Groundwater | 11/29/22 13:25 |
| S43008.04 | VAS02-5-10 | Groundwater | 11/29/22 16:00 |
| S43008.05 | VAS02-16-20 | Groundwater | 11/29/22 18:20 |
| S43008.06 | VAS03-2-7 | Groundwater | 11/30/22 10:05 |
| S43008.07 | VAS03-16-20 | Groundwater | 11/30/22 12:15 |
| S43008.08 | VAS04-16-20 | Groundwater | 11/30/22 16:25 |
| S43008.09 | DUP-01-01122022 | Groundwater | 12/01/22 00:00 |
| S43008.10 | VAS05-16-20 | Groundwater | 12/01/22 11:45 |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43008.01

Sample Tag: GP-01

Collected Date/Time: 11/29/2022 09:50

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.2 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.42/6.58/10 | ASTMD7979-19M | 12/02/22 14:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/05/22 19:01, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | Not detected | 12 | 10 | ng/L | 2.07 | 375-22-4 | X |
| PFPeA* | 5.6 | 4.1 | 1.0 | ng/L | 2.07 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.1 | 1.7 | ng/L | 2.07 | 757124-72-4 | |
| PFHxA* | 11 | 2.1 | 1.4 | ng/L | 2.07 | 307-24-4 | |
| PFBS* | 9.0 | 2.1 | 1.4 | ng/L | 2.07 | 375-73-5 | |
| PFHpA* | 7.3 | 2.1 | 1.4 | ng/L | 2.07 | 375-85-9 | |
| PFPeS* | Not detected | 2.1 | 1.9 | ng/L | 2.07 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.1 | 2.1 | ng/L | 2.07 | 27619-97-2 | |
| PFOA* | 93 | 2.1 | 1.7 | ng/L | 2.07 | 335-67-1 | |
| PFHxS* | 13 | 2.1 | 1.7 | ng/L | 2.07 | 355-46-4 | |
| PFHxS-LN* | 11 | 2.1 | 1.7 | ng/L | 2.07 | 355-46-4-LN | |
| PFHxS-BR* | 2.2 | 2.1 | 1.7 | ng/L | 2.07 | 355-46-4-BR | |
| PFNA* | Not detected | 2.1 | 1.9 | ng/L | 2.07 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.1 | 1.0 | ng/L | 2.07 | 39108-34-4 | |
| PFHpS* | Not detected | 2.1 | 2.1 | ng/L | 2.07 | 375-92-8 | |
| PFDA* | Not detected | 2.1 | 2.1 | ng/L | 2.07 | 335-76-2 | |
| N-MeFOSAA* | 3.5 | 2.1 | 2.1 | ng/L | 2.07 | 2355-31-9 | |
| EtFOSAA* | 31 | 4.1 | 2.1 | ng/L | 2.07 | 2991-50-6 | |
| PFOS* | 92 | 2.1 | 2.0 | ng/L | 2.07 | 1763-23-1 | |
| PFOS-LN* | 51 | 2.1 | 2.0 | ng/L | 2.07 | 1763-23-1-LN | |
| PFOS-BR* | 39 | 2.1 | 2.0 | ng/L | 2.07 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.1 | 1.4 | ng/L | 2.07 | 2058-94-8 | |
| PFNS* | Not detected | 2.1 | 1.4 | ng/L | 2.07 | 68259-12-1 | |
| PFDODA* | Not detected | 2.1 | 1.7 | ng/L | 2.07 | 307-55-1 | |
| PFDS* | Not detected | 2.1 | 1.4 | ng/L | 2.07 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.1 | 1.2 | ng/L | 2.07 | 72629-94-8 | |
| FOSA* | Not detected | 2.1 | 1.9 | ng/L | 2.07 | 754-91-6 | |
| PFTeDA* | Not detected | 4.1 | 1.9 | ng/L | 2.07 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.1 | 1.9 | ng/L | 2.07 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.1 | 1.4 | ng/L | 2.07 | 756426-58-1 | |
| ADONA* | Not detected | 2.1 | 2.1 | ng/L | 2.07 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.1 | ng/L | 2.07 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.1 | 3.1 | ng/L | 2.07 | 812-70-4 | |
| FPePA (5:3 FTCA)* | 4.6 | 4.7 | 2.3 | ng/L | 2.07 | 914637-49-3 | J |
| FPrPA (3:3 FTCA)* | Not detected | 4.1 | 1.2 | ng/L | 2.07 | 356-02-5 | |

X-Elevated reporting limit due to matrix interference

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43008.01 (continued)

Sample Tag: GP-01

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/05/22 19:01, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|-----|-------|----------|------------|-------|
| PFBSA* | 1.3 | 2.1 | 1.2 | ng/L | 2.07 | 30334-69-1 | J |
| PFECHS* | 16 | 2.1 | 1.2 | ng/L | 2.07 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.1 | 1.0 | ng/L | 2.07 | 41997-13-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43008.02

Sample Tag: GP-02

Collected Date/Time: 11/29/2022 11:40

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.2 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.35/6.57/11 | ASTMD7979-19M | 12/02/22 14:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/05/22 19:20, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 19 | 9.5 | 9.5 | ng/L | 1.9 | 375-22-4 | |
| PFPeA* | 29 | 3.8 | 0.95 | ng/L | 1.9 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 1.5 | ng/L | 1.9 | 757124-72-4 | |
| PFHxA* | 28 | 1.9 | 1.3 | ng/L | 1.9 | 307-24-4 | |
| PFBS* | 3.8 | 1.9 | 1.3 | ng/L | 1.9 | 375-73-5 | |
| PFHpA* | 9.9 | 1.9 | 1.3 | ng/L | 1.9 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.9 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.9 | ng/L | 1.9 | 27619-97-2 | |
| PFOA* | 37 | 1.9 | 1.5 | ng/L | 1.9 | 335-67-1 | |
| PFHxS* | 2.0 | 1.9 | 1.5 | ng/L | 1.9 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.5 | ng/L | 1.9 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.5 | ng/L | 1.9 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 1.7 | ng/L | 1.9 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.9 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.9 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.9 | 2355-31-9 | |
| EtFOSAA* | 6.9 | 3.8 | 1.9 | ng/L | 1.9 | 2991-50-6 | |
| PFOS* | 5.9 | 1.9 | 1.9 | ng/L | 1.9 | 1763-23-1 | |
| PFOS-LN* | 2.8 | 1.9 | 1.9 | ng/L | 1.9 | 1763-23-1-LN | |
| PFOS-BR* | 3.0 | 1.9 | 1.9 | ng/L | 1.9 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.3 | ng/L | 1.9 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.3 | ng/L | 1.9 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.9 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.3 | ng/L | 1.9 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.1 | ng/L | 1.9 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.9 | 754-91-6 | |
| PFTeDA* | Not detected | 3.8 | 1.7 | ng/L | 1.9 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.9 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.3 | ng/L | 1.9 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.9 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.5 | 1.9 | ng/L | 1.9 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.8 | 2.9 | ng/L | 1.9 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.8 | 2.1 | ng/L | 1.9 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.8 | 1.1 | ng/L | 1.9 | 356-02-5 | |
| PFBSA* | 2.3 | 1.9 | 1.1 | ng/L | 1.9 | 30334-69-1 | |
| PFECHS* | 7.1 | 1.9 | 1.1 | ng/L | 1.9 | 67584-42-3 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43008.02 (continued)

Sample Tag: GP-02

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/05/22 19:20, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 41997-13-1 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43008.03

Sample Tag: VAS01-3-7

Collected Date/Time: 11/29/2022 13:25

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.2 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.11/6.52/11 | ASTMD7979-19M | 12/02/22 14:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/05/22 19:40, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 15 | 9.9 | 9.9 | ng/L | 1.97 | 375-22-4 | |
| PFPeA* | 9.5 | 3.9 | 0.99 | ng/L | 1.97 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 757124-72-4 | |
| PFHxA* | 11 | 2.0 | 1.4 | ng/L | 1.97 | 307-24-4 | |
| PFBS* | 6.4 | 2.0 | 1.4 | ng/L | 1.97 | 375-73-5 | |
| PFHpA* | 8.0 | 2.0 | 1.4 | ng/L | 1.97 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 1.97 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 27619-97-2 | |
| PFOA* | 15 | 2.0 | 1.6 | ng/L | 1.97 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.97 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.97 | 2991-50-6 | |
| PFOS* | 3.1 | 2.0 | 1.9 | ng/L | 1.97 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 1.9 | ng/L | 1.97 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 1.9 | ng/L | 1.97 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.97 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.8 | ng/L | 1.97 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.97 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.9 | 2.0 | ng/L | 1.97 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 3.0 | ng/L | 1.97 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.2 | ng/L | 1.97 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.97 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 30334-69-1 | |
| PFECHS* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 67584-42-3 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43008.03 (continued)

Sample Tag: VAS01-3-7

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/05/22 19:40, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 41997-13-1 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43008.04

Sample Tag: VAS02-5-10

Collected Date/Time: 11/29/2022 16:00

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.2 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.18/6.50/11 | ASTMD7979-19M | 12/02/22 14:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/05/22 20:19, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 15 | 9.7 | 9.7 | ng/L | 1.94 | 375-22-4 | |
| PFPeA* | 12 | 3.9 | 0.97 | ng/L | 1.94 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 1.6 | ng/L | 1.94 | 757124-72-4 | |
| PFHxA* | 9.3 | 1.9 | 1.4 | ng/L | 1.94 | 307-24-4 | |
| PFBS* | 2.5 | 1.9 | 1.4 | ng/L | 1.94 | 375-73-5 | |
| PFHpA* | 4.6 | 1.9 | 1.4 | ng/L | 1.94 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.94 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 27619-97-2 | |
| PFOA* | 6.4 | 1.9 | 1.6 | ng/L | 1.94 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.6 | ng/L | 1.94 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.6 | ng/L | 1.94 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.6 | ng/L | 1.94 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 1.7 | ng/L | 1.94 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 1.9 | ng/L | 1.94 | 2991-50-6 | |
| PFOS* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.4 | ng/L | 1.94 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.4 | ng/L | 1.94 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.6 | ng/L | 1.94 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.4 | ng/L | 1.94 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.94 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.7 | ng/L | 1.94 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.94 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.4 | ng/L | 1.94 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.7 | 1.9 | ng/L | 1.94 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.9 | ng/L | 1.94 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.1 | ng/L | 1.94 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.94 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 30334-69-1 | |
| PFECHS* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 67584-42-3 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43008.04 (continued)

Sample Tag: VAS02-5-10

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/05/22 20:19, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 41997-13-1 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43008.05

Sample Tag: VAS02-16-20

Collected Date/Time: 11/29/2022 18:20

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.2 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.28/6.53/11 | ASTMD7979-19M | 12/02/22 14:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/05/22 20:58, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 11 | 9.6 | ng/L | 1.91 | 375-22-4 | X |
| PFPeA* | Not detected | 3.8 | 0.96 | ng/L | 1.91 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 1.5 | ng/L | 1.91 | 757124-72-4 | |
| PFHxA* | 2.7 | 1.9 | 1.3 | ng/L | 1.91 | 307-24-4 | |
| PFBS* | Not detected | 1.9 | 1.3 | ng/L | 1.91 | 375-73-5 | |
| PFHpA* | Not detected | 1.9 | 1.3 | ng/L | 1.91 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.91 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.9 | ng/L | 1.91 | 27619-97-2 | |
| PFOA* | Not detected | 1.9 | 1.5 | ng/L | 1.91 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.5 | ng/L | 1.91 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.5 | ng/L | 1.91 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.5 | ng/L | 1.91 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 1.7 | ng/L | 1.91 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.96 | ng/L | 1.91 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.91 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.91 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.91 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.8 | 1.9 | ng/L | 1.91 | 2991-50-6 | |
| PFOS* | Not detected | 1.9 | 1.9 | ng/L | 1.91 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.9 | 1.9 | ng/L | 1.91 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.9 | 1.9 | ng/L | 1.91 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.3 | ng/L | 1.91 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.3 | ng/L | 1.91 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.91 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.3 | ng/L | 1.91 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.1 | ng/L | 1.91 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.91 | 754-91-6 | |
| PFTeDA* | Not detected | 3.8 | 1.7 | ng/L | 1.91 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.91 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.3 | ng/L | 1.91 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.91 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.6 | 1.9 | ng/L | 1.91 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.8 | 2.9 | ng/L | 1.91 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.8 | 2.1 | ng/L | 1.91 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.8 | 1.1 | ng/L | 1.91 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.1 | ng/L | 1.91 | 30334-69-1 | |

X-Elevated reporting limit due to matrix interference



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43008.05 (continued)

Sample Tag: VAS02-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/05/22 20:58, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 1.9 | 1.1 | ng/L | 1.91 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.9 | 0.96 | ng/L | 1.91 | 41997-13-1 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43008.06

Sample Tag: VAS03-2-7

Collected Date/Time: 11/30/2022 10:05

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.2 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.01/6.56/10 | ASTMD7979-19M | 12/02/22 14:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/05/22 21:17, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.2 | 9.2 | ng/L | 1.83 | 375-22-4 | |
| PFPeA* | Not detected | 3.7 | 0.92 | ng/L | 1.83 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.8 | 1.5 | ng/L | 1.83 | 757124-72-4 | |
| PFHxA* | 1.4 | 1.8 | 1.3 | ng/L | 1.83 | 307-24-4 | J |
| PFBS* | 2.0 | 1.8 | 1.3 | ng/L | 1.83 | 375-73-5 | |
| PFHpA* | Not detected | 1.8 | 1.3 | ng/L | 1.83 | 375-85-9 | |
| PFPeS* | Not detected | 1.8 | 1.6 | ng/L | 1.83 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.8 | 1.8 | ng/L | 1.83 | 27619-97-2 | |
| PFOA* | 1.5 | 1.8 | 1.5 | ng/L | 1.83 | 335-67-1 | J |
| PFHxS* | Not detected | 1.8 | 1.5 | ng/L | 1.83 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.8 | 1.5 | ng/L | 1.83 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.8 | 1.5 | ng/L | 1.83 | 355-46-4-BR | |
| PFNA* | Not detected | 1.8 | 1.6 | ng/L | 1.83 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.8 | 0.92 | ng/L | 1.83 | 39108-34-4 | |
| PFHpS* | Not detected | 1.8 | 1.8 | ng/L | 1.83 | 375-92-8 | |
| PFDA* | Not detected | 1.8 | 1.8 | ng/L | 1.83 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.8 | 1.8 | ng/L | 1.83 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.7 | 1.8 | ng/L | 1.83 | 2991-50-6 | |
| PFOS* | 2.0 | 1.8 | 1.8 | ng/L | 1.83 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.8 | 1.8 | ng/L | 1.83 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.8 | 1.8 | ng/L | 1.83 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.8 | 1.3 | ng/L | 1.83 | 2058-94-8 | |
| PFNS* | Not detected | 1.8 | 1.3 | ng/L | 1.83 | 68259-12-1 | |
| PFDODA* | Not detected | 1.8 | 1.5 | ng/L | 1.83 | 307-55-1 | |
| PFDS* | Not detected | 1.8 | 1.3 | ng/L | 1.83 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.8 | 1.1 | ng/L | 1.83 | 72629-94-8 | |
| FOSA* | Not detected | 1.8 | 1.6 | ng/L | 1.83 | 754-91-6 | |
| PFTeDA* | Not detected | 3.7 | 1.6 | ng/L | 1.83 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.8 | 1.6 | ng/L | 1.83 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.8 | 1.3 | ng/L | 1.83 | 756426-58-1 | |
| ADONA* | Not detected | 1.8 | 1.8 | ng/L | 1.83 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.2 | 1.8 | ng/L | 1.83 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.7 | 2.7 | ng/L | 1.83 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.7 | 2.0 | ng/L | 1.83 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.7 | 1.1 | ng/L | 1.83 | 356-02-5 | |
| PFBSA* | Not detected | 1.8 | 1.1 | ng/L | 1.83 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43008.06 (continued)

Sample Tag: VAS03-2-7

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/05/22 21:17, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 1.8 | 1.1 | ng/L | 1.83 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.8 | 0.92 | ng/L | 1.83 | 41997-13-1 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43008.07

Sample Tag: VAS03-16-20

Collected Date/Time: 11/30/2022 12:15

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.2 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.50/6.51/11 | ASTMD7979-19M | 12/02/22 14:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/05/22 21:37, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.2 | 9.2 | ng/L | 1.84 | 375-22-4 | |
| PFPeA* | Not detected | 3.7 | 0.92 | ng/L | 1.84 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.8 | 1.5 | ng/L | 1.84 | 757124-72-4 | |
| PFHxA* | 1.7 | 1.8 | 1.3 | ng/L | 1.84 | 307-24-4 | J |
| PFBS* | Not detected | 1.8 | 1.3 | ng/L | 1.84 | 375-73-5 | |
| PFHpA* | Not detected | 1.8 | 1.3 | ng/L | 1.84 | 375-85-9 | |
| PFPeS* | Not detected | 1.8 | 1.7 | ng/L | 1.84 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.8 | 1.8 | ng/L | 1.84 | 27619-97-2 | |
| PFOA* | Not detected | 1.8 | 1.5 | ng/L | 1.84 | 335-67-1 | |
| PFHxS* | Not detected | 1.8 | 1.5 | ng/L | 1.84 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.8 | 1.5 | ng/L | 1.84 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.8 | 1.5 | ng/L | 1.84 | 355-46-4-BR | |
| PFNA* | Not detected | 1.8 | 1.7 | ng/L | 1.84 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.8 | 0.92 | ng/L | 1.84 | 39108-34-4 | |
| PFHpS* | Not detected | 1.8 | 1.8 | ng/L | 1.84 | 375-92-8 | |
| PFDA* | Not detected | 1.8 | 1.8 | ng/L | 1.84 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.8 | 1.8 | ng/L | 1.84 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.7 | 1.8 | ng/L | 1.84 | 2991-50-6 | |
| PFOS* | Not detected | 1.8 | 1.8 | ng/L | 1.84 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.8 | 1.8 | ng/L | 1.84 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.8 | 1.8 | ng/L | 1.84 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.8 | 1.3 | ng/L | 1.84 | 2058-94-8 | |
| PFNS* | Not detected | 1.8 | 1.3 | ng/L | 1.84 | 68259-12-1 | |
| PFDODA* | Not detected | 1.8 | 1.5 | ng/L | 1.84 | 307-55-1 | |
| PFDS* | Not detected | 1.8 | 1.3 | ng/L | 1.84 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.8 | 1.1 | ng/L | 1.84 | 72629-94-8 | |
| FOSA* | Not detected | 1.8 | 1.7 | ng/L | 1.84 | 754-91-6 | |
| PFTeDA* | Not detected | 3.7 | 1.7 | ng/L | 1.84 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.8 | 1.7 | ng/L | 1.84 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.8 | 1.3 | ng/L | 1.84 | 756426-58-1 | |
| ADONA* | Not detected | 1.8 | 1.8 | ng/L | 1.84 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.2 | 1.8 | ng/L | 1.84 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.7 | 2.8 | ng/L | 1.84 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.7 | 2.0 | ng/L | 1.84 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.7 | 1.1 | ng/L | 1.84 | 356-02-5 | |
| PFBSA* | Not detected | 1.8 | 1.1 | ng/L | 1.84 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43008.07 (continued)

Sample Tag: VAS03-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/05/22 21:37, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 1.8 | 1.1 | ng/L | 1.84 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.8 | 0.92 | ng/L | 1.84 | 41997-13-1 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43008.08

Sample Tag: VAS04-16-20

Collected Date/Time: 11/30/2022 16:25

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.2 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.50/6.54/10 | ASTMD7979-19M | 12/02/22 14:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/05/22 21:56, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | Not detected | 10 | 10 | ng/L | 2.02 | 375-22-4 | |
| PFPeA* | Not detected | 4.0 | 1.0 | ng/L | 2.02 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 2.02 | 757124-72-4 | |
| PFHxA* | Not detected | 2.0 | 1.4 | ng/L | 2.02 | 307-24-4 | |
| PFBS* | Not detected | 2.0 | 1.4 | ng/L | 2.02 | 375-73-5 | |
| PFHpA* | Not detected | 2.0 | 1.4 | ng/L | 2.02 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 2.02 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 2.02 | 27619-97-2 | |
| PFOA* | Not detected | 2.0 | 1.6 | ng/L | 2.02 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.6 | ng/L | 2.02 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.6 | ng/L | 2.02 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 2.02 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 2.02 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 2.02 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 2.02 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 2.02 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 2.02 | 2991-50-6 | |
| PFOS* | Not detected | 2.0 | 2.0 | ng/L | 2.02 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 2.0 | ng/L | 2.02 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 2.0 | ng/L | 2.02 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 2.02 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 2.02 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 2.02 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 2.02 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 2.02 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 2.02 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 2.02 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 2.02 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 2.02 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.0 | ng/L | 2.02 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 2.02 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 2.02 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 2.02 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 30334-69-1 | |
| PFECHS* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 67584-42-3 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43008.08 (continued)

Sample Tag: VAS04-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/05/22 21:56, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|-----|-------|----------|------------|-------|
| PFHxSA* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 41997-13-1 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43008.09

Sample Tag: DUP-01-01122022

Collected Date/Time: 12/01/2022 00:00

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.2 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.11/6.53/11 | ASTMD7979-19M | 12/02/22 14:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/05/22 22:16, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 12 | 9.9 | 9.9 | ng/L | 1.97 | 375-22-4 | |
| PFPeA* | 1.8 | 3.9 | 0.99 | ng/L | 1.97 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 757124-72-4 | |
| PFHxA* | 3.5 | 2.0 | 1.4 | ng/L | 1.97 | 307-24-4 | |
| PFBS* | 2.0 | 2.0 | 1.4 | ng/L | 1.97 | 375-73-5 | |
| PFHpA* | 2.5 | 2.0 | 1.4 | ng/L | 1.97 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 1.97 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 27619-97-2 | |
| PFOA* | 8.5 | 2.0 | 1.6 | ng/L | 1.97 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 355-46-4-BR | |
| PFNA* | 2.5 | 2.0 | 1.8 | ng/L | 1.97 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.97 | 2991-50-6 | |
| PFOS* | 9.7 | 2.0 | 1.9 | ng/L | 1.97 | 1763-23-1 | |
| PFOS-LN* | 3.1 | 2.0 | 1.9 | ng/L | 1.97 | 1763-23-1-LN | |
| PFOS-BR* | 6.5 | 2.0 | 1.9 | ng/L | 1.97 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.97 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.8 | ng/L | 1.97 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.97 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.9 | 2.0 | ng/L | 1.97 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 3.0 | ng/L | 1.97 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.2 | ng/L | 1.97 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.97 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43008.09 (continued)

Sample Tag: DUP-01-01122022

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/05/22 22:16, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 41997-13-1 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43008.10

Sample Tag: VAS05-16-20

Collected Date/Time: 12/01/2022 11:45

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.2 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.58/6.56/12 | ASTMD7979-19M | 12/02/22 14:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/05/22 22:35, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|------|------|-------|----------|--------------|-------|
| PFBA* | 40 | 10.0 | 10.0 | ng/L | 1.99 | 375-22-4 | |
| PFPeA* | 8.6 | 4.0 | 1.00 | ng/L | 1.99 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 757124-72-4 | |
| PFHxA* | 11 | 2.0 | 1.4 | ng/L | 1.99 | 307-24-4 | |
| PFBS* | 2.6 | 2.0 | 1.4 | ng/L | 1.99 | 375-73-5 | |
| PFHpA* | 2.0 | 2.0 | 1.4 | ng/L | 1.99 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 27619-97-2 | |
| PFOA* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 1.99 | 2991-50-6 | |
| PFOS* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 1.99 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10.0 | 2.0 | ng/L | 1.99 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 1.99 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 1.99 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 1.99 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 30334-69-1 | |
| PFECHS* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 67584-42-3 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43008.10 (continued)

Sample Tag: VAS05-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/05/22 22:35, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 41997-13-1 | |

Merit Laboratories Login Checklist

Lab Set ID:S43008

Client:WSP (WSP)

Project: Former JB Sims Generating Station, Harbor Island, GrandHaven

Submitted: 12/02/2022 08:15 Login User: MMC

Attention: Saamih Bashir

Address: WSP

45850 Magellan Drive, Suite 190

Novi, MI 48377

Phone: n/a

FAX:

Email: Saamih.Bashir@wsp.com

| Selection | Description | Note |
|--------------------------|--|--|
| Sample Receiving | | |
| 01. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 4.2 |
| 02. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun |
| 03. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped |
| 04. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box |
| 05. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |
| Chain of Custody | | |
| 06. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out |
| 07. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab |
| 08. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC |
| 09. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to: |
| Preservation | | |
| 10. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation |
| 11. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs) |
| 12. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab? |
| Bottle Conditions | | |
| 13. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact |
| 14. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used |
| 15. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used |
| 16. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received |
| 17. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration |
| 18. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time |
| 19. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace |

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

WSP USA Environment & Infrastructure Inc.
 46850 Magellan Drive, Suite 190
 Novi, Michigan 48377
 (248) 926-4008

CHAIN OF CUSTODY

SHIP TO:
 Merit Laboratories, Inc.
 2680 East Lansing Drive
 East Lansing, MI 48823
 Atten: Johanna Murray
 Lab Phone# 517-827-2755

DATE: 12/1/2022
 COC #: _____
 PAGE: 1 OF 2

| | | | |
|--|---------------------------------------|--|-----------------------------------|
| Project Name: Former JB Sims Generating Station, Harbor Island, Grand Haven | Project Contact: Zach McCurley | Bill To: WSP USA Environment & Infrastructure Inc. | Disposal Instructions: LAB |
| Project Number: 3650220203.02.02.3650 | Phone Number: 248-775-9823 | Attn: Saamih Bashir | Shipment Method: FEDEX |
| Project Manager: Saamih Bashir | Purchase Order: C012407104 | Address: 46850 Magellan Dr. Ste 190 Novi, MI 48377 | Waybill Number: N/A |
| Sampler Name: Jared Walbert | | | Waybill Number: N/A |

MATRIX Code W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL SW=SURFACE WATER
 L=LIQUID SD=SEDIMENT SL=SLUDGE DW=DRINKING WATER O=OIL A=AIR WS=WASTE

TURNAROUND TIME REQUIRED: 2 Days 5 Days Standard (10 TAT)

DELIVERABLES REQUIRED: STD Level II Level III Level IV EDD

| Sample Information | | | | | | Methods for Analysis | | | | | | | RUSH | | | | |
|--------------------|----------|-----------------|------------|-------|--------|----------------------|------------------------------|---------------------|----------------------|-----------------------------|-------------------------------|--------------------------------------|----------------------|---------|---------|---------|--------|
| No. | Lab ID | Sample ID | Date | Time | Matrix | # of Bottles | PFAS 457MD/9799 Per Contract | VOCs (Per Contract) | SVOCs (Per Contract) | MI 10 Metals (per Contract) | pH/corrosivity (per Contract) | particle size (sieve and hydrometer) | Total Organic Carbon | 24 Hour | 48 Hour | 72 Hour | 5 Days |
| 1 | 43008.01 | GP-01 | 11/29/2022 | 9:50 | GW | 3 | x | | | | | | | | | | |
| 2 | .02 | GP-02 | 11/29/2022 | 11:40 | GW | 3 | x | | | | | | | | | | |
| 3 | .03 | VAS01-3-7 | 11/29/2022 | 13:25 | GW | 3 | x | | | | | | | | | | |
| 4 | .04 | VAS02-5-10 | 11/29/2022 | 16:00 | GW | 3 | x | | | | | | | | | | |
| 5 | .05 | VAS02-16-20 | 11/29/2022 | 18:20 | GW | 3 | x | | | | | | | | | | |
| 6 | .06 | VAS03-2-7 | 11/30/2022 | 10:05 | GW | 3 | x | | | | | | | | | | |
| 7 | .07 | VAS03-16-20 | 11/30/2022 | 12:15 | GW | 3 | x | | | | | | | | | | |
| 8 | .08 | VAS04-16-20 | 11/30/2022 | 16:25 | GW | 3 | x | | | | | | | | | | |
| 9 | 43009.01 | VAS05-4-9 | 12/1/2022 | 9:30 | GW | 6 | x | x | x | | | | | | | | |
| 10 | .09 | DUP-01-01122022 | 12/1/2022 | 0:00 | GW | 3 | x | | | | | | | | | | |
| 11 | .02 | VAS05-SB-3-4 | 12/1/2022 | 9:30 | S | 2 | | | | x | x | x | | | | | |
| 12 | .10 | VAS05-16-20 | 12/1/2022 | 11:45 | GW | 3 | x | | | | | | | | | | |

| | | | | |
|--|-----------------------|--------------------|---|-----------------------|
| Relinquished By/Affiliation: <i>Saamih Bashir</i> | Date: 12-01-22 | Time: 17:05 | For Lab Use Does COC match samples: Y or N Broken Container: Y or N COC seal intact: Y or N Other problems: Y or N WSDOT contacted: Y or N Date contacted: _____ Cooler Temperature at receipt: 4.2 °C NUMBER OF COOLERS SENT: 1 | Comments: X |
| Received By: <i>[Signature]</i> | Date: 12/1/22 | Time: 17:05 | | |
| Relinquished By/Affiliation: | Date: | Time: | | |
| Received By: | Date: | Time: | | |
| Relinquished By/Affiliation: | Date: | Time: | | |
| Received By (LAB): | Date: | Time: | | |

WSP USA Environment & Infrastructure Inc.
 46850 Magellan Drive, Suite 190
 Novi, Michigan 48377
 (248) 926-4008

CHAIN OF CUSTODY

SHIP TO:
 Merit Laboratories, Inc.
 2680 East Lansing Drive
 East Lansing, MI 48823
 Atten: Johanna Murray
 Lab Phone# 517-827-2755

DATE: 12/1/2022

COC #: _____

PAGE: 2 OF 2

| | | | |
|--|---------------------------------------|---|-----------------------------------|
| Project Name: Former JB Sims Generating Station, Harbor Island, Grand Haven | Project Contact: Zach McCurley | Bill To: WSP USA Environment & Infrastructure Inc. | Disposal Instructions: LAB |
| Project Number: 3650220203.02.02.3650 | Phone Number: 248-775-9823 | Attn: Saamih Bashir | Shipment Method: FEDEX |
| Project Manager: Saamih Bashir | Purchase Order: C012407104 | 46850 Magellan Dr., Ste 190 | Waybill Number: N/A |
| Sampler Name: Jared Walbert | | Novi, MI 48377 | Waybill Number: N/A |

MATRIX Code W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL SW=SURFACE WATER
 L=LIQUID SD=SEDIMENT SL=SLUDGE DW=DRINKING WATER O=OIL A=AIR WS=WASTE

TURNAROUND TIME REQUIRED: 2 Days 5 Days Standard (10 TAT)

DELIVERABLES REQUIRED: STD Level II Level III Level IV EDD

| Sample Information | | | | | | Methods for Analysis | | | | | | RUSH | | | | | | |
|--------------------|---------------------|-----------|------------|-------|--------|----------------------|------------------------------|---------------------|----------------------|-----------------------------|-------------------------------|--------------------------------------|----------------------|---------|---------|---------|--------|--|
| No. | Lab ID | Sample ID | Date | Time | Matrix | # of Bottles | PFAS ASTM D7979 Per Contract | VOCs (Per Contract) | SVOCs (Per Contract) | MI 10 Metals (per Contract) | pH/corrosivity (per Contract) | particle size (sieve and hydrometer) | Total Organic Carbon | 24 Hour | 48 Hour | 72 Hour | 5 Days | |
| 1 | 43008.01 | VAS04-4-9 | 11/30/2022 | 16:25 | GW | 3 | x | | | | | | | | | | | |
| 2 | 43010.02 | VAS05-4-9 | 12/1/2022 | 9:30 | GW | 3 | x | | | | | | | | | | | |
| 3 | 43009.03 | | | | | | | | | | | | | | | | | |
| 4 | 43009.03 (TB) | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | |

| | | | |
|---|-----------------------|--------------------|---|
| Relinquished By/Affiliation: Saamih Bashir | Date: 12-01-22 | Time: 17:05 | For Lab Use Does COC match samples: Y or N Broken Container: Y or N COC seal intact: Y or N Other problems: Y or N WSDOT contacted: Y or N Date contacted: _____ Cooler Temperature at receipt: 4.2 °C NUMBER OF COOLERS SENT: 1 |
| Received By: [Signature] | Date: 12/1/22 | Time: 17:05 | |
| Relinquished By/Affiliation: | Date: | Time: | |
| Received By: | Date: | Time: | |
| Relinquished By/Affiliation: | Date: | Time: | |
| Received By (LAB): | Date: | Time: | |



Analytical Laboratory Report

Report ID: S43009.01(01)
Generated on 01/06/2023

Report to

Attention: Saamih Bashir
WSP
45850 Magellan Drive, Suite 190
Novi, MI 48377

Phone: n/a FAX:
Email: Saamih.Bashir@wsp.com

Additional Contacts: Jared Walbert

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S43009.01-S43009.03
Project: Former JB Sims Generating Station, Harbor Island, GrandHaven
Collected Date(s): 12/01/2022
Submitted Date/Time: 12/02/2022 08:15
Sampled by: Jared Walbert
P.O. #: C012407104

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Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Certifications

| Authority | Certification ID |
|---------------------|------------------|
| Michigan DEQ | #9956 |
| DOD ELAP/ISO 17025 | #69699 |
| WBENC | #2005110032 |
| Ohio VAP | #CL0002 |
| Indiana DOH | #C-MI-07 |
| New York NELAC | #11814 |
| North Carolina DENR | #680 |
| North Carolina DOH | #26702 |
| Alaska CSLAP | #17-001 |
| Pennsylvania DEP | #68-05884 |
| Wisconsin DNR | FID# 399147320 |

Qualifier Descriptions

| Qualifier | Description |
|-----------|---|
| ! | Result is outside of stated limit criteria |
| B | Compound also found in associated method blank |
| E | Concentration exceeds calibration range |
| F | Analysis run outside of holding time |
| G | Estimated result due to extraction run outside of holding time |
| H | Sample submitted and run outside of holding time |
| I | Matrix interference with internal standard |
| J | Estimated value less than reporting limit, but greater than MDL |
| L | Elevated reporting limit due to low sample amount |
| M | Result reported to MDL not RDL |
| O | Analysis performed by outside laboratory. See attached report. |
| R | Preliminary result |
| S | Surrogate recovery outside of control limits |
| T | No correction for total solids |
| X | Elevated reporting limit due to matrix interference |
| Y | Elevated reporting limit due to high target concentration |
| b | Value detected less than reporting limit, but greater than MDL |
| e | Reported value estimated due to interference |
| j | Analyte also found in associated method blank |
| p | Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak. |
| x | Preserved from bulk sample |

Glossary of Abbreviations

| Abbreviation | Description |
|--------------|--|
| RL/RDL | Reporting Limit |
| MDL | Method Detection Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| SW | EPA SW 846 (Soil and Wastewater) Methods |
| E | EPA Methods |
| SM | Standard Methods |
| LN | Linear |
| BR | Branched |



Analytical Laboratory Report

Method Summary

| Method | Version |
|---------------|--|
| E200.8 | EPA Method 200.8 Revision 5.4 |
| E245.1 | EPA Method 245.1 Revision 3.0 |
| N/A | Not Applicable |
| SW3015A | SW 846 Method 3015A Revision 1 February 2007 |
| SW3510C | SW 846 Method 3510C Revision 3 December 1996 |
| SW5030C/8260C | SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003 |
| SW8270D | SW 846 Method 8270D Revision 4 February 2007 |
| SW9045D | SW 846 Method 9045D Revision 4 November 2004 |



Analytical Laboratory Report

Sample Summary (3 samples)

| Sample ID | Sample Tag | Matrix | Collected Date/Time |
|-----------|--------------|-------------|---------------------|
| S43009.01 | VAS05-4-9 | Groundwater | 12/01/22 09:30 |
| S43009.02 | VAS05-SB-3-4 | Soil | 12/01/22 09:30 |
| S43009.03 | Trip Blank | Water | 12/01/22 00:01 |



Analytical Laboratory Report

Lab Sample ID: S43009.01

Sample Tag: VAS05-4-9

Collected Date/Time: 12/01/2022 09:30

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 1L Amber | None | Yes | 4.2 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 4.2 | IR |
| 3 | 40ml Glass | HCL | Yes | 4.2 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1 | 12/02/22 13:32 | CTV | |
| pH check for VOCs* | <2 | N/A | 12/05/22 11:00 | BML | |
| Metal Digestion | Completed | SW3015A | 12/05/22 10:15 | CCM | |
| BNA Extraction | Completed | SW3510C | 12/02/22 13:00 | TW | |

Metals

Method: E200.8, Run Date: 12/05/22 12:05, Analyst: CCM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|-----------|-------|----------|-----------|-------|
| Arsenic | 0.027 | 0.002 | 0.000255 | mg/L | 5 | 7440-38-2 | |
| Barium | 1.12 | 0.005 | 0.000162 | mg/L | 5 | 7440-39-3 | |
| Cadmium | 0.0006 | 0.0005 | 0.000190 | mg/L | 5 | 7440-43-9 | |
| Chromium | 0.010 | 0.005 | 0.0000965 | mg/L | 5 | 7440-47-3 | |
| Copper | 0.043 | 0.005 | 0.000377 | mg/L | 5 | 7440-50-8 | |
| Lead | 0.248 | 0.003 | 0.000190 | mg/L | 5 | 7439-92-1 | |
| Selenium | 0.00432 | 0.005 | 0.00209 | mg/L | 5 | 7782-49-2 | b |
| Silver | Not detected | 0.0005 | 0.0000675 | mg/L | 5 | 7440-22-4 | |
| Zinc | 0.107 | 0.005 | 0.000730 | mg/L | 5 | 7440-66-6 | |

Method: E245.1, Run Date: 12/02/22 15:48, Analyst: CTV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|----------|-------|----------|-----------|-------|
| Mercury | Not detected | 0.0002 | 0.000016 | mg/L | 1 | 7439-97-6 | |

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/21/22 18:52, Analyst: PL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------------|--------------|----|------|-------|----------|----------|-------|
| Acenaphthene | Not detected | 5 | 0.58 | ug/L | 2 | 83-32-9 | |
| Acenaphthylene | Not detected | 5 | 0.68 | ug/L | 2 | 208-96-8 | |
| Anthracene | Not detected | 5 | 0.70 | ug/L | 2 | 120-12-7 | |
| Benzo(a)anthracene | Not detected | 1 | 0.79 | ug/L | 2 | 56-55-3 | |
| Benzo(b)fluoranthene | Not detected | 1 | 0.77 | ug/L | 2 | 205-99-2 | |
| Benzo(k)fluoranthene | Not detected | 1 | 0.81 | ug/L | 2 | 207-08-9 | |
| Benzo(ghi)perylene | Not detected | 1 | 0.96 | ug/L | 2 | 191-24-2 | |
| Benzo(a)pyrene | Not detected | 1 | 0.98 | ug/L | 2 | 50-32-8 | |
| bis(2-Chloroethoxy)methane | Not detected | 5 | 0.60 | ug/L | 2 | 111-91-1 | |
| bis(2-Chloroethyl)ether | Not detected | 5 | 0.56 | ug/L | 2 | 111-44-4 | |
| bis(2-Chloroisopropyl)ether* | Not detected | 5 | 0.66 | ug/L | 2 | 108-60-1 | |
| bis(2-Ethylhexyl)phthalate | Not detected | 5 | 1.3 | ug/L | 2 | 117-81-7 | |
| 4-Bromophenyl phenyl ether | Not detected | 5 | 0.54 | ug/L | 2 | 101-55-3 | |
| Butyl benzyl phthalate | Not detected | 5 | 1.0 | ug/L | 2 | 85-68-7 | |

b-Value detected less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43009.01 (continued)

Sample Tag: VAS05-4-9

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/21/22 18:52, Analyst: PL (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------------------------|--------------|----|------|-------|----------|------------|-------|
| 4-Chloroaniline | Not detected | 10 | 0.57 | ug/L | 2 | 106-47-8 | |
| 2-Chloronaphthalene | Not detected | 5 | 0.55 | ug/L | 2 | 91-58-7 | |
| 4-Chloro-3-methylphenol | Not detected | 5 | 0.59 | ug/L | 2 | 59-50-7 | |
| 2-Chlorophenol | Not detected | 10 | 0.53 | ug/L | 2 | 95-57-8 | |
| 4-Chlorophenyl phenyl ether | Not detected | 5 | 0.51 | ug/L | 2 | 7005-72-3 | |
| Chrysene | Not detected | 1 | 0.60 | ug/L | 2 | 218-01-9 | |
| 3-, 4-Methylphenol (p,m-Cresol) | Not detected | 20 | 1.1 | ug/L | 2 | 3/4-CRESOL | |
| 2-Methylphenol (o-Cresol) | Not detected | 10 | 0.56 | ug/L | 2 | 95-48-7 | |
| Dibenzo(ah)anthracene | Not detected | 2 | 0.89 | ug/L | 2 | 53-70-3 | |
| Dibenzofuran | Not detected | 4 | 0.53 | ug/L | 2 | 132-64-9 | |
| di-n-Butyl phthalate | Not detected | 5 | 0.63 | ug/L | 2 | 84-74-2 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.49 | ug/L | 2 | 95-50-1 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.53 | ug/L | 2 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.50 | ug/L | 2 | 106-46-7 | |
| 3,3'-Dichlorobenzidine | Not detected | 5 | 1.6 | ug/L | 2 | 91-94-1 | |
| 2,4-Dichlorophenol | Not detected | 10 | 0.61 | ug/L | 2 | 120-83-2 | |
| Diethyl phthalate | Not detected | 5 | 0.71 | ug/L | 2 | 84-66-2 | |
| 2,4-Dimethylphenol | Not detected | 5 | 0.71 | ug/L | 2 | 105-67-9 | |
| Dimethyl phthalate | Not detected | 5 | 0.63 | ug/L | 2 | 131-11-3 | |
| 4,6-Dinitro-2-methylphenol | Not detected | 20 | 0.26 | ug/L | 2 | 534-52-1 | |
| 2,4-Dinitrophenol | Not detected | 25 | 0.17 | ug/L | 2 | 51-28-5 | |
| 2,4-Dinitrotoluene | Not detected | 5 | 0.55 | ug/L | 2 | 121-14-2 | |
| 2,6-Dinitrotoluene | Not detected | 5 | 0.61 | ug/L | 2 | 606-20-2 | |
| 1,2-Diphenylhydrazine* | Not detected | 5 | 0.62 | ug/L | 2 | 122-66-7 | |
| di-n-Octyl phthalate | Not detected | 5 | 1.4 | ug/L | 2 | 117-84-0 | |
| Fluoranthene | Not detected | 1 | 0.68 | ug/L | 2 | 206-44-0 | |
| Fluorene | Not detected | 5 | 0.63 | ug/L | 2 | 86-73-7 | |
| Hexachlorobenzene | Not detected | 5 | 0.64 | ug/L | 2 | 118-74-1 | |
| Hexachlorobutadiene | Not detected | 10 | 0.59 | ug/L | 2 | 87-68-3 | |
| Hexachlorocyclopentadiene* | Not detected | 5 | 0.30 | ug/L | 2 | 77-47-4 | |
| Hexachloroethane | Not detected | 5 | 0.53 | ug/L | 2 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | Not detected | 2 | 0.89 | ug/L | 2 | 193-39-5 | |
| Isophorone | Not detected | 5 | 0.61 | ug/L | 2 | 78-59-1 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.49 | ug/L | 2 | 91-57-6 | |
| Naphthalene | Not detected | 5 | 0.63 | ug/L | 2 | 91-20-3 | |
| 2-Nitroaniline | Not detected | 25 | 0.49 | ug/L | 2 | 88-74-4 | |
| 3-Nitroaniline | Not detected | 25 | 0.47 | ug/L | 2 | 99-09-2 | |
| 4-Nitroaniline | Not detected | 25 | 0.47 | ug/L | 2 | 100-01-6 | |
| Nitrobenzene | Not detected | 5 | 0.80 | ug/L | 2 | 98-95-3 | |
| 2-Nitrophenol | Not detected | 5 | 0.45 | ug/L | 2 | 88-75-5 | |
| 4-Nitrophenol | Not detected | 25 | 0.63 | ug/L | 2 | 100-02-7 | |
| N-Nitrosodiphenylamine | Not detected | 5 | 0.71 | ug/L | 2 | 86-30-6 | |
| N-Nitrosodi-n-propylamine | Not detected | 5 | 0.73 | ug/L | 2 | 621-64-7 | |
| Pentachlorophenol | Not detected | 5 | 0.42 | ug/L | 2 | 87-86-5 | |
| Phenanthrene | Not detected | 2 | 0.71 | ug/L | 2 | 85-01-8 | |
| Phenol | Not detected | 5 | 0.60 | ug/L | 2 | 108-95-2 | |
| Pyrene | Not detected | 5 | 0.83 | ug/L | 2 | 129-00-0 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.64 | ug/L | 2 | 120-82-1 | |
| 2,4,5-Trichlorophenol | Not detected | 5 | 0.65 | ug/L | 2 | 95-95-4 | |
| 2,4,6-Trichlorophenol | Not detected | 4 | 0.55 | ug/L | 2 | 88-06-2 | |



Analytical Laboratory Report

Lab Sample ID: S43009.01 (continued)

Sample Tag: VAS05-4-9

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/03/22 06:00, Analyst: KAG

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|--------------------------------|--------------|----|-------|-------|----------|------------|-------|
| Diethyl ether | Not detected | 10 | 0.10 | ug/L | 1 | 60-29-7 | |
| Acetone | Not detected | 50 | 8.5 | ug/L | 1 | 67-64-1 | |
| Methyl iodide | Not detected | 1 | 0.030 | ug/L | 1 | 74-88-4 | |
| Carbon disulfide | Not detected | 5 | 0.10 | ug/L | 1 | 75-15-0 | |
| tert-Methyl butyl ether (MTBE) | Not detected | 5 | 0.10 | ug/L | 1 | 1634-04-4 | |
| Acrylonitrile | Not detected | 2 | 0.10 | ug/L | 1 | 107-13-1 | |
| 2-Butanone (MEK) | Not detected | 25 | 4.7 | ug/L | 1 | 78-93-3 | |
| Dichlorodifluoromethane | Not detected | 5 | 0.40 | ug/L | 1 | 75-71-8 | |
| Chloromethane | Not detected | 5 | 0.10 | ug/L | 1 | 74-87-3 | |
| Vinyl chloride | Not detected | 1 | 0.10 | ug/L | 1 | 75-01-4 | |
| Bromomethane | Not detected | 5 | 0.10 | ug/L | 1 | 74-83-9 | |
| Chloroethane | Not detected | 5 | 0.20 | ug/L | 1 | 75-00-3 | |
| Trichlorofluoromethane | Not detected | 1 | 0.40 | ug/L | 1 | 75-69-4 | |
| 1,1-Dichloroethene | Not detected | 1 | 0.10 | ug/L | 1 | 75-35-4 | |
| Methylene chloride | Not detected | 5 | 0.10 | ug/L | 1 | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | 1 | 0.10 | ug/L | 1 | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | 1 | 0.10 | ug/L | 1 | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | 1 | 0.10 | ug/L | 1 | 156-59-2 | |
| Tetrahydrofuran* | Not detected | 90 | 0.20 | ug/L | 1 | 109-99-9 | |
| Chloroform | Not detected | 1 | 0.10 | ug/L | 1 | 67-66-3 | |
| Bromochloromethane | Not detected | 1 | 0.10 | ug/L | 1 | 74-97-5 | |
| 1,1,1-Trichloroethane | Not detected | 1 | 0.10 | ug/L | 1 | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | 50 | 0.10 | ug/L | 1 | 108-10-1 | |
| 2-Hexanone | Not detected | 50 | 0.10 | ug/L | 1 | 591-78-6 | |
| Carbon tetrachloride | Not detected | 1 | 0.10 | ug/L | 1 | 56-23-5 | |
| Benzene | Not detected | 1 | 0.10 | ug/L | 1 | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | 1 | 0.10 | ug/L | 1 | 107-06-2 | |
| Trichloroethene | Not detected | 1 | 0.10 | ug/L | 1 | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | 1 | 0.10 | ug/L | 1 | 78-87-5 | |
| Bromodichloromethane | Not detected | 1 | 0.10 | ug/L | 1 | 75-27-4 | |
| Dibromomethane | Not detected | 5 | 0.10 | ug/L | 1 | 74-95-3 | |
| cis-1,3-Dichloropropene | Not detected | 1 | 0.10 | ug/L | 1 | 10061-01-5 | |
| Toluene | Not detected | 1 | 0.10 | ug/L | 1 | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | 1 | 0.10 | ug/L | 1 | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | 1 | 0.050 | ug/L | 1 | 79-00-5 | |
| Tetrachloroethene | Not detected | 1 | 0.20 | ug/L | 1 | 127-18-4 | |
| trans-1,4-Dichloro-2-butene | Not detected | 1 | 0.10 | ug/L | 1 | 110-57-6 | |
| Dibromochloromethane | Not detected | 5 | 0.020 | ug/L | 1 | 124-48-1 | |
| 1,2-Dibromoethane | Not detected | 1 | 0.10 | ug/L | 1 | 106-93-4 | |
| Chlorobenzene | Not detected | 1 | 0.10 | ug/L | 1 | 108-90-7 | |
| 1,1,1,2-Tetrachloroethane | Not detected | 1 | 0.10 | ug/L | 1 | 630-20-6 | |
| Ethylbenzene | Not detected | 1 | 0.10 | ug/L | 1 | 100-41-4 | |
| p,m-Xylene* | Not detected | 2 | 0.20 | ug/L | 1 | | |
| o-Xylene | Not detected | 1 | 0.050 | ug/L | 1 | 95-47-6 | |
| Styrene | Not detected | 1 | 0.10 | ug/L | 1 | 100-42-5 | |
| Isopropylbenzene | Not detected | 5 | 0.030 | ug/L | 1 | 98-82-8 | |
| Bromoform | Not detected | 1 | 0.10 | ug/L | 1 | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | 1 | 0.050 | ug/L | 1 | 79-34-5 | |
| 1,2,3-Trichloropropane | Not detected | 1 | 0.10 | ug/L | 1 | 96-18-4 | |



Analytical Laboratory Report

Lab Sample ID: S43009.01 (continued)

Sample Tag: VAS05-4-9

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/03/22 06:00, Analyst: KAG (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------------------|--------------|----|-------|-------|----------|----------|-------|
| n-Propylbenzene | Not detected | 1 | 0.10 | ug/L | 1 | 103-65-1 | |
| Bromobenzene | Not detected | 1 | 0.10 | ug/L | 1 | 108-86-1 | |
| 1,3,5-Trimethylbenzene | Not detected | 1 | 0.10 | ug/L | 1 | 108-67-8 | |
| tert-Butylbenzene | Not detected | 1 | 0.10 | ug/L | 1 | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | 1 | 0.10 | ug/L | 1 | 95-63-6 | |
| sec-Butylbenzene | Not detected | 1 | 0.050 | ug/L | 1 | 135-98-8 | |
| p-Isopropyltoluene | Not detected | 5 | 0.040 | ug/L | 1 | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.10 | ug/L | 1 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.10 | ug/L | 1 | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.10 | ug/L | 1 | 95-50-1 | |
| 1,2,3-Trimethylbenzene | Not detected | 1 | 0.040 | ug/L | 1 | 526-73-8 | |
| n-Butylbenzene | Not detected | 1 | 0.040 | ug/L | 1 | 104-51-8 | |
| Hexachloroethane | Not detected | 5 | 0.10 | ug/L | 1 | 67-72-1 | |
| 1,2-Dibromo-3-chloropropane | Not detected | 5 | 0.10 | ug/L | 1 | 96-12-8 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.10 | ug/L | 1 | 120-82-1 | |
| 1,2,3-Trichlorobenzene | Not detected | 5 | 0.040 | ug/L | 1 | 87-61-6 | |
| Naphthalene | 0.43 | 5 | 0.10 | ug/L | 1 | 91-20-3 | J |
| 2-Methylnaphthalene | Not detected | 5 | 0.10 | ug/L | 1 | 91-57-6 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43009.02

Sample Tag: VAS05-SB-3-4

Collected Date/Time: 12/01/2022 09:30

Matrix: Soil

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|------------|-----------------|---------------|-------------------|---------------|
| 1 | 32oz Glass | None | Yes | 4.2 | IR |
| 2 | 4oz Glass | None | Yes | 4.2 | IR |

Inorganics

Method: , Run Date: 12/16/22 13:53, Analyst: GEL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|-----------|----|-----|-------|----------|------|-------|
| TOC* | Completed | | | | 1 | | O |

Method: SW9045D, Run Date: 12/13/22 15:57, Analyst: SSM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------|--------|------|------|-----------|----------|------|-------|
| pH/ Corrosivity | 7.83 | 0.01 | 0.01 | STD Units | 1 | | |

Other / Misc.

Method: , Run Date: 12/21/22 12:00, Analyst: GTS

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------|-----------|----|-----|-------|----------|------|-------|
| Misc. Special Project* | Completed | | | | 1 | | O |

O-Analysis performed by outside laboratory. See attached report.



Analytical Laboratory Report

Lab Sample ID: S43009.03

Sample Tag: Trip Blank

Collected Date/Time: 12/01/2022 00:01

Matrix: Water

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|------------|-----------------|---------------|-------------------|---------------|
| 1 | 40ml Glass | HCL | Yes | 4.2 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--------------------|--------|--------|----------------|---------|-------|
| pH check for VOCs* | <2 | N/A | 12/05/22 11:00 | BML | |

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/03/22 01:31, Analyst: KAG

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|--------------------------------|--------------|----|-------|-------|----------|------------|-------|
| Diethyl ether | Not detected | 10 | 0.10 | ug/L | 1 | 60-29-7 | |
| Acetone | Not detected | 50 | 8.5 | ug/L | 1 | 67-64-1 | |
| Methyl iodide | Not detected | 1 | 0.030 | ug/L | 1 | 74-88-4 | |
| Carbon disulfide | Not detected | 5 | 0.10 | ug/L | 1 | 75-15-0 | |
| tert-Methyl butyl ether (MTBE) | Not detected | 5 | 0.10 | ug/L | 1 | 1634-04-4 | |
| Acrylonitrile | Not detected | 2 | 0.10 | ug/L | 1 | 107-13-1 | |
| 2-Butanone (MEK) | Not detected | 25 | 4.7 | ug/L | 1 | 78-93-3 | |
| Dichlorodifluoromethane | Not detected | 5 | 0.40 | ug/L | 1 | 75-71-8 | |
| Chloromethane | Not detected | 5 | 0.10 | ug/L | 1 | 74-87-3 | |
| Vinyl chloride | Not detected | 1 | 0.10 | ug/L | 1 | 75-01-4 | |
| Bromomethane | Not detected | 5 | 0.10 | ug/L | 1 | 74-83-9 | |
| Chloroethane | Not detected | 5 | 0.20 | ug/L | 1 | 75-00-3 | |
| Trichlorofluoromethane | Not detected | 1 | 0.40 | ug/L | 1 | 75-69-4 | |
| 1,1-Dichloroethene | Not detected | 1 | 0.10 | ug/L | 1 | 75-35-4 | |
| Methylene chloride | 1.19 | 5 | 0.10 | ug/L | 1 | 75-09-2 | J |
| trans-1,2-Dichloroethene | Not detected | 1 | 0.10 | ug/L | 1 | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | 1 | 0.10 | ug/L | 1 | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | 1 | 0.10 | ug/L | 1 | 156-59-2 | |
| Tetrahydrofuran* | Not detected | 90 | 0.20 | ug/L | 1 | 109-99-9 | |
| Chloroform | 0.28 | 1 | 0.10 | ug/L | 1 | 67-66-3 | J |
| Bromochloromethane | Not detected | 1 | 0.10 | ug/L | 1 | 74-97-5 | |
| 1,1,1-Trichloroethane | Not detected | 1 | 0.10 | ug/L | 1 | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | 50 | 0.10 | ug/L | 1 | 108-10-1 | |
| 2-Hexanone | Not detected | 50 | 0.10 | ug/L | 1 | 591-78-6 | |
| Carbon tetrachloride | Not detected | 1 | 0.10 | ug/L | 1 | 56-23-5 | |
| Benzene | Not detected | 1 | 0.10 | ug/L | 1 | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | 1 | 0.10 | ug/L | 1 | 107-06-2 | |
| Trichloroethene | Not detected | 1 | 0.10 | ug/L | 1 | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | 1 | 0.10 | ug/L | 1 | 78-87-5 | |
| Bromodichloromethane | Not detected | 1 | 0.10 | ug/L | 1 | 75-27-4 | |
| Dibromomethane | Not detected | 5 | 0.10 | ug/L | 1 | 74-95-3 | |
| cis-1,3-Dichloropropene | Not detected | 1 | 0.10 | ug/L | 1 | 10061-01-5 | |
| Toluene | Not detected | 1 | 0.10 | ug/L | 1 | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | 1 | 0.10 | ug/L | 1 | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | 1 | 0.050 | ug/L | 1 | 79-00-5 | |
| Tetrachloroethene | Not detected | 1 | 0.20 | ug/L | 1 | 127-18-4 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43009.03 (continued)

Sample Tag: Trip Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/03/22 01:31, Analyst: KAG (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------------------|--------------|----|-------|-------|----------|----------|-------|
| trans-1,4-Dichloro-2-butene | Not detected | 1 | 0.10 | ug/L | 1 | 110-57-6 | |
| Dibromochloromethane | Not detected | 5 | 0.020 | ug/L | 1 | 124-48-1 | |
| 1,2-Dibromoethane | Not detected | 1 | 0.10 | ug/L | 1 | 106-93-4 | |
| Chlorobenzene | Not detected | 1 | 0.10 | ug/L | 1 | 108-90-7 | |
| 1,1,1,2-Tetrachloroethane | Not detected | 1 | 0.10 | ug/L | 1 | 630-20-6 | |
| Ethylbenzene | Not detected | 1 | 0.10 | ug/L | 1 | 100-41-4 | |
| p,m-Xylene* | Not detected | 2 | 0.20 | ug/L | 1 | | |
| o-Xylene | Not detected | 1 | 0.050 | ug/L | 1 | 95-47-6 | |
| Styrene | Not detected | 1 | 0.10 | ug/L | 1 | 100-42-5 | |
| Isopropylbenzene | Not detected | 5 | 0.030 | ug/L | 1 | 98-82-8 | |
| Bromoform | Not detected | 1 | 0.10 | ug/L | 1 | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | 1 | 0.050 | ug/L | 1 | 79-34-5 | |
| 1,2,3-Trichloropropane | Not detected | 1 | 0.10 | ug/L | 1 | 96-18-4 | |
| n-Propylbenzene | Not detected | 1 | 0.10 | ug/L | 1 | 103-65-1 | |
| Bromobenzene | Not detected | 1 | 0.10 | ug/L | 1 | 108-86-1 | |
| 1,3,5-Trimethylbenzene | Not detected | 1 | 0.10 | ug/L | 1 | 108-67-8 | |
| tert-Butylbenzene | Not detected | 1 | 0.10 | ug/L | 1 | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | 1 | 0.10 | ug/L | 1 | 95-63-6 | |
| sec-Butylbenzene | Not detected | 1 | 0.050 | ug/L | 1 | 135-98-8 | |
| p-Isopropyltoluene | Not detected | 5 | 0.040 | ug/L | 1 | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.10 | ug/L | 1 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.10 | ug/L | 1 | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.10 | ug/L | 1 | 95-50-1 | |
| 1,2,3-Trimethylbenzene | Not detected | 1 | 0.040 | ug/L | 1 | 526-73-8 | |
| n-Butylbenzene | Not detected | 1 | 0.040 | ug/L | 1 | 104-51-8 | |
| Hexachloroethane | Not detected | 5 | 0.10 | ug/L | 1 | 67-72-1 | |
| 1,2-Dibromo-3-chloropropane | Not detected | 5 | 0.10 | ug/L | 1 | 96-12-8 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.10 | ug/L | 1 | 120-82-1 | |
| 1,2,3-Trichlorobenzene | Not detected | 5 | 0.040 | ug/L | 1 | 87-61-6 | |
| Naphthalene | Not detected | 5 | 0.10 | ug/L | 1 | 91-20-3 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.10 | ug/L | 1 | 91-57-6 | |

Merit Laboratories Login Checklist

Lab Set ID:S43009

Client:WSP (WSP)

Project: Former JB Sims Generating Station, Harbor Island, GrandHaven

Submitted: 12/02/2022 08:15 Login User: MMC

Attention: Saamih Bashir

Address: WSP

45850 Magellan Drive, Suite 190

Novi, MI 48377

Phone: n/a

FAX:

Email: Saamih.Bashir@wsp.com

| Selection | Description | Note |
|--------------------------|--|--|
| Sample Receiving | | |
| 01. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 4.2 |
| 02. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun |
| 03. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped |
| 04. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box |
| 05. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |
| Chain of Custody | | |
| 06. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out |
| 07. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab |
| 08. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC |
| 09. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to: |
| Preservation | | |
| 10. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation |
| 11. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs) |
| 12. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab? |
| Bottle Conditions | | |
| 13. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact |
| 14. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used |
| 15. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used |
| 16. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received |
| 17. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration |
| 18. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time |
| 19. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace |

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S43009 Submitted: 12/02/2022 08:15

Client: WSP (WSP)

Project: Former JB Sims Generating Station, Harbor Island, GrandHaven

Initial Preservation Check: 12/02/2022 08:59 MMC

Preservation Recheck (E200.8): N/A

Attention: Saamih Bashir

Address: WSP

45850 Magellan Drive, Suite 190
Novi, MI 48377

Phone: n/a

FAX:

Email: Saamih.Bashir@wsp.com

| Sample ID | Bottle / Preservation | pH (Orig) | Add ml | pH (New) | Notes |
|-----------|-----------------------|-----------|--------|----------|-------|
| S43009.01 | 125ml Plastic HNO3 | <2 | | | |

WSP USA Environment & Infrastructure Inc.
 46850 Magellan Drive, Suite 190
 Novi, Michigan 48377
 (248) 926-4008

CHAIN OF CUSTODY

SHIP TO:
 Merit Laboratories, Inc.
 2680 East Lansing Drive
 East Lansing, MI 48823
 Atten: Johanna Murray
 Lab Phone# 517-827-2755

DATE: 12/1/2022
 COC #: _____
 PAGE: 1 OF 2

| | | | |
|--|---------------------------------------|---|-----------------------------------|
| Project Name: Former JB Sims Generating Station, Harbor Island, Grand Haven | Project Contact: Zach McCurley | Bill To: WSP USA Environment & Infrastructure Inc. | Disposal Instructions: LAB |
| Project Number: 3650220203.02.02.3650 | Phone Number: 248-775-9823 | Attn: Saamih Bashir | Shipment Method: FEDEX |
| Project Manager: Saamin Bashir | Purchase Order: C012407104 | 46850 Magellan Dr., Ste 190 | Waybill Number: N/A |
| Sampler Name: Jared Walbert | | Novi, MI 48377 | Waybill Number: N/A |

MATRIX Code W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL SW=SURFACE WATER
 L=LIQUID SD=SEDIMENT SL=SLUDGE DW=DRINKING WATER O=OIL A=AIR WS=WASTE

TURNAROUND TIME REQUIRED: 2 Days, 5 Days, Standard (10 TAT)

DELIVERABLES REQUIRED: STD, Level II, Level III, Level IV, EDD

| Sample Information | | | | | | Methods for Analysis | | | | | | | | | | RUSH | | | |
|--------------------|----------|-----------------|------------|-------|--------|----------------------|------------------------------|---------------------|----------------------|-----------------------------|-------------------------------|--------------------------------------|----------------------|---------|---------|---------|--------|--|--|
| No. | Lab ID | Sample ID | Date | Time | Matrix | # of Bottles | PFAS ASTM D7979 Per Contract | VOCs (Per Contract) | SVOCs (Per Contract) | MI 10 Metals (per Contract) | pH/corrosivity (per Contract) | particle size (sieve and hydrometer) | Total Organic Carbon | 24 Hour | 48 Hour | 72 Hour | 5 Days | | |
| 1 | 43008.01 | GP-01 | 11/29/2022 | 9:50 | GW | 3 | x | | | | | | | | | | | | |
| 2 | .02 | GP-02 | 11/29/2022 | 11:40 | GW | 3 | x | | | | | | | | | | | | |
| 3 | .03 | VAS01-3-7 | 11/29/2022 | 13:25 | GW | 3 | x | | | | | | | | | | | | |
| 4 | .04 | VAS02-5-10 | 11/29/2022 | 16:00 | GW | 3 | x | | | | | | | | | | | | |
| 5 | .05 | VAS02-16-20 | 11/29/2022 | 18:20 | GW | 3 | x | | | | | | | | | | | | |
| 6 | .06 | VAS03-2-7 | 11/30/2022 | 10:05 | GW | 3 | x | | | | | | | | | | | | |
| 7 | .07 | VAS03-16-20 | 11/30/2022 | 12:15 | GW | 3 | x | | | | | | | | | | | | |
| 8 | .08 | VAS04-16-20 | 11/30/2022 | 16:25 | GW | 3 | x | | | | | | | | | | | | |
| 9 | 43009.01 | VAS05-4-9 | 12/1/2022 | 9:30 | GW | 6 | | x | x | x | | | | | | | | | |
| 10 | .09 | DUP-01-01122022 | 12/1/2022 | 0:00 | GW | 3 | x | | | | | | | | | | | | |
| 11 | .02 | VAS05-SB-3-4 | 12/1/2022 | 9:30 | S | 2 | | | | | x | x | x | | | | | | |
| 12 | .10 | VAS05-16-20 | 12/1/2022 | 11:45 | GW | 3 | x | | | | | | | | | | | | |

| | | | | | |
|---|-----------------------|--------------------|--------------------------------|--------|----------------------------------|
| Relinquished By/Affiliation: Saamin Bashir | Date: 12-01-22 | Time: 17:05 | For Lab Use | | Comments: X |
| Received By: [Signature] | Date: 12/1/22 | Time: 17:05 | Does COC match samples: | Y or N | |
| Relinquished By/Affiliation: | Date: | Time: | Broken Container: | Y or N | |
| Received By: | Date: | Time: | COC seal intact: | Y or N | |
| Relinquished By/Affiliation: | Date: | Time: | Other problems: | Y or N | |
| Received By (LAB): | Date: | Time: | WSDOT contacted: | Y or N | |
| | | | Date contacted: | | |
| | | | Cooler Temperature at receipt: | 4.2 °C | |
| | | | | | NUMBER OF COOLERS SENT: 1 |



December 15, 2022

John Laverty
Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan 48823

Re: Routine Analysis
Work Order: 603000
SDG: S43009

Dear John Laverty:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on December 06, 2022. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 1614.

Sincerely,

Jordan Melton for
Delaney Stone
Project Manager

Purchase Order: GELP20-0018
Enclosures



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Case Narrative

**Receipt Narrative
for
Merit Laboratories, Inc.
SDG: S43009
Work Order: 603000**

December 15, 2022

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary:

Sample receipt: The sample arrived at GEL Laboratories LLC, Charleston, South Carolina on December 06, 2022 for analysis. The sample was delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

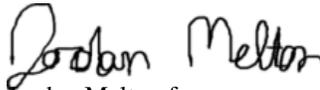
Sample Identification: The laboratory received the following sample:

| <u>Laboratory ID</u> | <u>Client ID</u> |
|-----------------------------|-------------------------|
| 603000001 | S43009.02 |

Case Narrative:

Sample analyses were conducted using methodology as outlined in GEL's Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry.



Jordan Melton for
Delaney Stone
Project Manager

Chain of Custody and Supporting Documentation

SAMPLE RECEIPT & REVIEW FORM

| | |
|-----------------------------|--|
| Client: <u>MERI</u> | SDG/AR/COC/Work Order: <u>603000</u> |
| Received By: <u>PG</u> | Date Received: <u>12/6/22</u> |
| Carrier and Tracking Number | FedEx Express FedEx Ground <u>UPS</u> Field Services Courier Other <u>1Z 446 477 016322 0014</u> |

| | | | |
|--|-----|-------------------------------------|--|
| Suspected Hazard Information | Yes | No | *If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. |
| A) Shipped as a DOT Hazardous? | | <input checked="" type="checkbox"/> | Hazard Class Shipped: _____ UN#: _____ If UN2910, Is the Radioactive Shipment Survey Compliant? Yes ___ No ___ |
| B) Did the client designate the samples are to be received as radioactive? | | <input checked="" type="checkbox"/> | COC notation or radioactive stickers on containers equal client designation. |
| C) Did the RSO classify the samples as radioactive? | | <input checked="" type="checkbox"/> | Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>00</u> CPM/mR/Hr Classified as: Rad 1 Rad 2 Rad 3 |
| D) Did the client designate samples are hazardous? | | <input checked="" type="checkbox"/> | COC notation or hazard labels on containers equal client designation. |
| E) Did the RSO identify possible hazards? | | <input checked="" type="checkbox"/> | If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other: _____ |

| Sample Receipt Criteria | | Yes | NA | No | Comments/Qualifiers (Required for Non-Conforming Items) |
|-------------------------|--|-------------------------------------|-------------------------------------|-------------------------------------|---|
| 1 | Shipping containers received intact and sealed? | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 2 | Chain of custody documents included with shipment? | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | Circle Applicable: Client contacted and provided COC COC created upon receipt |
| 3 | Samples requiring cold preservation within (0 ≤ deg. C)?* | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | Preservation Method: <u>Wet Ice</u> Ice Packs Dry ice None Other: _____ *all temperatures are recorded in Celsius TEMP: <u>4</u> |
| 4 | Daily check performed and passed on IR temperature gun? | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | Temperature Device Serial #: <u>125-24</u> Secondary Temperature Device Serial # (If Applicable): _____ |
| 5 | Sample containers intact and sealed? | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 6 | Samples requiring chemical preservation at proper pH? | | <input checked="" type="checkbox"/> | | Sample ID's and Containers Affected: _____ If Preservation added, Lot#: _____ |
| 7 | Do any samples require Volatile Analysis? | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | If Yes, are Encores or Soil Kits present for solids? Yes ___ No ___ NA ___ (If yes, take to VOA Freezer) |
| | | | | | Do liquid VOA vials contain acid preservation? Yes ___ No ___ NA ___ (If unknown, select No) |
| | | | | | Are liquid VOA vials free of headspace? Yes ___ No ___ NA ___ |
| 8 | Samples received within holding time? | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | ID's and tests affected: _____ |
| 9 | Sample ID's on COC match ID's on bottles? | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | ID's and containers affected: _____ |
| 10 | Date & time on COC match date & time on bottles? | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | Circle Applicable: No dates on containers No times on containers COC missing info Other (describe) |
| 11 | Number of containers received match number indicated on COC? | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | Circle Applicable: No container count on COC Other (describe) |
| 12 | Are sample containers identifiable as GEL provided by use of GEL labels? | | <input checked="" type="checkbox"/> | | |
| 13 | COC form is properly signed in relinquished/received sections? | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | Circle Applicable: Not relinquished Other (describe) |

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials JM Date 12-7-22 Page 1 of 1

Laboratory Certifications

List of current GEL Certifications as of 15 December 2022

| State | Certification |
|---------------------------|------------------------------|
| Alabama | 42200 |
| Alaska | 17-018 |
| Alaska Drinking Water | SC00012 |
| Arkansas | 88-0651 |
| CLIA | 42D0904046 |
| California | 2940 |
| Colorado | SC00012 |
| Connecticut | PH-0169 |
| DoD ELAP/ ISO17025 A2LA | 2567.01 |
| Florida NELAP | E87156 |
| Foreign Soils Permit | P330-15-00283, P330-15-00253 |
| Georgia | SC00012 |
| Georgia SDWA | 967 |
| Hawaii | SC00012 |
| Idaho | SC00012 |
| Illinois NELAP | 200029 |
| Indiana | C-SC-01 |
| Kansas NELAP | E-10332 |
| Kentucky SDWA | 90129 |
| Kentucky Wastewater | 90129 |
| Louisiana Drinking Water | LA024 |
| Louisiana NELAP | 03046 (AI33904) |
| Maine | 2019020 |
| Maryland | 270 |
| Massachusetts | M-SC012 |
| Massachusetts PFAS Approv | Letter |
| Michigan | 9976 |
| Mississippi | SC00012 |
| Nebraska | NE-OS-26-13 |
| Nevada | SC000122023-3 |
| New Hampshire NELAP | 2054 |
| New Jersey NELAP | SC002 |
| New Mexico | SC00012 |
| New York NELAP | 11501 |
| North Carolina | 233 |
| North Carolina SDWA | 45709 |
| North Dakota | R-158 |
| Oklahoma | 2022-160 |
| Pennsylvania NELAP | 68-00485 |
| Puerto Rico | SC00012 |
| S. Carolina Radiochem | 10120002 |
| Sanitation Districts of L | 9255651 |
| South Carolina Chemistry | 10120001 |
| Tennessee | TN 02934 |
| Texas NELAP | T104704235-22-20 |
| Utah NELAP | SC000122022-37 |
| Vermont | VT87156 |
| Virginia NELAP | 460202 |
| Washington | C780 |

General Chem Analysis

Case Narrative

**General Chemistry
Technical Case Narrative
Merit Laboratories, Inc.
SDG #: S43009
Work Order #: 603000**

Product: Carbon, Total Organic

Analytical Method: SW846 9060A Modified

Analytical Procedure: GL-GC-E-062 REV# 21

Analytical Batch: 2354990

Preparation Method: SW846 9060A Modified Prep

Preparation Procedure: GL-GC-E-062 REV# 21

Preparation Batch: 2354989

The following samples were analyzed using the above methods and analytical procedure(s).

| <u>GEL Sample ID#</u> | <u>Client Sample Identification</u> |
|------------------------------|---|
| 603000001 | S43009.02 |
| 1205269033 | Method Blank (MB) |
| 1205269034 | Laboratory Control Sample (LCS) |
| 1205269036 | 603563001(S43223.04) Sample Duplicate (DUP) |
| 1205269038 | 603563001(S43223.04) Post Spike (PS) |

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report for

MERI001 Merit Laboratories, Inc.

Client SDG: S43009 GEL Work Order: 603000

The Qualifiers in this report are defined as follows:

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

* A quality control analyte recovery is outside of specified acceptance criteria

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: 

Name: Kristen Mizzell

Date: 05 JAN 2023

Title: Group Leader

Sample Data Summary

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: January 5, 2023

Page 1 of 2

Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan

Contact: John Laverty

Workorder: 603000

| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|------------------------------|-----------|--------|------|--------|-------|------|------|------------|-------|----------|-------|
| Carbon Analysis | | | | | | | | | | | |
| Batch | 2354990 | | | | | | | | | | |
| QC1205269036 | 603563001 | DUP | | | | | | | | | |
| Total Organic Carbon Average | | 139000 | | 138000 | mg/kg | 1.03 | | (0%-16%) | RM3 | 12/16/22 | 12:26 |
| QC1205269034 | LCS | | | | | | | | | | |
| Total Organic Carbon Average | 3870 | | | 4370 | mg/kg | | 113 | (57%-142%) | | 12/16/22 | 10:58 |
| QC1205269033 | MB | | | | | | | | | | |
| Total Organic Carbon Average | | | U | ND | mg/kg | | | | | 12/16/22 | 10:37 |
| QC1205269038 | 603563001 | PS | | | | | | | | | |
| Total Organic Carbon Average | 5000 | 29300 | | 34100 | mg/kg | | N/A | (30%-131%) | | 12/16/22 | 12:04 |

Notes:

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- H Analytical holding time was exceeded
- < Result is less than value reported
- > Result is greater than value reported
- h Preparation or preservation holding time was exceeded
- R Sample results are rejected
- Z Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
- d 5-day BOD--The 2:1 depletion requirement was not met for this sample
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
- N/A RPD or %Recovery limits do not apply.
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- NI See case narrative

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 603000

Page 2 of 2

| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|----------|-----|--------|------|----|-------|------|------|-------|-------|------|------|
| R | | | | | | | | | | | |
| B | | | | | | | | | | | |
| e | | | | | | | | | | | |
| J | | | | | | | | | | | |

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Instrument QC Data Summary

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Report Run On: 05-JAN-2023 16:10

GEL Laboratories LLC

Contract: MERI00120

SDG #: S43009

Carbon Analysis

Method: SW846 9060A Modified

Instrument: O-I Analytical 1030W Carbon Analyzer (TOC368)

Parmname: Total Organic Carbon
Average

Concentration Units:mg/kg

| Sample Type | Run Date | Data File | Result | Nominal | Recovery | Limits | Within Limits |
|-------------|-----------------------------|-------------|-------------|-------------|------------|------------|---------------|
| ICV | 16-DEC-2022 10:17:00 | 121922b.csv | 5590 | 5000 | 112 | (80%-120%) | Yes |
| CCV | 16-DEC-2022 14:15:00 | 121922b.csv | 5670 | 5000 | 113 | (80%-120%) | Yes |

| Sample Type | Run Date | Data File | Result | Limits | Within Limits |
|-------------|-----------------------------|-------------|------------|------------|---------------|
| ICB | 16-DEC-2022 10:27:00 | 121922b.csv | 120 | 500 | Yes |
| CCB | 16-DEC-2022 14:25:00 | 121922b.csv | 190 | 500 | Yes |

Carbon, Total Organic Raw Data

Prep Logbook

Total Carbon and Total Organic Carbon Analysis Using the OI Analytical 1030S TOC Solids Module

| | | | | | | |
|-----------------------------------|------|------------|-------------------------------|----------------|--------------|-------------|
| Batch ID: 2354989 | Type | Sample Id | Description | Serial Number | Spike Amount | Spike Units |
| Analyst: Ryan Monroe | LCS | 1205269034 | TOC Stand. Reference LCS Soil | UTC3414673-06a | .1 | ug |
| Method: SW846 9060A Modified Prep | PS | 1205269037 | Sucrose 0.01 mg C | 3414616 | | ug |
| Lab SOP: GL-GC-E-062 REV# 21 | PS | 1205269038 | Sucrose 0.01 mg C | 3414616 | | ug |
| Instrument: Ohaus BAL535 | | | | | | |

| Sample ID | Prep Date | Matrix | Instrument Aliquot (g) | Default Aliquot (g) | Prep Factor (g/g) |
|----------------------------|----------------------|--------|------------------------|---------------------|-------------------|
| 1205269033 MB | 14-DEC-2022 06:56:08 | Solid | 0.1 | 0.1 | 1 |
| 1205269034 LCS | 14-DEC-2022 06:56:08 | Solid | 0.1 | 0.1 | 1 |
| 603000001 | 14-DEC-2022 06:56:08 | Solid | 0.0755 | 0.1 | 1.3245 |
| 603563001 | 14-DEC-2022 06:56:08 | Solid | 0.021 | 0.1 | 4.7619 |
| 1205269036 DUP (603563001) | 14-DEC-2022 06:56:08 | Solid | 0.0206 | 0.1 | 4.85437 |
| 1205269038 PS (603563001) | 14-DEC-2022 06:56:08 | Solid | 0.0211 | 0.1 | 4.73934 |
| 603563002 | 14-DEC-2022 06:56:08 | Solid | 0.0446 | 0.1 | 2.24215 |
| 603563003 | 14-DEC-2022 06:56:08 | Solid | 0.0085 | 0.1 | 11.76471 |
| 603731001 | 14-DEC-2022 06:56:08 | Soil | 0.0936 | 0.1 | 1.06838 |
| 603731002 | 14-DEC-2022 06:56:08 | Soil | 0.0582 | 0.1 | 1.71821 |
| 603731003 | 14-DEC-2022 06:56:08 | Soil | 0.0553 | 0.1 | 1.80832 |
| 603731004 | 14-DEC-2022 06:56:08 | Soil | 0.0524 | 0.1 | 1.9084 |
| 1205269035 DUP (603731004) | 14-DEC-2022 06:56:08 | Soil | 0.0539 | 0.1 | 1.85529 |
| 1205269037 PS (603731004) | 14-DEC-2022 06:56:08 | Soil | 0.0511 | 0.1 | 1.95695 |
| 603731005 | 14-DEC-2022 06:56:08 | Soil | 0.0315 | 0.1 | 3.1746 |
| 603731006 | 14-DEC-2022 06:56:08 | Soil | 0.0366 | 0.1 | 2.73224 |
| 603731007 | 14-DEC-2022 06:56:08 | Soil | 0.0345 | 0.1 | 2.89855 |
| 603731008 | 14-DEC-2022 06:56:08 | Soil | 0.0966 | 0.1 | 1.0352 |
| 603731009 | 14-DEC-2022 06:56:08 | Soil | 0.1117 | 0.1 | 0.89526 |

| Reagent/Solvent Lot ID | Description | Amount | Comments: |
|------------------------|-------------|--------|---|
| | | | Oven 007 Temperature (38-42C): 41 C Temperature within limits (Y/N)? : Y Thermometer ID: 947148 |

| Sample ID | Batch | Dilution | Analyst | Runtime | Dataset |
|---------------------|-------|----------|-------------|-------------|-------------|
| Wake up | 1 | RM3 | Oct 04 2022 | 12:39:00 PM | 100622a.csv |
| TOC-Std#1-0.050 mgC | 1 | RM3 | Oct 04 2022 | 12:56:00 PM | 100622a.csv |
| TOC-Std#2-0.100 mgC | 1 | RM3 | Oct 04 2022 | 01:14:00 PM | 100622a.csv |
| TOC-Std#3-0.500 mgC | 1 | RM3 | Oct 04 2022 | 01:33:00 PM | 100622a.csv |
| TOC-Std#4-1.000 mgC | 1 | RM3 | Oct 04 2022 | 01:53:00 PM | 100622a.csv |
| TOC-Std#5-2.000 mgC | 1 | RM3 | Oct 04 2022 | 02:12:00 PM | 100622a.csv |
| TOC-Std#6-4.000 mgC | 1 | RM3 | Oct 04 2022 | 02:35:00 PM | 100622a.csv |
| ICV 0.5 mgC | 1 | RM3 | Oct 04 2022 | 03:33:00 PM | 100622a.csv |
| ICB | 1 | RM3 | Oct 04 2022 | 03:43:00 PM | 100622a.csv |

OI Corporation
 151 Graham Rd
 College Station, TX
 77845
 USA

Sample Results

Spl #: 1 **Sample ID :** Wake up **Type :** Sample **Date:** 2022/10/04
Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM **Status:** RANGE **Customer ID:** 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 12:39 pm | - | - | - | - | 1,444 | 0.000 | 0.000 | 0.000 |
| 2 | 12:42 pm | - | - | - | - | 1,409 | 0.000 | 0.000 | 0.000 |
| 3 | 12:46 pm | - | - | - | - | 1,467 | 0.000 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 1,440 | 0.000 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 29 | | | |
| % RSD. | | | | | | 2.00 | | | |

Spl #: 2 **Sample ID :** TOC-Std#1-0.050 mgC **Type :** Std **Date:** 2022/10/04
Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM **Status:** **Customer ID:** 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 12:56 pm | - | - | - | - | 2,923 | 0.050 | 0.000 | 0.000 |
| 2 | 12:59 pm | - | - | - | - | 3,006 | 0.050 | 0.000 | 0.000 |
| 3 | 1:02 pm | - | - | - | - | 2,929 | 0.050 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 2,953 | 0.050 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 46 | | | |
| % RSD. | | | | | | 1.56 | | | |

Spl #: 3 **Sample ID :** TOC-Std#2-0.100 mgC **Type :** Std **Date:** 2022/10/04
Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM **Status:** **Customer ID:** 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 1:14 pm | - | - | - | - | 5,578 | 0.100 | 0.000 | 0.000 |
| 2 | 1:17 pm | - | - | - | - | 5,542 | 0.100 | 0.000 | 0.000 |
| 3 | 1:20 pm | - | - | - | - | 5,752 | 0.100 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 5,624 | 0.100 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 112 | | | |
| % RSD. | | | | | | 1.99 | | | |

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Spl #: 4 Sample ID : TOC-Std#3-0.500 mgC Type : Std Date: 2022/10/04
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 1:33 pm | - | - | - | - | 25,139 | 0.500 | 0.000 | 0.000 |
| 2 | 1:37 pm | - | - | - | - | 24,869 | 0.500 | 0.000 | 0.000 |
| 3 | 1:40 pm | - | - | - | - | 25,118 | 0.500 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 25,042 | 0.500 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 150 | | | |
| % RSD. | | | | | | 0.60 | | | |

Spl #: 5 Sample ID : TOC-Std#4-1.000 mgC Type : Std Date: 2022/10/04
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 1:53 pm | - | - | - | - | 49,432 | 1.000 | 0.000 | 0.000 |
| 2 | 1:56 pm | - | - | - | - | 50,196 | 1.000 | 0.000 | 0.000 |
| 3 | 2:00 pm | - | - | - | - | 50,006 | 1.000 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 49,878 | 1.000 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 398 | | | |
| % RSD. | | | | | | 0.80 | | | |

Spl #: 6 Sample ID : TOC-Std#5-2.000 mgC Type : Std Date: 2022/10/04
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 2:12 pm | - | - | - | - | 110,336 | 2.000 | 0.000 | 0.000 |
| 2 | 2:16 pm | - | - | - | - | 108,017 | 2.000 | 0.000 | 0.000 |
| 3 | 2:19 pm | - | - | - | - | 106,604 | 2.000 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 108,319 | 2.000 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 1,885 | | | |
| % RSD. | | | | | | 1.74 | | | |

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Spl #: 7 Sample ID : TOC-Std#6-4.000 mgC Type : Std Date: 2022/10/04
Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 2:35 pm | - | - | - | - | 214,337 | 4.000 | 0.000 | 0.000 |
| 2 | 2:38 pm | - | - | - | - | 210,223 | 4.000 | 0.000 | 0.000 |
| 3 | 2:42 pm | - | - | - | - | 204,340 | 4.000 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 209,633 | 4.000 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 5,024 | | | |
| % RSD. | | | | | | 2.40 | | | |

Spl #: 8 Sample ID : ICV 0.5 mgC Type : Chk Standar Date: 2022/10/04
Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 3:33 pm | - | - | - | - | 27,199 | 0.521 | n/a | n/a |
| Avg. | | - | - | - | - | 27,199 | 0.521 | n/a | n/a |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 9 Sample ID : ICB Type : Sample Date: 2022/10/04
Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Pass Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 3:43 pm | - | - | - | - | 862 | 0.022 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 862 | 0.022 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

| Sample ID | Batch | Dilution | Analyst | Runtime | Dataset |
|-------------|---------|----------|---------|----------------------|----------------|
| Wake Up | | 1 | RM3 | Dec 16 2022 10:05:00 | AM 121922b.csv |
| ICV 0.5 mgC | | 1 | RM3 | Dec 16 2022 10:17:00 | AM 121922b.csv |
| ICB | | 1 | RM3 | Dec 16 2022 10:27:00 | AM 121922b.csv |
| 1205269033 | 2354990 | 1 | RM3 | Dec 16 2022 10:37:00 | AM 121922b.csv |
| 1205269034 | 2354990 | 1 | RM3 | Dec 16 2022 10:58:00 | AM 121922b.csv |
| 603563001 | 2354990 | 1 | RM3 | Dec 16 2022 11:20:00 | AM 121922b.csv |
| 603563001 | 2354990 | 1 | RM3 | Dec 16 2022 11:42:00 | AM 121922b.csv |
| 1205269036 | 2354990 | 1 | RM3 | Dec 16 2022 12:04:00 | PM 121922b.csv |
| 1205269038 | 2354990 | 1 | RM3 | Dec 16 2022 12:26:00 | PM 121922b.csv |
| 603731004 | 2354990 | 1 | RM3 | Dec 16 2022 12:48:00 | PM 121922b.csv |
| 1205269035 | 2354990 | 1 | RM3 | Dec 16 2022 01:09:00 | PM 121922b.csv |
| 1205269037 | 2354990 | 1 | RM3 | Dec 16 2022 01:31:00 | PM 121922b.csv |
| 603000001 | 2354990 | 1 | RM3 | Dec 16 2022 01:53:00 | PM 121922b.csv |
| CCV 0.5 mgC | | 1 | RM3 | Dec 16 2022 02:15:00 | PM 121922b.csv |
| CCB | | 1 | RM3 | Dec 16 2022 02:25:00 | PM 121922b.csv |
| 603904003 | 2354983 | 1 | RM3 | Dec 16 2022 02:36:00 | PM 121922b.csv |
| 603563002 | 2354990 | 1 | RM3 | Dec 16 2022 02:58:00 | PM 121922b.csv |
| CCV 0.5 mgC | | 1 | RM3 | Dec 16 2022 03:20:00 | PM 121922b.csv |
| CCB | | 1 | RM3 | Dec 16 2022 03:30:00 | PM 121922b.csv |
| CCV 0.5 mgC | | 1 | RM3 | Dec 16 2022 05:17:00 | PM 121922b.csv |
| CCB | | 1 | RM3 | Dec 16 2022 05:34:00 | PM 121922b.csv |
| 603563003 | 2354990 | 1 | RM3 | Dec 16 2022 05:53:00 | PM 121922b.csv |
| 603731001 | 2354990 | 1 | RM3 | Dec 16 2022 06:15:00 | PM 121922b.csv |
| 603731002 | 2354990 | 1 | RM3 | Dec 16 2022 06:37:00 | PM 121922b.csv |
| 603731003 | 2354990 | 1 | RM3 | Dec 16 2022 07:01:00 | PM 121922b.csv |
| 603731005 | 2354990 | 1 | RM3 | Dec 16 2022 07:23:00 | PM 121922b.csv |
| 603731006 | 2354990 | 1 | RM3 | Dec 16 2022 07:45:00 | PM 121922b.csv |
| 603563003 | 2354983 | 1 | RM3 | Dec 16 2022 08:07:00 | PM 121922b.csv |
| 603731007 | 2354990 | 1 | RM3 | Dec 16 2022 08:32:00 | PM 121922b.csv |
| 603731008 | 2354990 | 1 | RM3 | Dec 16 2022 09:04:00 | PM 121922b.csv |
| 603731009 | 2354990 | 1 | RM3 | Dec 16 2022 09:25:00 | PM 121922b.csv |
| CCV 0.5 mgC | | 1 | RM3 | Dec 16 2022 09:46:00 | PM 121922b.csv |
| CCB | | 1 | RM3 | Dec 16 2022 09:56:00 | PM 121922b.csv |

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Spl #: 25 Sample ID : CCV 0.5 mgC Type : Chk Standar Date: 2022/12/15
Method : 100422 TOC SOL CAL - Oct Status: Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 9:41 pm | - | - | - | - | 29,299 | 0.561 | n/a | n/a |
| Avg. | | - | - | - | - | 29,299 | 0.561 | n/a | n/a |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 26 Sample ID : CCB Type : Sample Date: 2022/12/15
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 9:52 pm | - | - | - | - | 944 | 0.023 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 944 | 0.023 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 1 Sample ID : Wake Up Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 10:05 am | - | - | - | - | 434 | 0.013 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 434 | 0.013 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 2 Sample ID : ICV 0.5 mgC Type : Chk Standar Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 10:17 am | - | - | - | - | 29,157 | 0.559 | n/a | n/a |
| Avg. | | - | - | - | - | 29,157 | 0.559 | n/a | n/a |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

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Spl #: 3 Sample ID : ICB Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 10:27 am | - | - | - | - | 379 | 0.012 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 379 | 0.012 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 4 Sample ID : 1205269033 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 10:37 am | - | - | - | - | 300 | 0.011 | 0.000 | 0.000 |
| 2 | 10:40 am | - | - | - | - | 337 | 0.012 | 0.000 | 0.000 |
| 3 | 10:43 am | - | - | - | - | 356 | 0.012 | 0.000 | 0.000 |
| 4 | 10:46 am | - | - | - | - | 358 | 0.012 | 0.000 | 0.000 |
| 5 | 10:49 am | - | - | - | - | 387 | 0.013 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 359 | 0.012 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 20 | | | |
| % RSD. | | | | | | 5.66 | | | |

Comments: 2354990|1|1| MB ID:TOC368

Spl #: 5 Sample ID : 1205269034 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 10:58 am | - | - | - | - | 22,791 | 0.438 | 0.000 | 0.000 |
| 2 | 11:01 am | - | - | - | - | 22,745 | 0.437 | 0.000 | 0.000 |
| 3 | 11:05 am | - | - | - | - | 22,743 | 0.437 | 0.000 | 0.000 |
| 4 | 11:09 am | - | - | - | - | 22,675 | 0.436 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 22,738 | 0.437 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 48 | | | |
| % RSD. | | | | | | 0.21 | | | |

Comments: 2354990|1|1| LCS ID:TOC368



Date Prepared: 2022/12/19 By:

TOC

Date Approved: By:

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151 Graham Rd
College Station, TX
77845
USA

Spl #: 6 Sample ID : 603563001 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 11:20 am | - | - | - | - | 353,105 | 6.706 | 0.000 | 0.000 |
| 2 | 11:23 am | - | - | - | - | 349,080 | 6.630 | 0.000 | 0.000 |
| 3 | 11:27 am | - | - | - | - | 348,332 | 6.616 | 0.000 | 0.000 |
| 4 | 11:31 am | - | - | - | - | 347,629 | 6.602 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 349,536 | 6.639 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 2,452 | | | |
| % RSD. | | | | | | 0.70 | | | |

Comments: 2354990|1|1| ID:TOC368

Spl #: 7 Sample ID : 603563001 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 11:42 am | - | - | - | - | 155,485 | 2.956 | 0.000 | 0.000 |
| 2 | 11:45 am | - | - | - | - | 153,697 | 2.922 | 0.000 | 0.000 |
| 3 | 11:49 am | - | - | - | - | 153,327 | 2.915 | 0.000 | 0.000 |
| 4 | 11:53 am | - | - | - | - | 152,945 | 2.908 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 153,864 | 2.925 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 1,123 | | | |
| % RSD. | | | | | | 0.73 | | | |

Comments: 2354990|1|1| ID:TOC368

Spl #: 8 Sample ID : 1205269036 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 12:04 pm | - | - | - | - | 181,153 | 3.443 | 0.000 | 0.000 |
| 2 | 12:07 pm | - | - | - | - | 179,232 | 3.407 | 0.000 | 0.000 |
| 3 | 12:11 pm | - | - | - | - | 178,869 | 3.400 | 0.000 | 0.000 |
| 4 | 12:15 pm | - | - | - | - | 178,300 | 3.389 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 179,389 | 3.410 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 1,237 | | | |
| % RSD. | | | | | | 0.69 | | | |

Comments: 2354990|1|1| DUP ID:TOC368



Date Prepared: 2022/12/19 By:

TOC

Date Approved: By:

OI Corporation
151 Graham Rd
College Station, TX
77845
USA

Spl #: 9 Sample ID : 1205269038 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 12:26 pm | - | - | - | - | 150,874 | 2.868 | 0.000 | 0.000 |
| 2 | 12:29 pm | - | - | - | - | 149,153 | 2.836 | 0.000 | 0.000 |
| 3 | 12:33 pm | - | - | - | - | 148,871 | 2.830 | 0.000 | 0.000 |
| 4 | 12:37 pm | - | - | - | - | 148,503 | 2.823 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 149,350 | 2.840 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 1,050 | | | |
| % RSD. | | | | | | 0.70 | | | |

Comments: 2354990|1|1| PS ID:TOC368

Spl #: 10 Sample ID : 603731004 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 12:48 pm | - | - | - | - | 35,139 | 0.672 | 0.000 | 0.000 |
| 2 | 12:51 pm | - | - | - | - | 34,846 | 0.667 | 0.000 | 0.000 |
| 3 | 12:55 pm | - | - | - | - | 34,705 | 0.664 | 0.000 | 0.000 |
| 4 | 12:58 pm | - | - | - | - | 34,614 | 0.662 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 34,826 | 0.666 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 229 | | | |
| % RSD. | | | | | | 0.66 | | | |

Comments: 2354990|1|1| ID:TOC368

Spl #: 11 Sample ID : 1205269035 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 1:09 pm | - | - | - | - | 34,000 | 0.650 | 0.000 | 0.000 |
| 2 | 1:13 pm | - | - | - | - | 33,762 | 0.646 | 0.000 | 0.000 |
| 3 | 1:17 pm | - | - | - | - | 33,734 | 0.645 | 0.000 | 0.000 |
| 4 | 1:20 pm | - | - | - | - | 33,652 | 0.644 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 33,787 | 0.646 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 150 | | | |
| % RSD. | | | | | | 0.44 | | | |

Comments: 2354990|1|1| DUP ID:TOC368

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Spl #: 12 Sample ID : 1205269037 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 1:31 pm | - | - | - | - | 61,841 | 1.179 | 0.000 | 0.000 |
| 2 | 1:35 pm | - | - | - | - | 61,309 | 1.169 | 0.000 | 0.000 |
| 3 | 1:38 pm | - | - | - | - | 61,223 | 1.167 | 0.000 | 0.000 |
| 4 | 1:42 pm | - | - | - | - | 61,049 | 1.164 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 61,356 | 1.170 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 341 | | | |
| % RSD. | | | | | | 0.56 | | | |

Comments: 2354990|1|1| PS ID:TOC368

Spl #: 13 Sample ID : 603000001 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 1:53 pm | - | - | - | - | 103,967 | 1.978 | 0.000 | 0.000 |
| 2 | 1:57 pm | - | - | - | - | 102,983 | 1.960 | 0.000 | 0.000 |
| 3 | 2:00 pm | - | - | - | - | 102,633 | 1.953 | 0.000 | 0.000 |
| 4 | 2:04 pm | - | - | - | - | 102,514 | 1.951 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 103,024 | 1.960 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 659 | | | |
| % RSD. | | | | | | 0.64 | | | |

Comments: 2354990|1|1| ID:TOC368

Spl #: 14 Sample ID : CCV 0.5 mgC Type : Chk Standar Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 2:15 pm | - | - | - | - | 29,596 | 0.567 | n/a | n/a |
| Avg. | | - | - | - | - | 29,596 | 0.567 | n/a | n/a |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

OI Corporation
151 Graham Rd
College Station, TX
77845
USA

Spl #: 15 Sample ID : CCB Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 2:25 pm | - | - | - | - | 739 | 0.019 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 739 | 0.019 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 16 Sample ID : 603904003 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 2:36 pm | - | - | - | - | 115,804 | 2.203 | 0.000 | 0.000 |
| 2 | 2:40 pm | - | - | - | - | 114,815 | 2.184 | 0.000 | 0.000 |
| 3 | 2:43 pm | - | - | - | - | 114,670 | 2.181 | 0.000 | 0.000 |
| 4 | 2:47 pm | - | - | - | - | 114,437 | 2.177 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 114,932 | 2.186 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 602 | | | |
| % RSD. | | | | | | 0.52 | | | |

Comments: 2354983|1|1| ID:TOC368

Spl #: 17 Sample ID : 603563002 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 2:58 pm | - | - | - | - | 78,015 | 1.486 | 0.000 | 0.000 |
| 2 | 3:01 pm | - | - | - | - | 77,292 | 1.472 | 0.000 | 0.000 |
| 3 | 3:05 pm | - | - | - | - | 77,206 | 1.470 | 0.000 | 0.000 |
| 4 | 3:09 pm | - | - | - | - | 77,053 | 1.468 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 77,391 | 1.474 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 427 | | | |
| % RSD. | | | | | | 0.55 | | | |

Comments: 2354990|1|1| ID:TOC368

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Merit Laboratories, Inc.
Client Project S43009
Project No. 45359

Boring NA
Depth NA
Sample S43009.02
Lab Sample 45359001

Sample Color: **DARK GRAY**
USCS Group Name: **SILTY SAND WITH GRAVEL**
USCS Group Symbol: **sm**

USDA: **LOAMY SAND**

Dry Prep: R58-11(2018)¹

| MECHANICAL SIEVE | | | | | | | |
|-------------------------------|--------------|------------|---------------------|------------|------------------|--------------------|------------------------|
| Total Sample | | Sieve Size | Nominal Opening, mm | Dry Wt, gm | Split % Retained | Normalized % Finer | Project Specifications |
| Tare No. | 879 | 3" | 75 | 0 | 0.0% | 100.0% | |
| Tare + WS., gm | 1121.99 | 2-1/2" | 63 | 0 | 0.0% | 100.0% | |
| Tare + DS., gm | 781 | 2" | 50 | 0 | 0.0% | 100.0% | |
| Tare, gm | 187.52 | 1-1/2" | 37.5 | 0 | 0.0% | 100.0% | |
| Total sample WC | 57.5% | 1" | 25 | 0 | 0.0% | 100.0% | |
| Total Sample Dry Wt, gm (-3") | 593 | 3/4" | 19 | 4.3 | 0.7% | 99.3% | |
| Hygroscopic WC (-#10) | | 1/2" | 12.5 | 38.23 | 6.4% | 92.8% | |
| Tare No. | 22 | 3/8" | 9.5 | 43.24 | 7.3% | 85.5% | |
| Tare + WS., gm | 20.23 | No. 4 | 4.75 | 76.9 | 13.0% | 72.6% | |
| Tare + DS., gm | 20.22 | No. 10 | 2 | 17.56 | 3.0% | 69.6% | |
| Tare, gm | 10.15 | No. 20 | 0.85 | 17.49 | 11.1% | 58.6% | |
| Hygroscopic WC | 0.10% | No. 40 | 0.425 | 12.13 | 7.7% | 50.9% | |
| -#10 Hydro/Sieve air dry wt. | 110.04 | No. 60 | 0.25 | 20.46 | 12.9% | 37.9% | |
| Wt. of +#200 Sample, gm | 84.20 | No. 140 | 0.106 | 19.34 | 12.2% | 25.7% | |
| | | No. 200 | 0.075 | 14.78 | 9.4% | 16.4% | |

| HYDROMETER (-#10) | | | |
|--------------------------|--------|--|------------------------|
| Split Air Dry Wt | 110.15 | Specific Gravity | 2.7 |
| Hygroscopic WC | 0.10% | | Assumed |
| Corrected Dry wt | 110.0 | <i>-#10 Dispersed 1min in Hamilton Beach Mixer</i> | <i>a Factor</i> 0.9889 |

| Elapsed Time (min.) | R Measured | Temp °C | Composite Correction | R Corrected | K Factor | Percent Finer (%) | Particle Diameter (mm) | Adjusted % Finer (%) |
|---------------------|------------|---------|----------------------|-------------|----------|-------------------|------------------------|----------------------|
| 2 | 22.5 | 21.4 | 5.6 | 16.9 | 0.0133 | 15.2 | 0.0332 | 10.6% |
| 5 | 22 | 21.4 | 5.6 | 16.4 | 0.0133 | 14.7 | 0.0210 | 10.3% |
| 15 | 20 | 21.5 | 5.6 | 14.4 | 0.0132 | 12.9 | 0.0123 | 9.0% |
| 30 | 17.5 | 21.4 | 5.6 | 11.9 | 0.0133 | 10.7 | 0.0088 | 7.4% |
| 60 | 15.5 | 21.4 | 5.6 | 9.9 | 0.0133 | 8.9 | 0.0063 | 6.2% |
| 250 | 12.5 | 21.2 | 5.7 | 6.8 | 0.0133 | 6.1 | 0.0032 | 4.3% |
| 1440 | 10.5 | 20.7 | 5.8 | 4.7 | 0.0134 | 4.2 | 0.0013 | 2.9% |

| USCS SOIL CLASSIFICATION | | | | USDA CLASSIFICATION | | | | | | |
|--|--------------------------------------|----------------------|---------|----------------------------|-------------------|--|--------|--|------|------|
| <i>Corrected For 100% Passing a 3" Sieve</i> | | | | Particle Size (mm) | Percent Finer (%) | Percent of Each Component (Material) (%) | | Corrected Percent of -2.0 mm Material for USDA | | |
| % Gravel (-3" & +#4) | 27.4 | Silt=10.9% Clay=5.5% | D60, mm | | | NA | Gravel | | 30.4 | 0 |
| <i>Coarse=0.7; Fine=26.7</i> | | D30, mm | NA | | | | | | | |
| % Sand (-#4 & +#200) | 56.2 | | D10, mm | | | NA | Sand | | 56.1 | 80.6 |
| <i>Coarse=3; Medium=18.7; Fine=34.5</i> | | Cc | NA | | | | | | | |
| % Fines (-#200) | 16.4 | Cu | NA | | | | | | | |
| % Plus #200 (-3") | 83.6 | | | | Clay | 3.6 | 5.1 | | | |
| USCS Description | | | | USDA Classification | | | | | | |
| SILTY SAND WITH GRAVEL | | | | LOAMY SAND | | | | | | |
| USCS Group Symbol | Atterberg Limits Group Symbol | | | 0.05 | 13.5 | Silt | 9.9 | 14.3 | | |
| sm | np - Non-Plastic (assumed) | | | | | | | | | |
| Auxiliary Information | Wt Ret, gm | % Retained | % Finer | 0.002 | 3.6 | | | | | |
| 12" Sieve - 300 mm | 0 | 0.0 | 100.0 | | | | | | | |
| 6" Sieve - 150 mm | 0 | 0.0 | 100.0 | | | | | | | |
| 3" Sieve - 75 mm | 0 | 0.0 | 100.0 | | | | | | | |

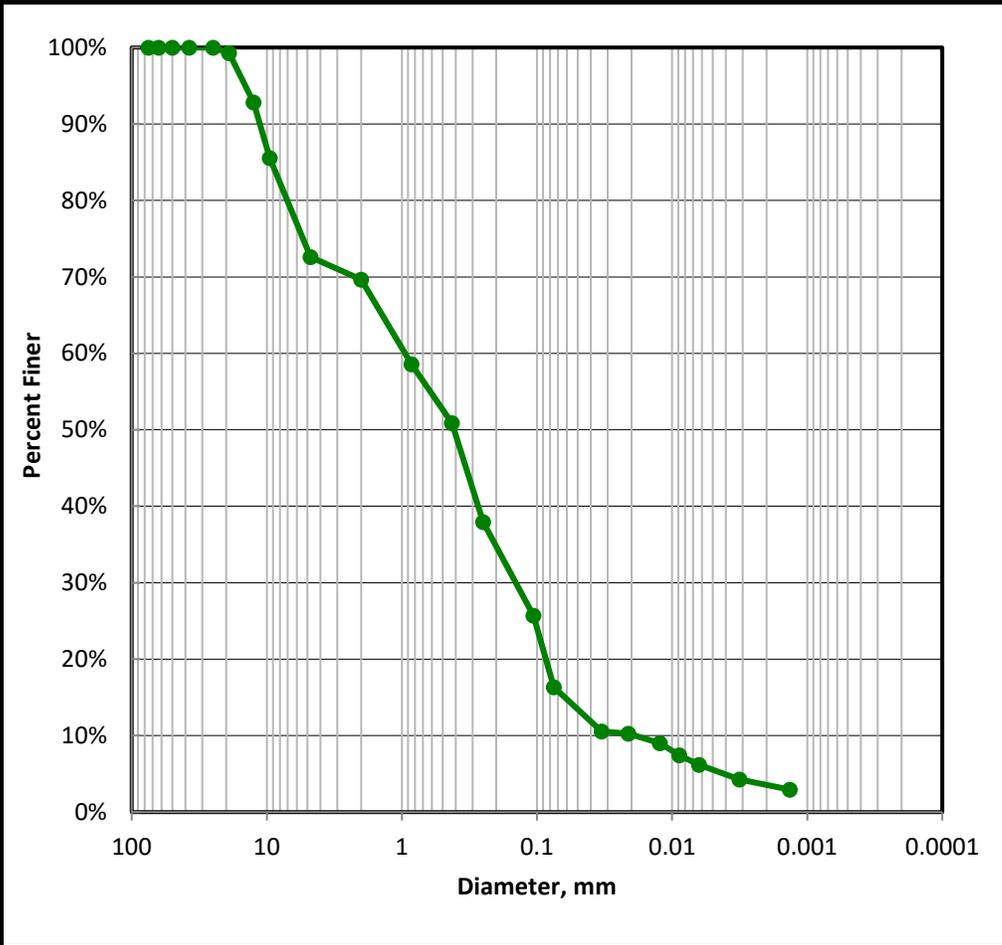
Input Validation RS Reviewed By: JK Date Tested 12/21/2022

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Merit Laboratories, Inc.
 Client Project S43009
 Project No. 45359

Boring NA
 Depth NA
 Sample S43009.02
 Lab Sample 45359001

Sample Color: **DARK GRAY**
 USCS Group Name: **SILTY SAND WITH GRAVEL**
 USCS Group Symbol: **sm** USDA: **LOAMY SAND**



| US Std. Sieve Size | Particle Diameter (mm) | Percent Finer |
|--------------------|------------------------|---------------|
| 3" | 75 | 100.0% |
| 2-1/2" | 63 | 100.0% |
| 2" | 50 | 100.0% |
| 1-1/2" | 37.5 | 100.0% |
| 1" | 25 | 100.0% |
| 3/4" | 19 | 99.3% |
| 1/2" | 12.5 | 92.8% |
| 3/8" | 9.5 | 85.5% |
| No. 4 | 4.75 | 72.6% |
| No. 10 | 2 | 69.6% |
| No. 20 | 0.85 | 58.6% |
| No. 40 | 0.425 | 50.9% |
| No. 60 | 0.25 | 37.9% |
| No. 140 | 0.106 | 25.7% |
| No. 200 | 0.075 | 16.4% |
| NA | 0.0332 | 10.6% |
| NA | 0.0210 | 10.3% |
| NA | 0.0123 | 9.0% |
| NA | 0.0088 | 7.4% |
| NA | 0.0063 | 6.2% |
| NA | 0.0032 | 4.3% |
| NA | 0.0013 | 2.9% |

| USCS SOIL CLASSIFICATION | | | |
|--|-------------|--------------------------------------|---------|
| <i>Corrected For 100% Passing a 3" Sieve</i> | | | |
| % Gravel (-3" & +#4) | 27.4 | Silt=10.9% Clay=5.5% | |
| Coarse=0.7; Fine=26.7 | | D60, mm | NA |
| % Sand (-#4 & +#200) | 56.2 | D30, mm | NA |
| Coarse=3; Medium=18.7; Fine=34.5 | | D10, mm | NA |
| % Fines (-#200) | 16.4 | Cc | NA |
| % Plus #200 (-3") | 83.6 | Cu | NA |
| USCS Description | | | |
| SILTY SAND WITH GRAVEL | | | |
| USCS Group Symbol | | Atterberg Limits Group Symbol | |
| sm | | np - Non-Plastic (assumed) | |
| Auxiliary Information | Wt Ret, gm | % Retained | % Finer |
| 12" Sieve - 300 mm | 0 | 0.0 | 100.0 |
| 6" Sieve - 150 mm | 0 | 0.0 | 100.0 |
| 3" Sieve - 75 mm | 0 | 0.0 | 100.0 |

| USDA CLASSIFICATION | | | |
|----------------------------|-------------------|--|--|
| Particle Size (mm) | Percent Finer (%) | Percent of Each Component (Material) (%) | Corrected Percent of -2.0 mm Material for USDA |
| 100 | 100 | | |
| 2 | 69.6 | Gravel 30.4 | 0 |
| 0.05 | 13.5 | Sand 56.1 | 80.6 |
| 0.002 | 3.6 | Silt 9.9 | 14.3 |
| | | Clay 3.6 | 5.1 |
| USDA Classification | | | |
| LOAMY SAND | | | |

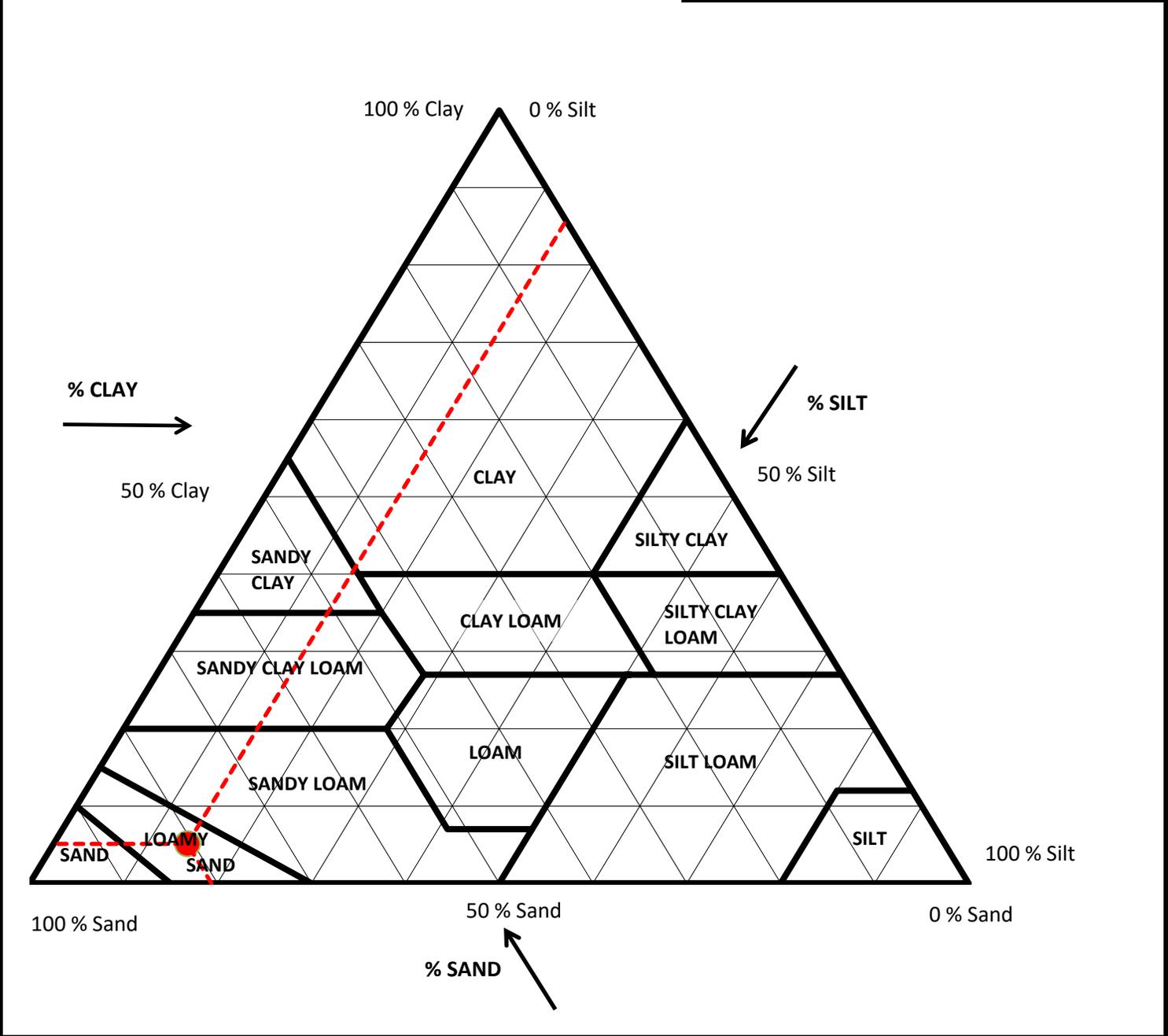
USDA CLASSIFICATION CHART

Client Merit Laboratories, Inc.
 Client Project S43009
 Project No. 45359

Boring NA
 Depth NA
 Sample S43009.02
 Lab Sample 45359001

Sample Color: **DARK GRAY**
 USCS Group Name: **SILTY SAND WITH GRAVEL**
 USCS Group Symbol: **sm** USDA: **LOAMY SAND**

| Corrected for 0% gravel | | Sand Subsizes Corrected Percentages | |
|-------------------------|------|--|-------------|
| Percent Gravel, % | 0.0 | Very Coarse Sand; 2-1 | 12.9 |
| Percent Sand, % | 80.6 | Coarse Sand; 1-0.5 | 11.5 |
| Percent Silt, % | 14.3 | Medium Sand; 0.5-0.25 | 21.2 |
| Percent Clay, % | 5.1 | Fine Sand; 0.25-0.1 | 19.8 |
| | | Very Fine Sand; 0.1-0.05 | 15.3 |
| | | Total | 80.6 |



Testing Summary
Merit Laboratories, Inc. - S43009

| Sample Identification | | | | As Rec. WC | Percent Passing | | | | | | | | USCS | | | | | | AASHTO | | | | | USDA CORRECTED COMPONENTS | | | | | | | | | | | |
|-----------------------|--------|-------|-----------|------------|-----------------|-------|-------|-------|-------|-------|-------|-------|---------|--------|-------|---------|--------|--------|--------|---------|-------|---------|-------|---------------------------|--------|-------|-------------|-----------|-------|------|-------|----------|--------|------------|--------|
| | | | | | USCS | | USDA | | USCS | | USDA | | USCS | | USDA | | Gravel | | Sand | | | % Fines | | | Gravel | Sand | Coarse Sand | Fine Sand | Fines | Silt | Clay | % Gravel | % Sand | % Silt | % Clay |
| Lab Id Number | Boring | Depth | Sample | | 2" | 3/4" | #4 | #10 | #200 | 0.05 | 0.005 | 0.002 | Total % | Coarse | Fine | Total % | Coarse | Medium | Fine | (-#200) | Silt | Clay | | | | | | | | | | | | | |
| 45359001 | NA | NA | S43009.02 | 57.5% | 100.0% | 99.3% | 72.6% | 69.6% | 16.4% | 13.5% | 5.5% | 3.6% | 27.4% | 0.7% | 26.7% | 56.2% | 3.0% | 18.7% | 34.5% | 16.4% | 10.9% | 5.5% | 30.4% | 53.3% | 18.7% | 34.5% | 16.4% | 12.8% | 3.6% | 0.0% | 80.6% | 14.3% | 5.1% | LOAMY SAND | |



Report ID: S43011.01(02)
Generated on 01/10/2023
Replaces report S43011.01(01) generated on 12/09/2022

Report to

Attention: Saamih Bashir
WSP
45850 Magellan Drive, Suite 190
Novi, MI 48377

Phone: n/a FAX:
Email: Saamih.Bashir@wsp.com

Additional Contacts: Jared Walbert

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S43011.01-S43011.02
Project: Former JB Sims Generating Station, Harbor Island, GrandHaven
Collected Date(s): 11/30/2022 - 12/01/2022
Submitted Date/Time: 12/02/2022 08:15
Sampled by: Jared Walbert
P.O. #: C012407104

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Maya Murshak
Technical Director



General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

Report Narrative

Reported down to MDL



Laboratory Certifications

| Authority | Certification ID |
|---------------------|------------------|
| Michigan DEQ | #9956 |
| DOD ELAP/ISO 17025 | #69699 |
| WBENC | #2005110032 |
| Ohio VAP | #CL0002 |
| Indiana DOH | #C-MI-07 |
| New York NELAC | #11814 |
| North Carolina DENR | #680 |
| North Carolina DOH | #26702 |
| Alaska CSLAP | #17-001 |
| Pennsylvania DEP | #68-05884 |
| Wisconsin DNR | FID# 399147320 |

Qualifier Descriptions

| Qualifier | Description |
|-----------|---|
| ! | Result is outside of stated limit criteria |
| B | Compound also found in associated method blank |
| E | Concentration exceeds calibration range |
| F | Analysis run outside of holding time |
| G | Estimated result due to extraction run outside of holding time |
| H | Sample submitted and run outside of holding time |
| I | Matrix interference with internal standard |
| J | Estimated value less than reporting limit, but greater than MDL |
| L | Elevated reporting limit due to low sample amount |
| M | Result reported to MDL not RDL |
| O | Analysis performed by outside laboratory. See attached report. |
| R | Preliminary result |
| S | Surrogate recovery outside of control limits |
| T | No correction for total solids |
| X | Elevated reporting limit due to matrix interference |
| Y | Elevated reporting limit due to high target concentration |
| b | Value detected less than reporting limit, but greater than MDL |
| e | Reported value estimated due to interference |
| j | Analyte also found in associated method blank |
| p | Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak. |
| x | Preserved from bulk sample |

Glossary of Abbreviations

| Abbreviation | Description |
|--------------|--|
| RL/RDL | Reporting Limit |
| MDL | Method Detection Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| SW | EPA SW 846 (Soil and Wastewater) Methods |
| E | EPA Methods |
| SM | Standard Methods |
| LN | Linear |
| BR | Branched |



Method Summary

| Method | Version |
|---------------|---|
| ASTMD7979-19M | ASTM Method D7979 - 19 Modified (Isotopic Dilution) |

Parameter Summary

| Parameter | Synonym | Cas # |
|------------------|--|--------------|
| PFBA | Perfluorobutanoic Acid | 375-22-4 |
| PFPeA | Perfluoropentanoic Acid | 2706-90-3 |
| 4:2 FTSA | 4:2 Fluorotelomer Sulfonic Acid | 757124-72-4 |
| PFHxA | Perfluorohexanoic Acid | 307-24-4 |
| PFBS | Perfluorobutane sulfonic Acid | 375-73-5 |
| PFHpA | Perfluoroheptanoic Acid | 375-85-9 |
| PFPeS | Perfluoropentane Sulfonic Acid | 2706-91-4 |
| 6:2 FTSA | 6:2 Fluorotelomer Sulfonic Acid | 27619-97-2 |
| PFOA | Perfluorooctanoic Acid | 335-67-1 |
| PFHxS | Perfluorohexane Sulfonic Acid | 355-46-4 |
| PFHxS-LN | Perfluorohexane Sulfonic Acid - LN | 355-46-4-LN |
| PFHxS-BR | Perfluorohexane Sulfonic Acid - BR | 355-46-4-BR |
| PFNA | Perfluorononanoic Acid | 375-95-1 |
| 8:2 FTSA | 8:2 Fluorotelomer Sulfonic Acid | 39108-34-4 |
| PFHpS | Perfluoroheptane Sulfonic Acid | 375-92-8 |
| PFDA | Perfluorodecanoic Acid | 335-76-2 |
| N-MeFOSAA | N-methyl perfluorooctanesulfonamidoacetic acid | 2355-31-9 |
| EtFOSAA | N-Ethyl Perfluorooctane Sulfonamidoacetic Acid | 2991-50-6 |
| PFOS | Perfluorooctane Sulfonic Acid | 1763-23-1 |
| PFOS-LN | Perfluorooctane Sulfonic Acid - LN | 1763-23-1-LN |
| PFOS-BR | Perfluorooctane Sulfonic Acid - BR | 1763-23-1-BR |
| PFUnDA | Perfluoroundecanoic Acid | 2058-94-8 |
| PFNS | Perfluorononane Sulfonic Acid | 68259-12-1 |
| PFDoDA | Perfluorododecanoic Acid | 307-55-1 |
| PFDS | Perfluorodecane Sulfonic Acid | 335-77-3 |
| PFTTrDA | Perfluorotridecanoic Acid | 72629-94-8 |
| FOSA | Perfluorooctane Sulfonamide | 754-91-6 |
| PFTeDA | Perfluorotetradecanoic Acid | 376-06-7 |
| 11Cl-PF3OUdS | 11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid | 763051-92-9 |
| 9Cl-PF3ONS | 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid | 756426-58-1 |
| ADONA | 4,8-dioxa-3H-perfluorononanoic acid | 919005-14-4 |
| HFPO-DA | Hexafluoropropylene oxide dimer | 13252-13-6 |
| FHpPA (7:3 FTCA) | 3-Perfluoroheptyl propanoic acid | 812-70-4 |
| FPePA (5:3 FTCA) | 3-Perfluoropentyl propanoic acid | 914637-49-3 |
| FPrPA (3:3 FTCA) | 3-Perfluoropropyl propanoic acid | 356-02-5 |
| PFBSA | Perfluorobutanesulfonamide | 30334-69-1 |
| PFECHS | Perfluoro-4-ethylcyclohexanesulfonate | 67584-42-3 |
| PFHxSA | Perfluorohexanesulfonamide | 41997-13-1 |



Sample Summary (2 samples)

| Sample ID | Sample Tag | Matrix | Collected Date/Time |
|-----------|------------|-------------|---------------------|
| S43011.01 | VAS04-4-9 | Groundwater | 11/30/22 16:25 |
| S43011.02 | VAS05-4-9 | Groundwater | 12/01/22 09:30 |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43011.01

Sample Tag: VAS04-4-9

Collected Date/Time: 11/30/2022 16:25

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.2 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.86/6.50/10 | ASTMD7979-19M | 12/02/22 14:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/05/22 18:02, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 14 | 9.4 | ng/L | 1.87 | 375-22-4 | X |
| PFPeA* | 73 | 3.7 | 0.94 | ng/L | 1.87 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 1.5 | ng/L | 1.87 | 757124-72-4 | |
| PFHxA* | Not detected | 1.9 | 1.3 | ng/L | 1.87 | 307-24-4 | |
| PFBS* | Not detected | 1.9 | 1.3 | ng/L | 1.87 | 375-73-5 | |
| PFHpA* | Not detected | 1.9 | 1.3 | ng/L | 1.87 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.87 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.9 | ng/L | 1.87 | 27619-97-2 | |
| PFOA* | 3.4 | 1.9 | 1.5 | ng/L | 1.87 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.5 | ng/L | 1.87 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.5 | ng/L | 1.87 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.5 | ng/L | 1.87 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 1.7 | ng/L | 1.87 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.94 | ng/L | 1.87 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.87 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.87 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.87 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.7 | 1.9 | ng/L | 1.87 | 2991-50-6 | |
| PFOS* | 3.9 | 1.9 | 1.8 | ng/L | 1.87 | 1763-23-1 | |
| PFOS-LN* | 1.9 | 1.9 | 1.8 | ng/L | 1.87 | 1763-23-1-LN | |
| PFOS-BR* | 1.9 | 1.9 | 1.8 | ng/L | 1.87 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.3 | ng/L | 1.87 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.3 | ng/L | 1.87 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.87 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.3 | ng/L | 1.87 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.1 | ng/L | 1.87 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.87 | 754-91-6 | |
| PFTeDA* | Not detected | 3.7 | 1.7 | ng/L | 1.87 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.87 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.3 | ng/L | 1.87 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.87 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.4 | 1.9 | ng/L | 1.87 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.7 | 2.8 | ng/L | 1.87 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.7 | 2.1 | ng/L | 1.87 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.7 | 1.1 | ng/L | 1.87 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.1 | ng/L | 1.87 | 30334-69-1 | |

X-Elevated reporting limit due to matrix interference



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43011.01 (continued)

Sample Tag: VAS04-4-9

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/05/22 18:02, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 1.9 | 1.1 | ng/L | 1.87 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.9 | 0.94 | ng/L | 1.87 | 41997-13-1 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43011.02

Sample Tag: VAS05-4-9

Collected Date/Time: 12/01/2022 09:30

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.2 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.08/6.51/10 | ASTMD7979-19M | 12/02/22 14:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/05/22 18:22, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.0 | 9.0 | ng/L | 1.8 | 375-22-4 | |
| PFPeA* | 1.0 | 3.6 | 0.90 | ng/L | 1.8 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 1.8 | 1.4 | ng/L | 1.8 | 757124-72-4 | |
| PFHxA* | 2.9 | 1.8 | 1.3 | ng/L | 1.8 | 307-24-4 | |
| PFBS* | 2.5 | 1.8 | 1.3 | ng/L | 1.8 | 375-73-5 | |
| PFHpA* | 2.0 | 1.8 | 1.3 | ng/L | 1.8 | 375-85-9 | |
| PFPeS* | Not detected | 1.8 | 1.6 | ng/L | 1.8 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.8 | 1.8 | ng/L | 1.8 | 27619-97-2 | |
| PFOA* | 6.5 | 1.8 | 1.4 | ng/L | 1.8 | 335-67-1 | |
| PFHxS* | Not detected | 1.8 | 1.4 | ng/L | 1.8 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.8 | 1.4 | ng/L | 1.8 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.8 | 1.4 | ng/L | 1.8 | 355-46-4-BR | |
| PFNA* | 1.9 | 1.8 | 1.6 | ng/L | 1.8 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.8 | 0.90 | ng/L | 1.8 | 39108-34-4 | |
| PFHpS* | Not detected | 1.8 | 1.8 | ng/L | 1.8 | 375-92-8 | |
| PFDA* | Not detected | 1.8 | 1.8 | ng/L | 1.8 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.8 | 1.8 | ng/L | 1.8 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.6 | 1.8 | ng/L | 1.8 | 2991-50-6 | |
| PFOS* | 9.3 | 1.8 | 1.8 | ng/L | 1.8 | 1763-23-1 | |
| PFOS-LN* | 2.8 | 1.8 | 1.8 | ng/L | 1.8 | 1763-23-1-LN | |
| PFOS-BR* | 6.5 | 1.8 | 1.8 | ng/L | 1.8 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.8 | 1.3 | ng/L | 1.8 | 2058-94-8 | |
| PFNS* | Not detected | 1.8 | 1.3 | ng/L | 1.8 | 68259-12-1 | |
| PFDODA* | Not detected | 1.8 | 1.4 | ng/L | 1.8 | 307-55-1 | |
| PFDS* | Not detected | 1.8 | 1.3 | ng/L | 1.8 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.8 | 1.1 | ng/L | 1.8 | 72629-94-8 | |
| FOSA* | Not detected | 1.8 | 1.6 | ng/L | 1.8 | 754-91-6 | |
| PFTeDA* | Not detected | 3.6 | 1.6 | ng/L | 1.8 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.8 | 1.6 | ng/L | 1.8 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.8 | 1.3 | ng/L | 1.8 | 756426-58-1 | |
| ADONA* | Not detected | 1.8 | 1.8 | ng/L | 1.8 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.0 | 1.8 | ng/L | 1.8 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.6 | 2.7 | ng/L | 1.8 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.6 | 2.0 | ng/L | 1.8 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.6 | 1.1 | ng/L | 1.8 | 356-02-5 | |
| PFBSA* | Not detected | 1.8 | 1.1 | ng/L | 1.8 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43011.02 (continued)

Sample Tag: VAS05-4-9

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/05/22 18:22, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 1.8 | 1.1 | ng/L | 1.8 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.8 | 0.90 | ng/L | 1.8 | 41997-13-1 | |

Merit Laboratories Login Checklist

Lab Set ID:S43011

Client:WSP (WSP)

Project: Former JB Sims Generating Station, Harbor Island, GrandHaven

Submitted: 12/02/2022 08:15 Login User: MMC

Attention: Saamih Bashir

Address: WSP

45850 Magellan Drive, Suite 190
Novi, MI 48377

Phone: n/a

FAX:

Email: Saamih.Bashir@wsp.com

| Selection | Description | Note |
|-----------|-------------|------|
|-----------|-------------|------|

Sample Receiving

- | | | |
|-----|--|--|
| 01. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 4.2 |
| 02. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun |
| 03. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped |
| 04. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box |
| 05. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |

Chain of Custody

- | | | |
|-----|--|--|
| 06. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out |
| 07. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab |
| 08. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC |
| 09. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to: |

Preservation

- | | | |
|-----|--|---|
| 10. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation |
| 11. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs) |
| 12. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab? |

Bottle Conditions

- | | | |
|-----|--|---|
| 13. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact |
| 14. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used |
| 15. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used |
| 16. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received |
| 17. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration |
| 18. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time |
| 19. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace |

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

WSP USA Environment & Infrastructure Inc.
 46850 Magellan Drive, Suite 190
 Novi, Michigan 48377
 (248) 926-4008

CHAIN OF CUSTODY

SHIP TO:
 Merit Laboratories, Inc.
 2680 East Lansing Drive
 East Lansing, MI 48823
 Atten: Johanna Murray
 Lab Phone# 517-827-2755

DATE: 12/1/2022
 COC #: _____
 PAGE: 1 OF 2

| | | | |
|--|---------------------------------------|---|-----------------------------------|
| Project Name: Former JB Sims Generating Station, Harbor Island, Grand Haven | Project Contact: Zach McCurley | Bill To: WSP USA Environment & Infrastructure Inc. | Disposal Instructions: LAB |
| Project Number: 3650220203.02.02.3650 | Phone Number: 248-775-9823 | Attn: Saamih Bashir | Shipment Method: FEDEX |
| Project Manager: Saamih Bashir | Purchase Order: C012407104 | 46850 Magellan Dr., Ste 190 | Waybill Number: N/A |
| Sampler Name: Jared Walbert | | Novi, MI 48377 | Waybill Number: N/A |

MATRIX Code W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL SW=SURFACE WATER
 L=LIQUID SD=SEDIMENT SL=SLUDGE DW=DRINKING WATER O=OIL A=AIR WS=WASTE

| | | | |
|---------------------------------|--------|----------|---|
| TURNAROUND TIME REQUIRED | 2 Days | 5 Days | <input checked="" type="checkbox"/> Standard (10 TAT) |
| DELIVERABLES REQUIRED | STD | Level II | Level III <input checked="" type="checkbox"/> Level IV <input checked="" type="checkbox"/> EDDX |

| Sample Information | | | | | | Methods for Analysis | | | | | | | | | | RUSH | | | |
|--------------------|----------|-----------------|------------|-------|--------|----------------------|------------------------------|---------------------|----------------------|-----------------------------|-------------------------------|--------------------------------------|----------------------|---------|---------|---------|--------|--|--|
| No. | Lab ID | Sample ID | Date | Time | Matrix | # of Bottles | PFAS ASTM D7979 Per Contract | VOCs (Per Contract) | SVOCs (Per Contract) | MI 10 Metals (per Contract) | pH/corrosivity (per Contract) | particle size (sieve and hydrometer) | Total Organic Carbon | 24 Hour | 48 Hour | 72 Hour | 5 Days | | |
| 1 | 43008.01 | GP-01 | 11/29/2022 | 9:50 | GW | 3 | x | | | | | | | | | | | | |
| 2 | .02 | GP-02 | 11/29/2022 | 11:40 | GW | 3 | x | | | | | | | | | | | | |
| 3 | .03 | VAS01-3-7 | 11/29/2022 | 13:25 | GW | 3 | x | | | | | | | | | | | | |
| 4 | .04 | VAS02-5-10 | 11/29/2022 | 16:00 | GW | 3 | x | | | | | | | | | | | | |
| 5 | .05 | VAS02-16-20 | 11/29/2022 | 18:20 | GW | 3 | x | | | | | | | | | | | | |
| 6 | .06 | VAS03-2-7 | 11/30/2022 | 10:05 | GW | 3 | x | | | | | | | | | | | | |
| 7 | .07 | VAS03-16-20 | 11/30/2022 | 12:15 | GW | 3 | x | | | | | | | | | | | | |
| 8 | .08 | VAS04-16-20 | 11/30/2022 | 16:25 | GW | 3 | x | | | | | | | | | | | | |
| 9 | 43009.01 | VAS05-4-9 | 12/1/2022 | 9:30 | GW | 6 | | x | x | x | | | | | | | | | |
| 10 | .09 | DUP-01-01122022 | 12/1/2022 | 0:00 | GW | 3 | x | | | | | | | | | | | | |
| 11 | .02 | VAS05-SB-3-4 | 12/1/2022 | 9:30 | S | 2 | | | | | x | x | x | | | | | | |
| 12 | .10 | VAS05-16-20 | 12/1/2022 | 11:45 | GW | 3 | x | | | | | | | | | | | | |

| | | | | | |
|---|-----------------------|--------------------|----------------------------------|--------|-----------------------|
| Relinquished By/Affiliation: Saamih Bashir | Date: 12-01-22 | Time: 17:05 | For Lab Use | | Comments: X |
| Received By: [Signature] | Date: 12/1/22 | Time: 17:05 | Does COC match samples: | Y or N | |
| Relinquished By/Affiliation: | Date: | Time: | Broken Container: | Y or N | |
| Received By: | Date: | Time: | COC seal intact: | Y or N | |
| Relinquished By/Affiliation: | Date: | Time: | Other problems: | Y or N | |
| Received By (LAB): | Date: | Time: | WSDOT contacted: | Y or N | |
| | | | WSDOT contacted: | Y or N | |
| | | | Date contacted: | | |
| | | | Cooler Temperature at receipt: | 4.2 °C | |
| | | | NUMBER OF COOLERS SENT: 1 | | |

WSP USA Environment & Infrastructure Inc.
 46850 Magellan Drive, Suite 190
 Novi, Michigan 48377
 (248) 926-4008

CHAIN OF CUSTODY

SHIP TO:
 Merit Laboratories, Inc.
 2680 East Lansing Drive
 East Lansing, MI 48823
 Atten: Johanna Murray
 Lab Phone# 517-827-2755

DATE: 12/1/2022

COC #: _____

PAGE: 2 OF 2

| | | | |
|--|---------------------------------------|---|-----------------------------------|
| Project Name: Former JB Sims Generating Station, Harbor Island, Grand Haven | Project Contact: Zach McCurley | Bill To: WSP USA Environment & Infrastructure Inc. | Disposal Instructions: LAB |
| Project Number: 3650220203.02.02.3650 | Phone Number: 248-775-9823 | Attn: Saamih Bashir | Shipment Method: FEDEX |
| Project Manager: Saamih Bashir | Purchase Order: C012407104 | Address: 46850 Magellan Dr., Ste 190 Novi, MI 48377 | Waybill Number: N/A |
| Sampler Name: Jared Walbert | | | Waybill Number: N/A |

MATRIX Code W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL SW=SURFACE WATER
 L=LIQUID SD=SEDIMENT SL=SLUDGE DW=DRINKING WATER O=OIL A=AIR WS=WASTE

TURNAROUND TIME REQUIRED: 2 Days 5 Days Standard (10 TAT)

DELIVERABLES REQUIRED: STD Level II Level III Level IV EDD

| Sample Information | | | | | | Methods for Analysis | | | | | | | | | | RUSH | | | |
|--------------------|---------------|-----------|------------|-------|--------|----------------------|------------------------------|---------------------|----------------------|-----------------------------|-------------------------------|--------------------------------------|----------------------|---------|---------|---------|--------|--|--|
| No. | Lab ID | Sample ID | Date | Time | Matrix | # of Bottles | PFAS ASTM D7979 Per Contract | VOCS (Per Contract) | SVOCs (Per Contract) | MI 10 Metals (per Contract) | pH/corrosivity (per Contract) | particle size (sieve and hydrometer) | Total Organic Carbon | 24 Hour | 48 Hour | 72 Hour | 5 Days | | |
| 1 | 43008.01 | VAS04-4-9 | 11/30/2022 | 16:25 | GW | 3 | x | | | | | | | | | | | | |
| 2 | 43010.02 | VAS05-4-9 | 12/1/2022 | 9:30 | GW | 3 | x | | | | | | | | | | | | |
| 3 | MD | | | | | | | | | | | | | | | | | | |
| 4 | 43009.03 (TB) | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | |

| | | | |
|---|-----------------------|--------------------|---|
| Relinquished By/Affiliation: Saamih Bashir | Date: 12-01-22 | Time: 17:05 | For Lab Use Does COC match samples: Y or N Broken Container: Y or N COC seal intact: Y or N Other problems: Y or N WSDOT contacted: Y or N Date contacted: _____ Cooler Temperature at receipt: 4.2 °C NUMBER OF COOLERS SENT: 1 |
| Received By: [Signature] | Date: 12/1/22 | Time: 17:05 | |
| Relinquished By/Affiliation: | Date: | Time: | |
| Received By: | Date: | Time: | |
| Relinquished By/Affiliation: | Date: | Time: | |
| Received By (LAB): | Date: | Time: | |



Analytical Laboratory Report

Revised Report

Report ID: S43065.01(02)
Generated on 01/10/2023
Replaces report S43065.01(01) generated on 12/27/2022

Report to

Attention: Saamih Bashir
WSP
45850 Magellan Drive, Suite 190
Novi, MI 48377

Phone: n/a FAX:
Email: Saamih.Bashir@wsp.com

Additional Contacts: Jared Walbert

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S43065.01-S43065.15
Project: Former JB Sims Generating Station, Harbor Island, GrandHaven
Collected Date(s): 12/01/2022 - 12/02/2022
Submitted Date/Time: 12/02/2022 16:44
Sampled by: Jared Walbert
P.O. #: C012407104

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- Glossary of Abbreviations (Page 3)
- Method Summary (Page 4)
- Sample Summary (Page 5)

Maya Murshak
Technical Director



General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

Report Narrative

Reported down to MDL



Laboratory Certifications

| Authority | Certification ID |
|---------------------|------------------|
| Michigan DEQ | #9956 |
| DOD ELAP/ISO 17025 | #69699 |
| WBENC | #2005110032 |
| Ohio VAP | #CL0002 |
| Indiana DOH | #C-MI-07 |
| New York NELAC | #11814 |
| North Carolina DENR | #680 |
| North Carolina DOH | #26702 |
| Alaska CSLAP | #17-001 |
| Pennsylvania DEP | #68-05884 |
| Wisconsin DNR | FID# 399147320 |

Qualifier Descriptions

| Qualifier | Description |
|-----------|---|
| ! | Result is outside of stated limit criteria |
| B | Compound also found in associated method blank |
| E | Concentration exceeds calibration range |
| F | Analysis run outside of holding time |
| G | Estimated result due to extraction run outside of holding time |
| H | Sample submitted and run outside of holding time |
| I | Matrix interference with internal standard |
| J | Estimated value less than reporting limit, but greater than MDL |
| L | Elevated reporting limit due to low sample amount |
| M | Result reported to MDL not RDL |
| O | Analysis performed by outside laboratory. See attached report. |
| R | Preliminary result |
| S | Surrogate recovery outside of control limits |
| T | No correction for total solids |
| X | Elevated reporting limit due to matrix interference |
| Y | Elevated reporting limit due to high target concentration |
| b | Value detected less than reporting limit, but greater than MDL |
| e | Reported value estimated due to interference |
| j | Analyte also found in associated method blank |
| p | Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak. |
| x | Preserved from bulk sample |

Glossary of Abbreviations

| Abbreviation | Description |
|--------------|--|
| RL/RDL | Reporting Limit |
| MDL | Method Detection Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| SW | EPA SW 846 (Soil and Wastewater) Methods |
| E | EPA Methods |
| SM | Standard Methods |
| LN | Linear |
| BR | Branched |

Method Summary

| Method | Version |
|---------------|---|
| ASTMD7979-19M | ASTM Method D7979 - 19 Modified (Isotopic Dilution) |

Parameter Summary

| Parameter | Synonym | Cas # |
|------------------|--|--------------|
| PFBA | Perfluorobutanoic Acid | 375-22-4 |
| PFPeA | Perfluoropentanoic Acid | 2706-90-3 |
| 4:2 FTSA | 4:2 Fluorotelomer Sulfonic Acid | 757124-72-4 |
| PFHxA | Perfluorohexanoic Acid | 307-24-4 |
| PFBS | Perfluorobutane sulfonic Acid | 375-73-5 |
| PFHpA | Perfluoroheptanoic Acid | 375-85-9 |
| PFPeS | Perfluoropentane Sulfonic Acid | 2706-91-4 |
| 6:2 FTSA | 6:2 Fluorotelomer Sulfonic Acid | 27619-97-2 |
| PFOA | Perfluorooctanoic Acid | 335-67-1 |
| PFHxS | Perfluorohexane Sulfonic Acid | 355-46-4 |
| PFHxS-LN | Perfluorohexane Sulfonic Acid - LN | 355-46-4-LN |
| PFHxS-BR | Perfluorohexane Sulfonic Acid - BR | 355-46-4-BR |
| PFNA | Perfluorononanoic Acid | 375-95-1 |
| 8:2 FTSA | 8:2 Fluorotelomer Sulfonic Acid | 39108-34-4 |
| PFHpS | Perfluoroheptane Sulfonic Acid | 375-92-8 |
| PFDA | Perfluorodecanoic Acid | 335-76-2 |
| N-MeFOSAA | N-methyl perfluorooctanesulfonamidoacetic acid | 2355-31-9 |
| EtFOSAA | N-Ethyl Perfluorooctane Sulfonamidoacetic Acid | 2991-50-6 |
| PFOS | Perfluorooctane Sulfonic Acid | 1763-23-1 |
| PFOS-LN | Perfluorooctane Sulfonic Acid - LN | 1763-23-1-LN |
| PFOS-BR | Perfluorooctane Sulfonic Acid - BR | 1763-23-1-BR |
| PFUnDA | Perfluoroundecanoic Acid | 2058-94-8 |
| PFNS | Perfluorononane Sulfonic Acid | 68259-12-1 |
| PFDoDA | Perfluorododecanoic Acid | 307-55-1 |
| PFDS | Perfluorodecane Sulfonic Acid | 335-77-3 |
| PFTTrDA | Perfluorotridecanoic Acid | 72629-94-8 |
| FOSA | Perfluorooctane Sulfonamide | 754-91-6 |
| PFTeDA | Perfluorotetradecanoic Acid | 376-06-7 |
| 11Cl-PF3OUdS | 11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid | 763051-92-9 |
| 9Cl-PF3ONS | 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid | 756426-58-1 |
| ADONA | 4,8-dioxa-3H-perfluorononanoic acid | 919005-14-4 |
| HFPO-DA | Hexafluoropropylene oxide dimer | 13252-13-6 |
| FHpPA (7:3 FTCA) | 3-Perfluoroheptyl propanoic acid | 812-70-4 |
| FPePA (5:3 FTCA) | 3-Perfluoropentyl propanoic acid | 914637-49-3 |
| FPrPA (3:3 FTCA) | 3-Perfluoropropyl propanoic acid | 356-02-5 |
| PFBSA | Perfluorobutanesulfonamide | 30334-69-1 |
| PFECHS | Perfluoro-4-ethylcyclohexanesulfonate | 67584-42-3 |
| PFHxSA | Perfluorohexanesulfonamide | 41997-13-1 |



Sample Summary (15 samples)

| Sample ID | Sample Tag | Matrix | Collected Date/Time |
|-----------|-----------------------------|-------------|---------------------|
| S43065.01 | VAS06-3-8 | Groundwater | 12/01/22 12:30 |
| S43065.02 | VAS06-16-20 | Groundwater | 12/01/22 14:15 |
| S43065.03 | VAS07-3-8 | Groundwater | 12/01/22 13:30 |
| S43065.04 | VAS07-16-20 | Groundwater | 12/01/22 15:35 |
| S43065.05 | VAS08-4-9 | Groundwater | 12/01/22 16:45 |
| S43065.06 | MW-33 | Groundwater | 12/01/22 15:40 |
| S43065.07 | VAS08-16-20 | Groundwater | 12/02/22 09:45 |
| S43065.08 | VAS08-16-20 MS | Groundwater | 12/02/22 09:45 |
| S43065.09 | VAS08-16-20 MSD | Groundwater | 12/02/22 09:45 |
| S43065.10 | VAS09-4-9 | Groundwater | 12/02/22 11:25 |
| S43065.11 | VAS10-2-7 | Groundwater | 12/02/22 12:30 |
| S43065.12 | DUP02-02122022 | Groundwater | 12/02/22 00:00 |
| S43065.13 | VAS09-16-20 | Groundwater | 12/02/22 13:35 |
| S43065.14 | VAS10-16-20 | Groundwater | 12/02/22 14:35 |
| S43065.15 | Equipment Blank-01-02122022 | Groundwater | 12/02/22 14:30 |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.01

Sample Tag: VAS06-3-8

Collected Date/Time: 12/01/2022 12:30

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.95/6.56/10 | ASTMD7979-19M | 12/05/22 12:22 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 02:10, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.3 | 9.3 | ng/L | 1.86 | 375-22-4 | |
| PFPeA* | 2.0 | 3.7 | 0.93 | ng/L | 1.86 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 1.9 | 1.5 | ng/L | 1.86 | 757124-72-4 | |
| PFHxA* | 3.3 | 1.9 | 1.3 | ng/L | 1.86 | 307-24-4 | |
| PFBS* | 1.6 | 1.9 | 1.3 | ng/L | 1.86 | 375-73-5 | J |
| PFHpA* | 2.0 | 1.9 | 1.3 | ng/L | 1.86 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.86 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.9 | ng/L | 1.86 | 27619-97-2 | |
| PFOA* | 3.7 | 1.9 | 1.5 | ng/L | 1.86 | 335-67-1 | |
| PFHxS* | 1.6 | 1.9 | 1.5 | ng/L | 1.86 | 355-46-4 | J |
| PFHxS-LN* | Not detected | 1.9 | 1.5 | ng/L | 1.86 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.5 | ng/L | 1.86 | 355-46-4-BR | |
| PFNA* | 1.9 | 1.9 | 1.7 | ng/L | 1.86 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.93 | ng/L | 1.86 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.86 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.86 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.86 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.7 | 1.9 | ng/L | 1.86 | 2991-50-6 | |
| PFOS* | 4.5 | 1.9 | 1.8 | ng/L | 1.86 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.9 | 1.8 | ng/L | 1.86 | 1763-23-1-LN | |
| PFOS-BR* | 3.0 | 1.9 | 1.8 | ng/L | 1.86 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.3 | ng/L | 1.86 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.3 | ng/L | 1.86 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.86 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.3 | ng/L | 1.86 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.1 | ng/L | 1.86 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.86 | 754-91-6 | |
| PFTeDA* | Not detected | 3.7 | 1.7 | ng/L | 1.86 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.86 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.3 | ng/L | 1.86 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.86 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.3 | 1.9 | ng/L | 1.86 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.7 | 2.8 | ng/L | 1.86 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.7 | 2.0 | ng/L | 1.86 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.7 | 1.1 | ng/L | 1.86 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.1 | ng/L | 1.86 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.01 (continued)

Sample Tag: VAS06-3-8

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 02:10, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 1.9 | 1.1 | ng/L | 1.86 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.9 | 0.93 | ng/L | 1.86 | 41997-13-1 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.02

Sample Tag: VAS06-16-20

Collected Date/Time: 12/01/2022 14:15

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.07/6.51/11 | ASTMD7979-19M | 12/05/22 12:22 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 02:30, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.9 | 9.9 | ng/L | 1.98 | 375-22-4 | |
| PFPeA* | Not detected | 4.0 | 0.99 | ng/L | 1.98 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.98 | 757124-72-4 | |
| PFHxA* | 3.0 | 2.0 | 1.4 | ng/L | 1.98 | 307-24-4 | |
| PFBS* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 375-73-5 | |
| PFHpA* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 1.98 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 27619-97-2 | |
| PFOA* | Not detected | 2.0 | 1.6 | ng/L | 1.98 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.6 | ng/L | 1.98 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.6 | ng/L | 1.98 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 1.98 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.98 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.99 | ng/L | 1.98 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 1.98 | 2991-50-6 | |
| PFOS* | Not detected | 2.0 | 1.9 | ng/L | 1.98 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 1.9 | ng/L | 1.98 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 1.9 | ng/L | 1.98 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.98 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.98 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.98 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 1.98 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.98 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.9 | 2.0 | ng/L | 1.98 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 1.98 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 1.98 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 1.98 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.98 | 30334-69-1 | |
| PFECHS* | Not detected | 2.0 | 1.2 | ng/L | 1.98 | 67584-42-3 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.02 (continued)

Sample Tag: VAS06-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 02:30, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 2.0 | 0.99 | ng/L | 1.98 | 41997-13-1 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.03

Sample Tag: VAS07-3-8

Collected Date/Time: 12/01/2022 13:30

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.09/6.55/11 | ASTMD7979-19M | 12/05/22 12:22 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 16:09, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|------|------|-------|----------|--------------|-------|
| PFBA* | 38 | 10.0 | 10.0 | ng/L | 1.99 | 375-22-4 | |
| PFPeA* | 9.2 | 4.0 | 1.00 | ng/L | 1.99 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 757124-72-4 | |
| PFHxA* | 14 | 2.0 | 1.4 | ng/L | 1.99 | 307-24-4 | |
| PFBS* | 4.9 | 2.0 | 1.4 | ng/L | 1.99 | 375-73-5 | |
| PFHpA* | 10.0 | 2.0 | 1.4 | ng/L | 1.99 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 27619-97-2 | |
| PFOA* | 32 | 2.0 | 1.6 | ng/L | 1.99 | 335-67-1 | |
| PFHxS* | 5.8 | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4 | |
| PFHxS-LN* | 4.3 | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4-LN | |
| PFHxS-BR* | 1.6 | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4-BR | J |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 1.99 | 2991-50-6 | |
| PFOS* | 39 | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1 | |
| PFOS-LN* | 19 | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1-LN | |
| PFOS-BR* | 19 | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 1.99 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10.0 | 2.0 | ng/L | 1.99 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 1.99 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 1.99 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 1.99 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.03 (continued)

Sample Tag: VAS07-3-8

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 16:09, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 5.2 | 2.0 | 1.2 | ng/L | 1.99 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 41997-13-1 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.04

Sample Tag: VAS07-16-20

Collected Date/Time: 12/01/2022 15:35

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.97/6.53/11 | ASTMD7979-19M | 12/05/22 12:22 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 03:09, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | Not detected | 10 | 10 | ng/L | 2.02 | 375-22-4 | |
| PFPeA* | Not detected | 4.0 | 1.0 | ng/L | 2.02 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 2.02 | 757124-72-4 | |
| PFHxA* | Not detected | 2.0 | 1.4 | ng/L | 2.02 | 307-24-4 | |
| PFBS* | Not detected | 2.0 | 1.4 | ng/L | 2.02 | 375-73-5 | |
| PFHpA* | Not detected | 2.0 | 1.4 | ng/L | 2.02 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 2.02 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 2.02 | 27619-97-2 | |
| PFOA* | Not detected | 2.0 | 1.6 | ng/L | 2.02 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.6 | ng/L | 2.02 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.6 | ng/L | 2.02 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 2.02 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 2.02 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 2.02 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 2.02 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 2.02 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 2.02 | 2991-50-6 | |
| PFOS* | Not detected | 2.0 | 2.0 | ng/L | 2.02 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 2.0 | ng/L | 2.02 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 2.0 | ng/L | 2.02 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 2.02 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 2.02 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 2.02 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 2.02 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 2.02 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 2.02 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 2.02 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 2.02 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 2.02 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.0 | ng/L | 2.02 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 2.02 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 2.02 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 2.02 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 30334-69-1 | |
| PFECHS* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 67584-42-3 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.04 (continued)

Sample Tag: VAS07-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 03:09, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|-----|-------|----------|------------|-------|
| PFHxSA* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 41997-13-1 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.05

Sample Tag: VAS08-4-9

Collected Date/Time: 12/01/2022 16:45

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.15/6.54/11 | ASTMD7979-19M | 12/05/22 12:22 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 03:28, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 23 | 9.8 | 9.8 | ng/L | 1.96 | 375-22-4 | |
| PFPeA* | 8.0 | 3.9 | 0.98 | ng/L | 1.96 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.96 | 757124-72-4 | |
| PFHxA* | 9.4 | 2.0 | 1.4 | ng/L | 1.96 | 307-24-4 | |
| PFBS* | 3.0 | 2.0 | 1.4 | ng/L | 1.96 | 375-73-5 | |
| PFHpA* | 4.2 | 2.0 | 1.4 | ng/L | 1.96 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 1.96 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 27619-97-2 | |
| PFOA* | 18 | 2.0 | 1.6 | ng/L | 1.96 | 335-67-1 | |
| PFHxS* | 2.3 | 2.0 | 1.6 | ng/L | 1.96 | 355-46-4 | |
| PFHxS-LN* | 1.7 | 2.0 | 1.6 | ng/L | 1.96 | 355-46-4-LN | J |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 1.96 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.96 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 2991-50-6 | |
| PFOS* | 5.0 | 2.0 | 1.9 | ng/L | 1.96 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 1.9 | ng/L | 1.96 | 1763-23-1-LN | |
| PFOS-BR* | 4.2 | 2.0 | 1.9 | ng/L | 1.96 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.96 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.96 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.8 | ng/L | 1.96 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.96 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.8 | 2.0 | ng/L | 1.96 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.9 | ng/L | 1.96 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.2 | ng/L | 1.96 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.96 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.05 (continued)

Sample Tag: VAS08-4-9

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 03:28, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 2.8 | 2.0 | 1.2 | ng/L | 1.96 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 41997-13-1 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.06

Sample Tag: MW-33

Collected Date/Time: 12/01/2022 15:40

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.92/6.57/10 | ASTMD7979-19M | 12/05/22 12:22 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 03:48, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 18 | 9.4 | 9.4 | ng/L | 1.87 | 375-22-4 | |
| PFPeA* | 9.4 | 3.7 | 0.94 | ng/L | 1.87 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 1.5 | ng/L | 1.87 | 757124-72-4 | |
| PFHxA* | 9.9 | 1.9 | 1.3 | ng/L | 1.87 | 307-24-4 | |
| PFBS* | 17 | 1.9 | 1.3 | ng/L | 1.87 | 375-73-5 | |
| PFHpA* | 11 | 1.9 | 1.3 | ng/L | 1.87 | 375-85-9 | |
| PFPeS* | 2.8 | 1.9 | 1.7 | ng/L | 1.87 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.9 | ng/L | 1.87 | 27619-97-2 | |
| PFOA* | 45 | 1.9 | 1.5 | ng/L | 1.87 | 335-67-1 | |
| PFHxS* | 19 | 1.9 | 1.5 | ng/L | 1.87 | 355-46-4 | |
| PFHxS-LN* | 15 | 1.9 | 1.5 | ng/L | 1.87 | 355-46-4-LN | |
| PFHxS-BR* | 4.1 | 1.9 | 1.5 | ng/L | 1.87 | 355-46-4-BR | |
| PFNA* | 1.7 | 1.9 | 1.7 | ng/L | 1.87 | 375-95-1 | J |
| 8:2 FTSA* | Not detected | 1.9 | 0.94 | ng/L | 1.87 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.87 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.87 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.87 | 2355-31-9 | |
| EtFOSAA* | 3.5 | 3.7 | 1.9 | ng/L | 1.87 | 2991-50-6 | J |
| PFOS* | 95 | 1.9 | 1.8 | ng/L | 1.87 | 1763-23-1 | |
| PFOS-LN* | 28 | 1.9 | 1.8 | ng/L | 1.87 | 1763-23-1-LN | |
| PFOS-BR* | 67 | 1.9 | 1.8 | ng/L | 1.87 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.3 | ng/L | 1.87 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.3 | ng/L | 1.87 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.87 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.3 | ng/L | 1.87 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.1 | ng/L | 1.87 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.87 | 754-91-6 | |
| PFTeDA* | Not detected | 3.7 | 1.7 | ng/L | 1.87 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.87 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.3 | ng/L | 1.87 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.87 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.4 | 1.9 | ng/L | 1.87 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.7 | 2.8 | ng/L | 1.87 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.7 | 2.1 | ng/L | 1.87 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.7 | 1.1 | ng/L | 1.87 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.1 | ng/L | 1.87 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.06 (continued)

Sample Tag: MW-33

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 03:48, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 8.3 | 1.9 | 1.1 | ng/L | 1.87 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.9 | 0.94 | ng/L | 1.87 | 41997-13-1 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.07

Sample Tag: VAS08-16-20

Collected Date/Time: 12/02/2022 09:45

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.20/6.56/11 | ASTMD7979-19M | 12/05/22 12:22 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 04:07, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.8 | 9.8 | ng/L | 1.95 | 375-22-4 | |
| PFPeA* | Not detected | 3.9 | 0.98 | ng/L | 1.95 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.95 | 757124-72-4 | |
| PFHxA* | 1.6 | 2.0 | 1.4 | ng/L | 1.95 | 307-24-4 | J |
| PFBS* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 375-73-5 | |
| PFHpA* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 1.95 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 1.95 | 27619-97-2 | |
| PFOA* | Not detected | 2.0 | 1.6 | ng/L | 1.95 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.6 | ng/L | 1.95 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.6 | ng/L | 1.95 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 1.95 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.95 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.98 | ng/L | 1.95 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.95 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.95 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.95 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.95 | 2991-50-6 | |
| PFOS* | Not detected | 2.0 | 1.9 | ng/L | 1.95 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 1.9 | ng/L | 1.95 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 1.9 | ng/L | 1.95 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.95 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.95 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.8 | ng/L | 1.95 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.95 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.95 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.8 | 2.0 | ng/L | 1.95 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.9 | ng/L | 1.95 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.1 | ng/L | 1.95 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.95 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.07 (continued)

Sample Tag: VAS08-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 04:07, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.98 | ng/L | 1.95 | 41997-13-1 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.08

Sample Tag: VAS08-16-20 MS

Collected Date/Time: 12/02/2022 09:45

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.32/6.52/11 | ASTMD7979-19M | 12/05/22 12:22 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 04:27, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------|-----|------|-------|----------|--------------|-------|
| PFBA* | 110 | 9.5 | 9.5 | ng/L | 1.9 | 375-22-4 | 1 |
| PFPeA* | 97 | 3.8 | 0.95 | ng/L | 1.9 | 2706-90-3 | 1 |
| 4:2 FTSA* | 95 | 1.9 | 1.5 | ng/L | 1.9 | 757124-72-4 | 1 |
| PFHxA* | 98 | 1.9 | 1.3 | ng/L | 1.9 | 307-24-4 | 1 |
| PFBS* | 98 | 1.9 | 1.3 | ng/L | 1.9 | 375-73-5 | 1 |
| PFHpA* | 97 | 1.9 | 1.3 | ng/L | 1.9 | 375-85-9 | 1 |
| PFPeS* | 97 | 1.9 | 1.7 | ng/L | 1.9 | 2706-91-4 | 1 |
| 6:2 FTSA* | 85 | 1.9 | 1.9 | ng/L | 1.9 | 27619-97-2 | 1 |
| PFOA* | 100 | 1.9 | 1.5 | ng/L | 1.9 | 335-67-1 | 1 |
| PFHxS* | 85 | 1.9 | 1.5 | ng/L | 1.9 | 355-46-4 | 1 |
| PFHxS-LN* | 72 | 1.9 | 1.5 | ng/L | 1.9 | 355-46-4-LN | 1 |
| PFHxS-BR* | 13 | 1.9 | 1.5 | ng/L | 1.9 | 355-46-4-BR | 1 |
| PFNA* | 87 | 1.9 | 1.7 | ng/L | 1.9 | 375-95-1 | 1 |
| 8:2 FTSA* | 97 | 1.9 | 0.95 | ng/L | 1.9 | 39108-34-4 | 1 |
| PFHpS* | 90 | 1.9 | 1.9 | ng/L | 1.9 | 375-92-8 | 1 |
| PFDA* | 110 | 1.9 | 1.9 | ng/L | 1.9 | 335-76-2 | 1 |
| N-MeFOSAA* | 90 | 1.9 | 1.9 | ng/L | 1.9 | 2355-31-9 | 1 |
| EtFOSAA* | 87 | 3.8 | 1.9 | ng/L | 1.9 | 2991-50-6 | 1 |
| PFOS* | 95 | 1.9 | 1.9 | ng/L | 1.9 | 1763-23-1 | 1 |
| PFOS-LN* | 66 | 1.9 | 1.9 | ng/L | 1.9 | 1763-23-1-LN | 1 |
| PFOS-BR* | 28 | 1.9 | 1.9 | ng/L | 1.9 | 1763-23-1-BR | 1 |
| PFUnDA* | 80 | 1.9 | 1.3 | ng/L | 1.9 | 2058-94-8 | 1 |
| PFNS* | 89 | 1.9 | 1.3 | ng/L | 1.9 | 68259-12-1 | 1 |
| PFDODA* | 95 | 1.9 | 1.5 | ng/L | 1.9 | 307-55-1 | 1 |
| PFDS* | 81 | 1.9 | 1.3 | ng/L | 1.9 | 335-77-3 | 1 |
| PFTDA* | 77 | 1.9 | 1.1 | ng/L | 1.9 | 72629-94-8 | 1 |
| FOSA* | 82 | 1.9 | 1.7 | ng/L | 1.9 | 754-91-6 | 1 |
| PFTeDA* | 91 | 3.8 | 1.7 | ng/L | 1.9 | 376-06-7 | 1 |
| 11Cl-PF3OUdS* | 69 | 1.9 | 1.7 | ng/L | 1.9 | 763051-92-9 | 1 |
| 9Cl-PF3ONS* | 82 | 1.9 | 1.3 | ng/L | 1.9 | 756426-58-1 | 1 |
| ADONA* | 84 | 1.9 | 1.9 | ng/L | 1.9 | 919005-14-4 | 1 |
| HFPO-DA* | 90 | 9.5 | 1.9 | ng/L | 1.9 | 13252-13-6 | 1 |
| FHpPA (7:3 FTCA)* | 87 | 3.8 | 2.9 | ng/L | 1.9 | 812-70-4 | 1 |
| FPePA (5:3 FTCA)* | 94 | 3.8 | 2.1 | ng/L | 1.9 | 914637-49-3 | 1 |
| FPrPA (3:3 FTCA)* | 91 | 3.8 | 1.1 | ng/L | 1.9 | 356-02-5 | 1 |
| PFBSA* | 79 | 1.9 | 1.1 | ng/L | 1.9 | 30334-69-1 | 1 |

1-spiked @ 95 ng/L



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.08 (continued)

Sample Tag: VAS08-16-20 MS

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 04:27, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFECHS* | 79 | 1.9 | 1.1 | ng/L | 1.9 | 67584-42-3 | 1 |
| PFHxSA* | 81 | 1.9 | 0.95 | ng/L | 1.9 | 41997-13-1 | 1 |

1-spiked @ 95 ng/L



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.09

Sample Tag: VAS08-16-20 MSD

Collected Date/Time: 12/02/2022 09:45

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.75/6.58/10 | ASTMD7979-19M | 12/05/22 12:22 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 04:46, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------|-----|------|-------|----------|--------------|-------|
| PFBA* | 120 | 9.7 | 9.7 | ng/L | 1.93 | 375-22-4 | 1 |
| PFPeA* | 100 | 3.9 | 0.97 | ng/L | 1.93 | 2706-90-3 | 1 |
| 4:2 FTSA* | 96 | 1.9 | 1.5 | ng/L | 1.93 | 757124-72-4 | 1 |
| PFHxA* | 100 | 1.9 | 1.4 | ng/L | 1.93 | 307-24-4 | 1 |
| PFBS* | 84 | 1.9 | 1.4 | ng/L | 1.93 | 375-73-5 | 1 |
| PFHpA* | 92 | 1.9 | 1.4 | ng/L | 1.93 | 375-85-9 | 1 |
| PFPeS* | 89 | 1.9 | 1.7 | ng/L | 1.93 | 2706-91-4 | 1 |
| 6:2 FTSA* | 96 | 1.9 | 1.9 | ng/L | 1.93 | 27619-97-2 | 1 |
| PFOA* | 110 | 1.9 | 1.5 | ng/L | 1.93 | 335-67-1 | 1 |
| PFHxS* | 92 | 1.9 | 1.5 | ng/L | 1.93 | 355-46-4 | 1 |
| PFHxS-LN* | 77 | 1.9 | 1.5 | ng/L | 1.93 | 355-46-4-LN | 1 |
| PFHxS-BR* | 14 | 1.9 | 1.5 | ng/L | 1.93 | 355-46-4-BR | 1 |
| PFNA* | 100 | 1.9 | 1.7 | ng/L | 1.93 | 375-95-1 | 1 |
| 8:2 FTSA* | 97 | 1.9 | 0.97 | ng/L | 1.93 | 39108-34-4 | 1 |
| PFHpS* | 93 | 1.9 | 1.9 | ng/L | 1.93 | 375-92-8 | 1 |
| PFDA* | 110 | 1.9 | 1.9 | ng/L | 1.93 | 335-76-2 | 1 |
| N-MeFOSAA* | 110 | 1.9 | 1.9 | ng/L | 1.93 | 2355-31-9 | 1 |
| EtFOSAA* | 91 | 3.9 | 1.9 | ng/L | 1.93 | 2991-50-6 | 1 |
| PFOS* | 100 | 1.9 | 1.9 | ng/L | 1.93 | 1763-23-1 | 1 |
| PFOS-LN* | 68 | 1.9 | 1.9 | ng/L | 1.93 | 1763-23-1-LN | 1 |
| PFOS-BR* | 31 | 1.9 | 1.9 | ng/L | 1.93 | 1763-23-1-BR | 1 |
| PFUnDA* | 86 | 1.9 | 1.4 | ng/L | 1.93 | 2058-94-8 | 1 |
| PFNS* | 100 | 1.9 | 1.4 | ng/L | 1.93 | 68259-12-1 | 1 |
| PFDODA* | 95 | 1.9 | 1.5 | ng/L | 1.93 | 307-55-1 | 1 |
| PFDS* | 100 | 1.9 | 1.4 | ng/L | 1.93 | 335-77-3 | 1 |
| PFTDA* | 91 | 1.9 | 1.2 | ng/L | 1.93 | 72629-94-8 | 1 |
| FOSA* | 100 | 1.9 | 1.7 | ng/L | 1.93 | 754-91-6 | 1 |
| PFTeDA* | 91 | 3.9 | 1.7 | ng/L | 1.93 | 376-06-7 | 1 |
| 11Cl-PF3OUdS* | 86 | 1.9 | 1.7 | ng/L | 1.93 | 763051-92-9 | 1 |
| 9Cl-PF3ONS* | 98 | 1.9 | 1.4 | ng/L | 1.93 | 756426-58-1 | 1 |
| ADONA* | 99 | 1.9 | 1.9 | ng/L | 1.93 | 919005-14-4 | 1 |
| HFPO-DA* | 120 | 9.7 | 1.9 | ng/L | 1.93 | 13252-13-6 | 1 |
| FHpPA (7:3 FTCA)* | 87 | 3.9 | 2.9 | ng/L | 1.93 | 812-70-4 | 1 |
| FPePA (5:3 FTCA)* | 85 | 3.9 | 2.1 | ng/L | 1.93 | 914637-49-3 | 1 |
| FPrPA (3:3 FTCA)* | 92 | 3.9 | 1.2 | ng/L | 1.93 | 356-02-5 | 1 |
| PFBSA* | 88 | 1.9 | 1.2 | ng/L | 1.93 | 30334-69-1 | 1 |

1-spiked @ 96.5 ng/L



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.09 (continued)

Sample Tag: VAS08-16-20 MSD

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 04:46, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFECHS* | 84 | 1.9 | 1.2 | ng/L | 1.93 | 67584-42-3 | 1 |
| PFHxSA* | 87 | 1.9 | 0.97 | ng/L | 1.93 | 41997-13-1 | 1 |

1-spiked @ 96.5 ng/L



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.10

Sample Tag: VAS09-4-9

Collected Date/Time: 12/02/2022 11:25

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.23/6.53/11 | ASTMD7979-19M | 12/05/22 12:22 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 05:06, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 17 | 9.7 | 9.7 | ng/L | 1.93 | 375-22-4 | |
| PFPeA* | 3.0 | 3.9 | 0.97 | ng/L | 1.93 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 757124-72-4 | |
| PFHxA* | 3.2 | 1.9 | 1.4 | ng/L | 1.93 | 307-24-4 | |
| PFBS* | 2.7 | 1.9 | 1.4 | ng/L | 1.93 | 375-73-5 | |
| PFHpA* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 27619-97-2 | |
| PFOA* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 1.9 | ng/L | 1.93 | 2991-50-6 | |
| PFOS* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.7 | ng/L | 1.93 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.7 | 1.9 | ng/L | 1.93 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.9 | ng/L | 1.93 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.1 | ng/L | 1.93 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.93 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.10 (continued)

Sample Tag: VAS09-4-9

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 05:06, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 1.2 | 1.9 | 1.2 | ng/L | 1.93 | 67584-42-3 | J |
| PFHxSA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 41997-13-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.11

Sample Tag: VAS10-2-7

Collected Date/Time: 12/02/2022 12:30

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.20/6.59/11 | ASTMD7979-19M | 12/05/22 12:22 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 05:25, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 15 | 9.8 | 9.8 | ng/L | 1.96 | 375-22-4 | |
| PFPeA* | 43 | 3.9 | 0.98 | ng/L | 1.96 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.96 | 757124-72-4 | |
| PFHxA* | 25 | 2.0 | 1.4 | ng/L | 1.96 | 307-24-4 | |
| PFBS* | 2.3 | 2.0 | 1.4 | ng/L | 1.96 | 375-73-5 | |
| PFHpA* | 17 | 2.0 | 1.4 | ng/L | 1.96 | 375-85-9 | |
| PFPeS* | 2.5 | 2.0 | 1.8 | ng/L | 1.96 | 2706-91-4 | |
| 6:2 FTSA* | 2.4 | 2.0 | 2.0 | ng/L | 1.96 | 27619-97-2 | |
| PFOA* | 8.8 | 2.0 | 1.6 | ng/L | 1.96 | 335-67-1 | |
| PFHxS* | 12 | 2.0 | 1.6 | ng/L | 1.96 | 355-46-4 | |
| PFHxS-LN* | 8.7 | 2.0 | 1.6 | ng/L | 1.96 | 355-46-4-LN | |
| PFHxS-BR* | 2.7 | 2.0 | 1.6 | ng/L | 1.96 | 355-46-4-BR | |
| PFNA* | 2.3 | 2.0 | 1.8 | ng/L | 1.96 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 2991-50-6 | |
| PFOS* | 42 | 2.0 | 1.9 | ng/L | 1.96 | 1763-23-1 | |
| PFOS-LN* | 31 | 2.0 | 1.9 | ng/L | 1.96 | 1763-23-1-LN | |
| PFOS-BR* | 11 | 2.0 | 1.9 | ng/L | 1.96 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.96 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.96 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.8 | ng/L | 1.96 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.96 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.8 | 2.0 | ng/L | 1.96 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.9 | ng/L | 1.96 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.2 | ng/L | 1.96 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.96 | 356-02-5 | |
| PFBSA* | 2.1 | 2.0 | 1.2 | ng/L | 1.96 | 30334-69-1 | |
| PFECHS* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 67584-42-3 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.11 (continued)

Sample Tag: VAS10-2-7

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 05:25, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFHxSA* | 1.3 | 2.0 | 0.98 | ng/L | 1.96 | 41997-13-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.12

Sample Tag: DUP02-02122022

Collected Date/Time: 12/02/2022 00:00

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.63/6.60/12 | ASTMD7979-19M | 12/05/22 12:22 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 05:45, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|------|------|-------|----------|--------------|-------|
| PFBA* | 14 | 10.0 | 10.0 | ng/L | 1.99 | 375-22-4 | |
| PFPeA* | 41 | 4.0 | 1.00 | ng/L | 1.99 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 757124-72-4 | |
| PFHxA* | 24 | 2.0 | 1.4 | ng/L | 1.99 | 307-24-4 | |
| PFBS* | 2.4 | 2.0 | 1.4 | ng/L | 1.99 | 375-73-5 | |
| PFHpA* | 19 | 2.0 | 1.4 | ng/L | 1.99 | 375-85-9 | |
| PFPeS* | 2.1 | 2.0 | 1.8 | ng/L | 1.99 | 2706-91-4 | |
| 6:2 FTSA* | 2.3 | 2.0 | 2.0 | ng/L | 1.99 | 27619-97-2 | |
| PFOA* | 8.4 | 2.0 | 1.6 | ng/L | 1.99 | 335-67-1 | |
| PFHxS* | 12 | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4 | |
| PFHxS-LN* | 9.8 | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4-LN | |
| PFHxS-BR* | 2.6 | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4-BR | |
| PFNA* | 2.6 | 2.0 | 1.8 | ng/L | 1.99 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 1.99 | 2991-50-6 | |
| PFOS* | 37 | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1 | |
| PFOS-LN* | 27 | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1-LN | |
| PFOS-BR* | 8.5 | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 1.99 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10.0 | 2.0 | ng/L | 1.99 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 1.99 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 1.99 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 1.99 | 356-02-5 | |
| PFBSA* | 2.3 | 2.0 | 1.2 | ng/L | 1.99 | 30334-69-1 | |
| PFECHS* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 67584-42-3 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.12 (continued)

Sample Tag: DUP02-02122022

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 05:45, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFHxSA* | 1.5 | 2.0 | 1.00 | ng/L | 1.99 | 41997-13-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.13

Sample Tag: VAS09-16-20

Collected Date/Time: 12/02/2022 13:35

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.29/6.55/11 | ASTMD7979-19M | 12/05/22 12:22 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 06:04, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.6 | 9.6 | ng/L | 1.92 | 375-22-4 | |
| PFPeA* | 1.9 | 3.8 | 0.96 | ng/L | 1.92 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 1.9 | 1.5 | ng/L | 1.92 | 757124-72-4 | |
| PFHxA* | 2.7 | 1.9 | 1.3 | ng/L | 1.92 | 307-24-4 | |
| PFBS* | 1.5 | 1.9 | 1.3 | ng/L | 1.92 | 375-73-5 | J |
| PFHpA* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.92 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 27619-97-2 | |
| PFOA* | Not detected | 1.9 | 1.5 | ng/L | 1.92 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.5 | ng/L | 1.92 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.5 | ng/L | 1.92 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.5 | ng/L | 1.92 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 1.7 | ng/L | 1.92 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.8 | 1.9 | ng/L | 1.92 | 2991-50-6 | |
| PFOS* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.92 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.92 | 754-91-6 | |
| PFTeDA* | Not detected | 3.8 | 1.7 | ng/L | 1.92 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.92 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.6 | 1.9 | ng/L | 1.92 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.8 | 2.9 | ng/L | 1.92 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.8 | 2.1 | ng/L | 1.92 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.8 | 1.2 | ng/L | 1.92 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.13 (continued)

Sample Tag: VAS09-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 06:04, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 41997-13-1 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.14

Sample Tag: VAS10-16-20

Collected Date/Time: 12/02/2022 14:35

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.95/6.51/10 | ASTMD7979-19M | 12/05/22 12:22 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 06:24, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.2 | 9.2 | ng/L | 1.84 | 375-22-4 | |
| PFPeA* | 2.0 | 3.7 | 0.92 | ng/L | 1.84 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 1.8 | 1.5 | ng/L | 1.84 | 757124-72-4 | |
| PFHxA* | 2.1 | 1.8 | 1.3 | ng/L | 1.84 | 307-24-4 | |
| PFBS* | Not detected | 1.8 | 1.3 | ng/L | 1.84 | 375-73-5 | |
| PFHpA* | Not detected | 1.8 | 1.3 | ng/L | 1.84 | 375-85-9 | |
| PFPeS* | Not detected | 1.8 | 1.7 | ng/L | 1.84 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.8 | 1.8 | ng/L | 1.84 | 27619-97-2 | |
| PFOA* | Not detected | 1.8 | 1.5 | ng/L | 1.84 | 335-67-1 | |
| PFHxS* | Not detected | 1.8 | 1.5 | ng/L | 1.84 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.8 | 1.5 | ng/L | 1.84 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.8 | 1.5 | ng/L | 1.84 | 355-46-4-BR | |
| PFNA* | Not detected | 1.8 | 1.7 | ng/L | 1.84 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.8 | 0.92 | ng/L | 1.84 | 39108-34-4 | |
| PFHpS* | Not detected | 1.8 | 1.8 | ng/L | 1.84 | 375-92-8 | |
| PFDA* | Not detected | 1.8 | 1.8 | ng/L | 1.84 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.8 | 1.8 | ng/L | 1.84 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.7 | 1.8 | ng/L | 1.84 | 2991-50-6 | |
| PFOS* | Not detected | 1.8 | 1.8 | ng/L | 1.84 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.8 | 1.8 | ng/L | 1.84 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.8 | 1.8 | ng/L | 1.84 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.8 | 1.3 | ng/L | 1.84 | 2058-94-8 | |
| PFNS* | Not detected | 1.8 | 1.3 | ng/L | 1.84 | 68259-12-1 | |
| PFDODA* | Not detected | 1.8 | 1.5 | ng/L | 1.84 | 307-55-1 | |
| PFDS* | Not detected | 1.8 | 1.3 | ng/L | 1.84 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.8 | 1.1 | ng/L | 1.84 | 72629-94-8 | |
| FOSA* | Not detected | 1.8 | 1.7 | ng/L | 1.84 | 754-91-6 | |
| PFTeDA* | Not detected | 3.7 | 1.7 | ng/L | 1.84 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.8 | 1.7 | ng/L | 1.84 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.8 | 1.3 | ng/L | 1.84 | 756426-58-1 | |
| ADONA* | Not detected | 1.8 | 1.8 | ng/L | 1.84 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.2 | 1.8 | ng/L | 1.84 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.7 | 2.8 | ng/L | 1.84 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.7 | 2.0 | ng/L | 1.84 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.7 | 1.1 | ng/L | 1.84 | 356-02-5 | |
| PFBSA* | Not detected | 1.8 | 1.1 | ng/L | 1.84 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.14 (continued)

Sample Tag: VAS10-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 06:24, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 1.8 | 1.1 | ng/L | 1.84 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.8 | 0.92 | ng/L | 1.84 | 41997-13-1 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.15

Sample Tag: Equipment Blank-01-02122022

Collected Date/Time: 12/02/2022 14:30

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.92/6.50/11 | ASTMD7979-19M | 12/05/22 12:22 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 06:43, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | Not detected | 10 | 10 | ng/L | 2.03 | 375-22-4 | |
| PFPeA* | Not detected | 4.1 | 1.0 | ng/L | 2.03 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 2.03 | 757124-72-4 | |
| PFHxA* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 307-24-4 | |
| PFBS* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 375-73-5 | |
| PFHpA* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 2.03 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 27619-97-2 | |
| PFOA* | Not detected | 2.0 | 1.6 | ng/L | 2.03 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.6 | ng/L | 2.03 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.6 | ng/L | 2.03 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 2.03 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 2.03 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2.03 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.1 | 2.0 | ng/L | 2.03 | 2991-50-6 | |
| PFOS* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 2.03 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 2.03 | 754-91-6 | |
| PFTeDA* | Not detected | 4.1 | 1.8 | ng/L | 2.03 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 2.03 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.0 | ng/L | 2.03 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.1 | 3.0 | ng/L | 2.03 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.1 | 2.2 | ng/L | 2.03 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.1 | 1.2 | ng/L | 2.03 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 30334-69-1 | |
| PFCHS* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 67584-42-3 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43065.15 (continued)

Sample Tag: Equipment Blank-01-02122022

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 06:43, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|-----|-------|----------|------------|-------|
| PFHxSA* | Not detected | 2.0 | 1.0 | ng/L | 2.03 | 41997-13-1 | |

Merit Laboratories Login Checklist

Lab Set ID:S43065

Client:WSP (WSP)

Project: Former JB Sims Generating Station, Harbor Island, GrandHaven

Submitted: 12/02/2022 16:44 Login User: MMC

Attention: Saamih Bashir

Address: WSP

45850 Magellan Drive, Suite 190

Novi, MI 48377

Phone: n/a

FAX:

Email: Saamih.Bashir@wsp.com

| Selection | Description | Note |
|-----------|-------------|------|
|-----------|-------------|------|

Sample Receiving

- | | | |
|-----|--|--|
| 01. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 4.9 |
| 02. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun |
| 03. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped |
| 04. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box |
| 05. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |

Chain of Custody

- | | | |
|-----|--|--|
| 06. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out |
| 07. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab |
| 08. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC |
| 09. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to: |

Preservation

- | | | |
|-----|--|---|
| 10. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation |
| 11. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs) |
| 12. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab? |

Bottle Conditions

- | | | |
|-----|--|---|
| 13. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact |
| 14. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used |
| 15. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used |
| 16. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received |
| 17. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration |
| 18. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time |
| 19. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace |

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

WSP USA Environment & Infrastructure Inc.
 46850 Magellan Drive, Suite 190
 Novi, Michigan 48377
 (248) 926-4008

CHAIN OF CUSTODY

SHIP TO:
 Merit Laboratories, Inc.
 2680 East Lansing Drive
 East Lansing, MI 48823
 Atten: Johanna Murray
 Lab Phone# 517-827-2755

DATE: 12/2/2022
 COC #: _____
 PAGE: 1 OF 2

| | | | |
|--|---------------------------------------|---|-----------------------------------|
| Project Name: Former JB Sims Generating Station, Harbor Island, Grand Haven | Project Contact: Zach McCurley | Bill To: WSP USA Environment & Infrastructure Inc. | Disposal Instructions: LAB |
| Project Number: 3650220203.02.02.3650 | Phone Number: 248-775-9823 | Attn: Saamih Bashir | Shipment Method: FEDEX |
| Project Manager: Saamih Bashir | Purchase Order: C012407104 | 46850 Magellan Dr., Ste 190 Novi, MI 48377 | Waybill Number: N/A |
| Sampler Name: Jared Walbert | | | Waybill Number: N/A |

MATRIX Code W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL SW=SURFACE WATER
 L=LIQUID SD=SEDIMENT SL=SLUDGE DW=DRINKING WATER O=OIL A=AIR WS=WASTE

| | | | |
|---------------------------------|--------|----------|--|
| TURNAROUND TIME REQUIRED | 2 Days | 5 Days | <input checked="" type="checkbox"/> Standard (10 TAT) |
| DELIVERABLES REQUIRED | STD | Level II | Level III <input checked="" type="checkbox"/> Level IV <input checked="" type="checkbox"/> EDD |

| Sample Information | | | | | | | Methods for Analysis | | | | | | | RUSH | | | | |
|--------------------|---------------------|----------------|-----------|-------|--------|--------------|-----------------------------|---------------------|----------------------|-----------------------------|-------------------------------|--------------------------------------|----------------------|---------|---------|---------|--------|--|
| No. | Lab ID | Sample ID | Date | Time | Matrix | # of Bottles | PFAS ASTMD7979 Per Contract | VOCs (Per Contract) | SVOCs (Per Contract) | MI 10 Metals (per Contract) | pH/corrosivity (per Contract) | particle size (sieve and hydrometer) | Total Organic Carbon | 24 Hour | 48 Hour | 72 Hour | 5 Days | |
| 1 | 43065.01 | VAS06-3-8 | 12/1/2022 | 12:30 | GW | 3 | x | | | | | | | | | | | |
| 2 | .02 | VAS06-16-20 | 12/1/2022 | 14:15 | GW | 3 | x | | | | | | | | | | | |
| 3 | .03 | VAS07-3-8 | 12/1/2022 | 13:30 | GW | 3 | x | | | | | | | | | | | |
| 4 | .04 | VAS07-16-20 | 12/1/2022 | 15:35 | GW | 3 | x | | | | | | | | | | | |
| 5 | .05 | VAS08-4-9 | 12/1/2022 | 16:45 | GW | 3 | x | | | | | | | | | | | |
| 6 | 43067.01 / 43068.01 | MW-34 | 12/1/2022 | 15:40 | GW | 6 | x | x | | | | | | | | | | |
| 7 | 43065.06 | MW-33 | 12/1/2022 | 18:20 | GW | 3 | x | | | | | | | | | | | |
| 8 | .07 / .08 / .09 | VAS08-16-20 | 12/2/2022 | 9:45 | GW | 9 | x | | | | | | | | | | | |
| 9 | .10 | VAS09-4-9 | 12/2/2022 | 11:25 | GW | 3 | x | | | | | | | | | | | |
| 10 | .11 | VAS10-2-7 | 12/2/2022 | 12:30 | GW | 3 | x | | | | | | | | | | | |
| 11 | .12 | DUP02-02122022 | 12/2/2022 | 0:00 | GW | 3 | x | | | | | | | | | | | |
| 12 | .13 | VAS09-16-20 | 12/2/2022 | 13:35 | GW | 3 | x | | | | | | | | | | | |

| | | | | | |
|---|----------------------|-------------------|----------------------------------|--------|--|
| Relinquished By/Affiliation: <i>Kendra White</i> | Date: 12/2/22 | Time: | For Lab Use | | Comments: VAS08-16-20-MS and VAS08-16-20-MSD collected 12/2/2022 9:45 * Rush (5-day) sample MW-34 for VOCs and PFAS |
| Received By: <i>Johanna Murray</i> | Date: 12/2/22 | Time: 1644 | Does COC match samples: | Y or N | |
| Relinquished By/Affiliation: | Date: | Time: | Broken Container: | Y or N | |
| Received By: | Date: | Time: | COC seal intact: | Y or N | |
| Relinquished By/Affiliation: | Date: | Time: | Other problems: | Y or N | |
| Received By (LAB): | Date: | Time: | WSDOT contacted: | Y or N | |
| | | | Date contacted: | | |
| | | | Cooler Temperature at receipt: | 4.9 °C | |
| | | | NUMBER OF COOLERS SENT: 1 | | |

WSP USA Environment & Infrastructure Inc.
 46850 Magellan Drive, Suite 190
 Novi, Michigan 48377
 (248) 926-4008

CHAIN OF CUSTODY

SHIP TO:
 Merit Laboratories, Inc.
 2680 East Lansing Drive
 East Lansing, MI 48823
 Atten: Johanna Murray
 Lab Phone# 517-827-2755

DATE: 12/2/2022
 COC #: _____
 PAGE: 2 OF 2

| | | | |
|--|---------------------------------------|---|-----------------------------------|
| Project Name: Former JB Sims Generating Station, Harbor Island, Grand Haven | Project Contact: Zach McCurley | Bill To: WSP USA Environment & Infrastructure Inc. | Disposal Instructions: LAB |
| Project Number: 3650220203.02.02.3650 | Phone Number: 248-775-9823 | Attn: Saamih Bashir | Shipment Method: FEDEX |
| Project Manager: Saamih Bashir | Purchase Order: C012407104 | 46850 Magellan Dr., Ste. 190 | Waybill Number: N/A |
| Sampler Name: Jared Walbert | | Novi, MI 48377 | Waybill Number: N/A |

MATRIX Code W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL SW=SURFACE WATER
 L=LIQUID SD=SEDIMENT SL=SLUDGE DW=DRINKING WATER O=OIL A=AIR WS=WASTE

| | | | |
|---------------------------------|--------|----------|--|
| TURNAROUND TIME REQUIRED | 2 Days | 5 Days | <input checked="" type="checkbox"/> Standard (10 TAT) |
| DELIVERABLES REQUIRED | STD | Level II | Level III <input checked="" type="checkbox"/> Level IV <input checked="" type="checkbox"/> EDD |

| Sample Information | | | | | | Methods for Analysis | | | | | | RUSH | | | | | | |
|--------------------|----------|-----------------------------|-----------|-------|--------|----------------------|------------------------------|---------------------|----------------------|-----------------------------|-------------------------------|--------------------------------------|----------------------|---------|---------|---------|--------|--|
| No. | Lab ID | Sample ID | Date | Time | Matrix | # of Bottles | PFAS ASTM D7979 Per Contract | VOCs (Per Contract) | SVOCs (Per Contract) | MI 10 Metals (per Contract) | pH/corrosivity (per Contract) | particle size (sieve and hydrometer) | Total Organic Carbon | 24 Hour | 48 Hour | 72 Hour | 5 Days | |
| 1 | | VAS08-16-20 | 12/2/2022 | 13:35 | GW | 3 | | | | | | | | | | | | |
| 2 | 43065.14 | VAS10-16-20 | 12/2/2022 | 14:35 | GW | 3 | x | | | | | | | | | | | |
| 3 | .15 | Equipment Blank-01-02122022 | 12/2/2022 | 14:30 | GW | 3 | x | | | | | | | | | | | |
| 4 | 43068.02 | Field Blank Trip | 12/2/2022 | 7:30 | GW | 1 | x | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | |

| | | | | | |
|---|----------------------|-------------------|--------------------------------|--------|---|
| Relinquished By/Affiliation: <i>Ruth Wilts</i> | Date: 12/2/22 | Time: | For Lab Use | | Comments: VAS08-16-20-MS and VAS08-16-20-MSD collected 12/2/2022 9:45 * Rush (5-day) sample MW-34 for VOCs + PFAS NUMBER OF COOLERS SENT: 1 |
| Received By: <i>Johanna Murray</i> | Date: 12/2/22 | Time: 1044 | Does COC match samples: | Y or N | |
| Relinquished By/Affiliation: | Date: | Time: | Broken Container: | Y or N | |
| Received By: | Date: | Time: | COC seal intact: | Y or N | |
| Relinquished By/Affiliation: | Date: | Time: | Other problems: | Y or N | |
| Received By (LAB): | Date: | Time: | WSDOT contacted: | Y or N | |
| | | | Date contacted: | | |
| | | | Cooler Temperature at receipt: | 49 °C | |



Report ID: S43067.01(02)
Generated on 01/10/2023
Replaces report S43067.01(01) generated on 12/09/2022

Report to

Attention: Saamih Bashir
WSP
45850 Magellan Drive, Suite 190
Novi, MI 48377

Phone: n/a FAX:
Email: Saamih.Bashir@wsp.com

Additional Contacts: Jared Walbert

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S43067.01
Project: Former JB Sims Generating Station, Harbor Island, GrandHaven
Collected Date(s): 12/01/2022
Submitted Date/Time: 12/02/2022 16:44
Sampled by: Jared Walbert
P.O. #: C012407104

Table of Contents

- Cover Page (Page 1)
- General Report Notes (Page 2)
- Report Narrative (Page 2)
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- Glossary of Abbreviations (Page 3)
- Method Summary (Page 4)
- Sample Summary (Page 5)

Maya Murshak
Technical Director



General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

Report Narrative

Reported down to MDL



Laboratory Certifications

| Authority | Certification ID |
|---------------------|------------------|
| Michigan DEQ | #9956 |
| DOD ELAP/ISO 17025 | #69699 |
| WBENC | #2005110032 |
| Ohio VAP | #CL0002 |
| Indiana DOH | #C-MI-07 |
| New York NELAC | #11814 |
| North Carolina DENR | #680 |
| North Carolina DOH | #26702 |
| Alaska CSLAP | #17-001 |
| Pennsylvania DEP | #68-05884 |
| Wisconsin DNR | FID# 399147320 |

Qualifier Descriptions

| Qualifier | Description |
|-----------|---|
| ! | Result is outside of stated limit criteria |
| B | Compound also found in associated method blank |
| E | Concentration exceeds calibration range |
| F | Analysis run outside of holding time |
| G | Estimated result due to extraction run outside of holding time |
| H | Sample submitted and run outside of holding time |
| I | Matrix interference with internal standard |
| J | Estimated value less than reporting limit, but greater than MDL |
| L | Elevated reporting limit due to low sample amount |
| M | Result reported to MDL not RDL |
| O | Analysis performed by outside laboratory. See attached report. |
| R | Preliminary result |
| S | Surrogate recovery outside of control limits |
| T | No correction for total solids |
| X | Elevated reporting limit due to matrix interference |
| Y | Elevated reporting limit due to high target concentration |
| b | Value detected less than reporting limit, but greater than MDL |
| e | Reported value estimated due to interference |
| j | Analyte also found in associated method blank |
| p | Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak. |
| x | Preserved from bulk sample |

Glossary of Abbreviations

| Abbreviation | Description |
|--------------|--|
| RL/RDL | Reporting Limit |
| MDL | Method Detection Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| SW | EPA SW 846 (Soil and Wastewater) Methods |
| E | EPA Methods |
| SM | Standard Methods |
| LN | Linear |
| BR | Branched |

Method Summary

| Method | Version |
|---------------|---|
| ASTMD7979-19M | ASTM Method D7979 - 19 Modified (Isotopic Dilution) |

Parameter Summary

| Parameter | Synonym | Cas # |
|------------------|--|--------------|
| PFBA | Perfluorobutanoic Acid | 375-22-4 |
| PFPeA | Perfluoropentanoic Acid | 2706-90-3 |
| 4:2 FTSA | 4:2 Fluorotelomer Sulfonic Acid | 757124-72-4 |
| PFHxA | Perfluorohexanoic Acid | 307-24-4 |
| PFBS | Perfluorobutane sulfonic Acid | 375-73-5 |
| PFHpA | Perfluoroheptanoic Acid | 375-85-9 |
| PFPeS | Perfluoropentane Sulfonic Acid | 2706-91-4 |
| 6:2 FTSA | 6:2 Fluorotelomer Sulfonic Acid | 27619-97-2 |
| PFOA | Perfluorooctanoic Acid | 335-67-1 |
| PFHxS | Perfluorohexane Sulfonic Acid | 355-46-4 |
| PFHxS-LN | Perfluorohexane Sulfonic Acid - LN | 355-46-4-LN |
| PFHxS-BR | Perfluorohexane Sulfonic Acid - BR | 355-46-4-BR |
| PFNA | Perfluorononanoic Acid | 375-95-1 |
| 8:2 FTSA | 8:2 Fluorotelomer Sulfonic Acid | 39108-34-4 |
| PFHpS | Perfluoroheptane Sulfonic Acid | 375-92-8 |
| PFDA | Perfluorodecanoic Acid | 335-76-2 |
| N-MeFOSAA | N-methyl perfluorooctanesulfonamidoacetic acid | 2355-31-9 |
| EtFOSAA | N-Ethyl Perfluorooctane Sulfonamidoacetic Acid | 2991-50-6 |
| PFOS | Perfluorooctane Sulfonic Acid | 1763-23-1 |
| PFOS-LN | Perfluorooctane Sulfonic Acid - LN | 1763-23-1-LN |
| PFOS-BR | Perfluorooctane Sulfonic Acid - BR | 1763-23-1-BR |
| PFUnDA | Perfluoroundecanoic Acid | 2058-94-8 |
| PFNS | Perfluorononane Sulfonic Acid | 68259-12-1 |
| PFDoDA | Perfluorododecanoic Acid | 307-55-1 |
| PFDS | Perfluorodecane Sulfonic Acid | 335-77-3 |
| PFTTrDA | Perfluorotridecanoic Acid | 72629-94-8 |
| FOSA | Perfluorooctane Sulfonamide | 754-91-6 |
| PFTeDA | Perfluorotetradecanoic Acid | 376-06-7 |
| 11Cl-PF3OUdS | 11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid | 763051-92-9 |
| 9Cl-PF3ONS | 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid | 756426-58-1 |
| ADONA | 4,8-dioxa-3H-perfluorononanoic acid | 919005-14-4 |
| HFPO-DA | Hexafluoropropylene oxide dimer | 13252-13-6 |
| FHpPA (7:3 FTCA) | 3-Perfluoroheptyl propanoic acid | 812-70-4 |
| FPePA (5:3 FTCA) | 3-Perfluoropentyl propanoic acid | 914637-49-3 |
| FPrPA (3:3 FTCA) | 3-Perfluoropropyl propanoic acid | 356-02-5 |
| PFBSA | Perfluorobutanesulfonamide | 30334-69-1 |
| PFECHS | Perfluoro-4-ethylcyclohexanesulfonate | 67584-42-3 |
| PFHxSA | Perfluorohexanesulfonamide | 41997-13-1 |



Analytical Laboratory Report

Revised Report

Sample Summary (1 samples)

| Sample ID | Sample Tag | Matrix | Collected Date/Time |
|-----------|------------|-------------|---------------------|
| S43067.01 | MW-34 | Groundwater | 12/01/22 15:40 |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43067.01

Sample Tag: MW-34

Collected Date/Time: 12/01/2022 15:40

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.32/6.50/11 | ASTMD7979-19M | 12/05/22 12:22 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 01:51, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 14 | 9.5 | ng/L | 1.89 | 375-22-4 | X |
| PFPeA* | 17 | 3.8 | 0.95 | ng/L | 1.89 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 1.5 | ng/L | 1.89 | 757124-72-4 | |
| PFHxA* | 12 | 1.9 | 1.3 | ng/L | 1.89 | 307-24-4 | |
| PFBS* | 9.8 | 1.9 | 1.3 | ng/L | 1.89 | 375-73-5 | |
| PFHpA* | 7.9 | 1.9 | 1.3 | ng/L | 1.89 | 375-85-9 | |
| PFPeS* | 2.9 | 1.9 | 1.7 | ng/L | 1.89 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.9 | ng/L | 1.89 | 27619-97-2 | |
| PFOA* | 82 | 1.9 | 1.5 | ng/L | 1.89 | 335-67-1 | |
| PFHxS* | 13 | 1.9 | 1.5 | ng/L | 1.89 | 355-46-4 | |
| PFHxS-LN* | 10 | 1.9 | 1.5 | ng/L | 1.89 | 355-46-4-LN | |
| PFHxS-BR* | 2.2 | 1.9 | 1.5 | ng/L | 1.89 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 1.7 | ng/L | 1.89 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.95 | ng/L | 1.89 | 39108-34-4 | |
| PFHpS* | 3.7 | 1.9 | 1.9 | ng/L | 1.89 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.89 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.89 | 2355-31-9 | |
| EtFOSAA* | 16 | 3.8 | 1.9 | ng/L | 1.89 | 2991-50-6 | |
| PFOS* | 160 | 1.9 | 1.9 | ng/L | 1.89 | 1763-23-1 | |
| PFOS-LN* | 94 | 1.9 | 1.9 | ng/L | 1.89 | 1763-23-1-LN | |
| PFOS-BR* | 62 | 1.9 | 1.9 | ng/L | 1.89 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.3 | ng/L | 1.89 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.3 | ng/L | 1.89 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.89 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.3 | ng/L | 1.89 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.1 | ng/L | 1.89 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.89 | 754-91-6 | |
| PFTeDA* | Not detected | 3.8 | 1.7 | ng/L | 1.89 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.89 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.3 | ng/L | 1.89 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.89 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.5 | 1.9 | ng/L | 1.89 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.8 | 2.8 | ng/L | 1.89 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.8 | 2.1 | ng/L | 1.89 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.8 | 1.1 | ng/L | 1.89 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.1 | ng/L | 1.89 | 30334-69-1 | |

X-Elevated reporting limit due to matrix interference



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43067.01 (continued)

Sample Tag: MW-34

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/06/22 01:51, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFECHS* | 8.5 | 1.9 | 1.1 | ng/L | 1.89 | 67584-42-3 | |
| PFHxSA* | 1.2 | 1.9 | 0.95 | ng/L | 1.89 | 41997-13-1 | J |

J-Estimated value less than reporting limit, but greater than MDL

Merit Laboratories Login Checklist

Lab Set ID:S43067

Client:WSP (WSP)

Project: Former JB Sims Generating Station, Harbor Island, GrandHaven

Submitted: 12/02/2022 16:44 Login User: MMC

Attention: Saamih Bashir

Address: WSP

45850 Magellan Drive, Suite 190

Novi, MI 48377

Phone: n/a

FAX:

Email: Saamih.Bashir@wsp.com

| Selection | Description | Note |
|-----------|-------------|------|
|-----------|-------------|------|

Sample Receiving

- | | | |
|-----|--|--|
| 01. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 4.9 |
| 02. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun |
| 03. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped |
| 04. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box |
| 05. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |

Chain of Custody

- | | | |
|-----|--|--|
| 06. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out |
| 07. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab |
| 08. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC |
| 09. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to: |

Preservation

- | | | |
|-----|--|---|
| 10. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation |
| 11. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs) |
| 12. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab? |

Bottle Conditions

- | | | |
|-----|--|---|
| 13. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact |
| 14. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used |
| 15. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used |
| 16. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received |
| 17. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration |
| 18. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time |
| 19. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace |

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

WSP USA Environment & Infrastructure Inc.
 46850 Magellan Drive, Suite 190
 Novi, Michigan 48377
 (248) 926-4008

CHAIN OF CUSTODY

SHIP TO:
 Merit Laboratories, Inc.
 2680 East Lansing Drive
 East Lansing, MI 48823
 Atten: Johanna Murray
 Lab Phone# 517-827-2755

DATE: 12/2/2022
 COC #: _____
 PAGE: 1 OF 2

| | | | |
|--|---------------------------------------|--|-----------------------------------|
| Project Name: Former JB Sims Generating Station, Harbor Island, Grand Haven | Project Contact: Zach McCurley | Bill To: WSP USA Environment & Infrastructure Inc. | Disposal Instructions: LAB |
| Project Number: 3650220203.02.02.3650 | Phone Number: 248-775-9823 | Attn: Saamih Bashir | Shipment Method: FEDEX |
| Project Manager: Saamih Bashir | Purchase Order: C012407104 | Address: 46850 Magellan Dr. Ste 190 Novi, MI 48377 | Waybill Number: N/A |
| Sampler Name: Jared Walbert | | | Waybill Number: N/A |

MATRIX Code W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL SW=SURFACE WATER
 L=LIQUID SD=SEDIMENT SL=SLUDGE DW=DRINKING WATER O=OIL A=AIR WS=WASTE

| | | | |
|---------------------------------|--------|----------|--|
| TURNAROUND TIME REQUIRED | 2 Days | 5 Days | <input checked="" type="checkbox"/> Standard (10 TAT) |
| DELIVERABLES REQUIRED | STD | Level II | Level III <input checked="" type="checkbox"/> Level IV <input checked="" type="checkbox"/> EDD |

| Sample Information | | | | | | Methods for Analysis | | | | | | | RUSH | | | | |
|--------------------|---------------------|----------------|-----------|-------|--------|----------------------|------------------------------|---------------------|----------------------|-----------------------------|-------------------------------|--------------------------------------|----------------------|---------|---------|---------|--------|
| No. | Lab ID | Sample ID | Date | Time | Matrix | # of Bottles | PFAS: A5TMD7979 Per Contract | VOCs (Per Contract) | SVOCs (Per Contract) | MI 10 Metals (per Contract) | pH/corrosivity (per Contract) | particle size (sieve and hydrometer) | Total Organic Carbon | 24 Hour | 48 Hour | 72 Hour | 9 Days |
| 1 | 43065.01 | VAS06-3-8 | 12/1/2022 | 12:30 | GW | 3 | x | | | | | | | | | | |
| 2 | .02 | VAS06-16-20 | 12/1/2022 | 14:15 | GW | 3 | x | | | | | | | | | | |
| 3 | .03 | VAS07-3-8 | 12/1/2022 | 13:30 | GW | 3 | x | | | | | | | | | | |
| 4 | .04 | VAS07-16-20 | 12/1/2022 | 15:35 | GW | 3 | x | | | | | | | | | | |
| 5 | .05 | VAS08-4-9 | 12/1/2022 | 16:45 | GW | 3 | x | | | | | | | | | | |
| 6 | 43067.01 / 43068.01 | MW-34 | 12/1/2022 | 15:40 | GW | 6 | x | x | | | | | | | | | |
| 7 | 43065.06 | MW-33 | 12/1/2022 | 18:20 | GW | 3 | x | | | | | | | | | | |
| 8 | .07 / .08 / .09 | VAS08-16-20 | 12/2/2022 | 9:45 | GW | 9 | x | | | | | | | | | | |
| 9 | .10 | VAS09-4-9 | 12/2/2022 | 11:25 | GW | 3 | x | | | | | | | | | | |
| 10 | .11 | VAS10-2-7 | 12/2/2022 | 12:30 | GW | 3 | x | | | | | | | | | | |
| 11 | .12 | DUP02-02122022 | 12/2/2022 | 0:00 | GW | 3 | x | | | | | | | | | | |
| 12 | .13 | VAS09-16-20 | 12/2/2022 | 13:35 | GW | 3 | x | | | | | | | | | | |

| | | | | | |
|---|----------------------|-------------------|----------------------------------|--------|--|
| Relinquished By/Affiliation: <i>Kendra White</i> | Date: 12/2/22 | Time: | For Lab Use | | Comments: VAS08-16-20-MS and VAS08-16-20-MSD collected 12/2/2022 9:45 * Rush (5-day) sample MW-34 for VOCs and PFAS |
| Received By: <i>Johanna Murray</i> | Date: 12/2/22 | Time: 1644 | Does COC match samples: | Y or N | |
| Relinquished By/Affiliation: | Date: | Time: | Broken Container: | Y or N | |
| Received By: | Date: | Time: | COC seal intact: | Y or N | |
| Relinquished By/Affiliation: | Date: | Time: | Other problems: | Y or N | |
| Received By (LAB): | Date: | Time: | WSDOT contacted: | Y or N | |
| | | | Date contacted: | | |
| | | | Cooler Temperature at receipt: | 4.9 °C | |
| | | | NUMBER OF COOLERS SENT: 1 | | |

WSP USA Environment & Infrastructure Inc.
46850 Magellan Drive, Suite 190
Novi, Michigan 48377
(248) 926-4008

CHAIN OF CUSTODY

SHIP TO:
Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823
Atten: Johanna Murray
Lab Phone# 517-827-2755

DATE: 12/2/2022
COC #: _____
PAGE: 2 OF 2

| | | | |
|--|---------------------------------------|---|-----------------------------------|
| Project Name: Former JB Sims Generating Station, Harbor Island, Grand Haven | Project Contact: Zach McCurley | Bill To: WSP USA Environment & Infrastructure Inc. | Disposal Instructions: LAB |
| Project Number: 3650220203.02.02.3650 | Phone Number: 248-775-9823 | Attn: Saamih Bashir | Shipment Method: FEDEX |
| Project Manager: Saamih Bashir | Purchase Order: C012407104 | Address: 46850 Magellan Dr., Ste 190 Novi, MI 48377 | Waybill Number: N/A |
| Sampler Name: Jared Walbert | | | Waybill Number: N/A |

MATRIX Code W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL SW=SURFACE WATER
L=LIQUID SD=SEDIMENT SL=SLUDGE DW=DRINKING WATER O=OIL A=AIR WS=WASTE

TURNAROUND TIME REQUIRED: 2 Days 5 Days Standard (10 TAT)

DELIVERABLES REQUIRED: STD Level II Level III Level IV EDD

| Sample Information | | | | | | Methods for Analysis | | | | | | | RUSH | | | | | | | | |
|--------------------|----------|-----------------------------|-----------|-------|--------|----------------------|------------------------------|----------------------------|----------------------|-----------------------------|-------------------------------|--------------------------------------|----------------------|---------|---------|---------|--------|--|--|--|--|
| No. | Lab ID | Sample ID | Date | Time | Matrix | # of Bottles | PFA5 AS TMS7979 Per Contract | VOCs (Per Contract) | SVOCs (Per Contract) | MI 10 Metals (per Contract) | pH/corrosivity (per Contract) | particle size (sieve and hydrometer) | Total Organic Carbon | 24 Hour | 48 Hour | 72 Hour | 5 Days | | | | |
| 1 | | VAS08-16-20 | 12/2/2022 | 13:35 | GW | 3 | x | <i>See Duplicate Entry</i> | | | | | | | | | | | | | |
| 2 | 43065.14 | VAS10-16-20 | 12/2/2022 | 14:35 | GW | 3 | x | | | | | | | | | | | | | | |
| 3 | .15 | Equipment Blank-01-02122022 | 12/2/2022 | 14:30 | GW | 3 | x | | | | | | | | | | | | | | |
| 4 | 43068.02 | Field Blank Trip | 12/2/2022 | 7:30 | GW | 1 | x | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | |

| | | | | | |
|---|----------------------|-------------------|--------------------------------|--------|--|
| Relinquished By/Affiliation: <i>Kate White</i> | Date: 12/2/22 | Time: | For Lab Use | | Comments: VAS08-16-20-MS and VAS08-16-20-MSD collected 12/2/2022 9:45 <i>*Rush (5-day) sample MW-34 for VOCs + PFA5</i> |
| Received By: <i>Johanna Murray</i> | Date: 12/2/22 | Time: 1044 | Does COC match samples: | Y or N | |
| Relinquished By/Affiliation: | Date: | Time: | Broken Container: | Y or N | |
| Received By: | Date: | Time: | COC seal intact: | Y or N | |
| Relinquished By/Affiliation: | Date: | Time: | Other problems: | Y or N | |
| Received By (LAB): | Date: | Time: | WSDOT contacted: | Y or N | |
| | | | Date contacted: | | |
| | | | Cooler Temperature at receipt: | 4.9 °C | |
| | | | NUMBER OF COOLERS SENT: 1 | | |



Analytical Laboratory Report

Report ID: S43068.01(01)
Generated on 12/09/2022

Report to

Attention: Saamih Bashir
WSP
45850 Magellan Drive, Suite 190
Novi, MI 48377

Phone: n/a FAX:
Email: Saamih.Bashir@wsp.com

Additional Contacts: Jared Walbert

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S43068.01-S43068.02
Project: Former JB Sims Generating Station, Harbor Island, GrandHaven
Collected Date(s): 12/01/2022 - 12/02/2022
Submitted Date/Time: 12/02/2022 08:15
Sampled by: Jared Walbert
P.O. #: C012407104

Table of Contents

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Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Certifications

| Authority | Certification ID |
|---------------------|------------------|
| Michigan DEQ | #9956 |
| DOD ELAP/ISO 17025 | #69699 |
| WBENC | #2005110032 |
| Ohio VAP | #CL0002 |
| Indiana DOH | #C-MI-07 |
| New York NELAC | #11814 |
| North Carolina DENR | #680 |
| North Carolina DOH | #26702 |
| Alaska CSLAP | #17-001 |
| Pennsylvania DEP | #68-05884 |
| Wisconsin DNR | FID# 399147320 |

Qualifier Descriptions

| Qualifier | Description |
|-----------|---|
| ! | Result is outside of stated limit criteria |
| B | Compound also found in associated method blank |
| E | Concentration exceeds calibration range |
| F | Analysis run outside of holding time |
| G | Estimated result due to extraction run outside of holding time |
| H | Sample submitted and run outside of holding time |
| I | Matrix interference with internal standard |
| J | Estimated value less than reporting limit, but greater than MDL |
| L | Elevated reporting limit due to low sample amount |
| M | Result reported to MDL not RDL |
| O | Analysis performed by outside laboratory. See attached report. |
| R | Preliminary result |
| S | Surrogate recovery outside of control limits |
| T | No correction for total solids |
| X | Elevated reporting limit due to matrix interference |
| Y | Elevated reporting limit due to high target concentration |
| b | Value detected less than reporting limit, but greater than MDL |
| e | Reported value estimated due to interference |
| j | Analyte also found in associated method blank |
| p | Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak. |
| x | Preserved from bulk sample |

Glossary of Abbreviations

| Abbreviation | Description |
|--------------|--|
| RL/RDL | Reporting Limit |
| MDL | Method Detection Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| SW | EPA SW 846 (Soil and Wastewater) Methods |
| E | EPA Methods |
| SM | Standard Methods |
| LN | Linear |
| BR | Branched |



Analytical Laboratory Report

Method Summary

| Method | Version |
|---------------|--|
| N/A | Not Applicable |
| SW5030C/8260C | SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003 |



Analytical Laboratory Report

Sample Summary (2 samples)

| Sample ID | Sample Tag | Matrix | Collected Date/Time |
|-----------|------------|-------------|---------------------|
| S43068.01 | MW-34 | Groundwater | 12/01/22 15:40 |
| S43068.02 | Trip Blank | Water | 12/02/22 07:30 |



Analytical Laboratory Report

Lab Sample ID: S43068.01

Sample Tag: MW-34

Collected Date/Time: 12/01/2022 15:40

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|------------|-----------------|---------------|-------------------|---------------|
| 3 | 40ml Glass | HCL | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--------------------|--------|--------|----------------|---------|-------|
| pH check for VOCs* | <2 | N/A | 12/06/22 10:30 | BML | |

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/09/22 15:15, Analyst: KAG

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|--------------------------------|--------------|-----|------|-------|----------|------------|-------|
| Diethyl ether | Not detected | 50 | 1.4 | ug/L | 5 | 60-29-7 | Y |
| Acetone | Not detected | 250 | 20 | ug/L | 5 | 67-64-1 | Y |
| Methyl iodide | Not detected | 5 | 1.2 | ug/L | 5 | 74-88-4 | Y |
| Carbon disulfide | 0.85 | 30 | 0.63 | ug/L | 5 | 75-15-0 | JBY |
| tert-Methyl butyl ether (MTBE) | Not detected | 30 | 1.2 | ug/L | 5 | 1634-04-4 | Y |
| Acrylonitrile | Not detected | 10 | 1.9 | ug/L | 5 | 107-13-1 | Y |
| 2-Butanone (MEK) | Not detected | 130 | 16 | ug/L | 5 | 78-93-3 | Y |
| Dichlorodifluoromethane | Not detected | 30 | 2.9 | ug/L | 5 | 75-71-8 | Y |
| Chloromethane | Not detected | 30 | 0.98 | ug/L | 5 | 74-87-3 | Y |
| Vinyl chloride | Not detected | 5 | 1.2 | ug/L | 5 | 75-01-4 | Y |
| Bromomethane | Not detected | 30 | 0.92 | ug/L | 5 | 74-83-9 | Y |
| Chloroethane | Not detected | 30 | 1.1 | ug/L | 5 | 75-00-3 | Y |
| Trichlorofluoromethane | Not detected | 5 | 1.4 | ug/L | 5 | 75-69-4 | Y |
| 1,1-Dichloroethene | Not detected | 5 | 1.3 | ug/L | 5 | 75-35-4 | Y |
| Methylene chloride | Not detected | 30 | 0.81 | ug/L | 5 | 75-09-2 | Y |
| trans-1,2-Dichloroethene | Not detected | 5 | 0.72 | ug/L | 5 | 156-60-5 | Y |
| 1,1-Dichloroethane | Not detected | 5 | 0.73 | ug/L | 5 | 75-34-3 | Y |
| cis-1,2-Dichloroethene | Not detected | 5 | 1.1 | ug/L | 5 | 156-59-2 | Y |
| Tetrahydrofuran* | 9.3 | 450 | 6.0 | ug/L | 5 | 109-99-9 | JY |
| Chloroform | Not detected | 5 | 0.75 | ug/L | 5 | 67-66-3 | Y |
| Bromochloromethane | Not detected | 5 | 1.8 | ug/L | 5 | 74-97-5 | Y |
| 1,1,1-Trichloroethane | Not detected | 5 | 1.4 | ug/L | 5 | 71-55-6 | Y |
| 4-Methyl-2-pentanone (MIBK) | 14.0 | 250 | 1.8 | ug/L | 5 | 108-10-1 | JY |
| 2-Hexanone | Not detected | 250 | 0.94 | ug/L | 5 | 591-78-6 | Y |
| Carbon tetrachloride | Not detected | 5 | 0.94 | ug/L | 5 | 56-23-5 | Y |
| Benzene | 380 | 5 | 0.56 | ug/L | 5 | 71-43-2 | Y |
| 1,2-Dichloroethane | Not detected | 5 | 0.86 | ug/L | 5 | 107-06-2 | Y |
| Trichloroethene | Not detected | 5 | 1.5 | ug/L | 5 | 79-01-6 | Y |
| 1,2-Dichloropropane | Not detected | 5 | 0.91 | ug/L | 5 | 78-87-5 | Y |
| Bromodichloromethane | Not detected | 5 | 0.96 | ug/L | 5 | 75-27-4 | Y |
| Dibromomethane | Not detected | 30 | 2.2 | ug/L | 5 | 74-95-3 | Y |
| cis-1,3-Dichloropropene | Not detected | 5 | 0.84 | ug/L | 5 | 10061-01-5 | Y |
| Toluene | 124 | 5 | 0.83 | ug/L | 5 | 108-88-3 | Y |
| trans-1,3-Dichloropropene | Not detected | 5 | 1.0 | ug/L | 5 | 10061-02-6 | Y |
| 1,1,2-Trichloroethane | Not detected | 5 | 1.7 | ug/L | 5 | 79-00-5 | Y |

Y-Elevated reporting limit due to high target concentration

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank



Analytical Laboratory Report

Lab Sample ID: S43068.01 (continued)

Sample Tag: MW-34

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/09/22 15:15, Analyst: KAG (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------------------|--------------|----|------|-------|----------|----------|-------|
| Tetrachloroethene | Not detected | 5 | 0.67 | ug/L | 5 | 127-18-4 | Y |
| trans-1,4-Dichloro-2-butene | Not detected | 5 | 1.3 | ug/L | 5 | 110-57-6 | Y |
| Dibromochloromethane | Not detected | 30 | 1.00 | ug/L | 5 | 124-48-1 | Y |
| 1,2-Dibromoethane | Not detected | 5 | 0.61 | ug/L | 5 | 106-93-4 | Y |
| Chlorobenzene | 1.30 | 5 | 0.78 | ug/L | 5 | 108-90-7 | JY |
| 1,1,1,2-Tetrachloroethane | Not detected | 5 | 1.1 | ug/L | 5 | 630-20-6 | Y |
| Ethylbenzene | 35 | 5 | 0.51 | ug/L | 5 | 100-41-4 | Y |
| p,m-Xylene* | 70 | 10 | 2.1 | ug/L | 5 | | Y |
| o-Xylene | 46 | 5 | 0.79 | ug/L | 5 | 95-47-6 | Y |
| Styrene | 11 | 5 | 0.64 | ug/L | 5 | 100-42-5 | Y |
| Isopropylbenzene | 5.25 | 30 | 0.58 | ug/L | 5 | 98-82-8 | JY |
| Bromoform | Not detected | 5 | 1.8 | ug/L | 5 | 75-25-2 | Y |
| 1,1,2,2-Tetrachloroethane | Not detected | 5 | 1.3 | ug/L | 5 | 79-34-5 | Y |
| 1,2,3-Trichloropropane | Not detected | 5 | 2.7 | ug/L | 5 | 96-18-4 | Y |
| n-Propylbenzene | 0.95 | 5 | 0.58 | ug/L | 5 | 103-65-1 | JY |
| Bromobenzene | Not detected | 5 | 0.75 | ug/L | 5 | 108-86-1 | Y |
| 1,3,5-Trimethylbenzene | 4.60 | 5 | 0.92 | ug/L | 5 | 108-67-8 | JY |
| tert-Butylbenzene | Not detected | 5 | 0.71 | ug/L | 5 | 98-06-6 | Y |
| 1,2,4-Trimethylbenzene | 19 | 5 | 0.81 | ug/L | 5 | 95-63-6 | Y |
| sec-Butylbenzene | Not detected | 5 | 0.82 | ug/L | 5 | 135-98-8 | Y |
| p-Isopropyltoluene | Not detected | 30 | 0.94 | ug/L | 5 | 99-87-6 | Y |
| 1,3-Dichlorobenzene | Not detected | 5 | 1.0 | ug/L | 5 | 541-73-1 | Y |
| 1,4-Dichlorobenzene | Not detected | 5 | 0.90 | ug/L | 5 | 106-46-7 | Y |
| 1,2-Dichlorobenzene | Not detected | 5 | 0.67 | ug/L | 5 | 95-50-1 | Y |
| 1,2,3-Trimethylbenzene | 12 | 5 | 0.70 | ug/L | 5 | 526-73-8 | Y |
| n-Butylbenzene | Not detected | 5 | 0.87 | ug/L | 5 | 104-51-8 | Y |
| Hexachloroethane | Not detected | 30 | 1.7 | ug/L | 5 | 67-72-1 | Y |
| 1,2-Dibromo-3-chloropropane | Not detected | 30 | 2.4 | ug/L | 5 | 96-12-8 | Y |
| 1,2,4-Trichlorobenzene | Not detected | 30 | 1.2 | ug/L | 5 | 120-82-1 | Y |
| 1,2,3-Trichlorobenzene | Not detected | 30 | 1.2 | ug/L | 5 | 87-61-6 | Y |
| Naphthalene | 290 | 30 | 0.90 | ug/L | 5 | 91-20-3 | Y |
| 2-Methylnaphthalene | 18.6 | 30 | 1.0 | ug/L | 5 | 91-57-6 | JBY |

Y-Elevated reporting limit due to high target concentration

J-Estimated value less than reporting limit, but greater than MDL

B-Compound also found in associated method blank



Analytical Laboratory Report

Lab Sample ID: S43068.02

Sample Tag: Trip Blank

Collected Date/Time: 12/02/2022 07:30

Matrix: Water

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|------------|-----------------|---------------|-------------------|---------------|
| 1 | 40ml Glass | HCL | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--------------------|--------|--------|----------------|---------|-------|
| pH check for VOCs* | <2 | N/A | 12/06/22 10:30 | BML | |

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/09/22 14:51, Analyst: KAG

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|--------------------------------|--------------|----|------|-------|----------|------------|-------|
| Diethyl ether | Not detected | 10 | 0.27 | ug/L | 1 | 60-29-7 | |
| Acetone | 4.7 | 50 | 4.0 | ug/L | 1 | 67-64-1 | J |
| Methyl iodide | Not detected | 1 | 0.24 | ug/L | 1 | 74-88-4 | |
| Carbon disulfide | Not detected | 5 | 0.13 | ug/L | 1 | 75-15-0 | |
| tert-Methyl butyl ether (MTBE) | Not detected | 5 | 0.25 | ug/L | 1 | 1634-04-4 | |
| Acrylonitrile | Not detected | 2 | 0.38 | ug/L | 1 | 107-13-1 | |
| 2-Butanone (MEK) | Not detected | 25 | 3.3 | ug/L | 1 | 78-93-3 | |
| Dichlorodifluoromethane | Not detected | 5 | 0.57 | ug/L | 1 | 75-71-8 | |
| Chloromethane | Not detected | 5 | 0.20 | ug/L | 1 | 74-87-3 | |
| Vinyl chloride | Not detected | 1 | 0.24 | ug/L | 1 | 75-01-4 | |
| Bromomethane | Not detected | 5 | 0.18 | ug/L | 1 | 74-83-9 | |
| Chloroethane | Not detected | 5 | 0.21 | ug/L | 1 | 75-00-3 | |
| Trichlorofluoromethane | Not detected | 1 | 0.28 | ug/L | 1 | 75-69-4 | |
| 1,1-Dichloroethene | Not detected | 1 | 0.27 | ug/L | 1 | 75-35-4 | |
| Methylene chloride | 0.26 | 5 | 0.16 | ug/L | 1 | 75-09-2 | J |
| trans-1,2-Dichloroethene | Not detected | 1 | 0.14 | ug/L | 1 | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | 1 | 0.15 | ug/L | 1 | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | 1 | 0.21 | ug/L | 1 | 156-59-2 | |
| Tetrahydrofuran* | Not detected | 90 | 1.2 | ug/L | 1 | 109-99-9 | |
| Chloroform | Not detected | 1 | 0.15 | ug/L | 1 | 67-66-3 | |
| Bromochloromethane | Not detected | 1 | 0.36 | ug/L | 1 | 74-97-5 | |
| 1,1,1-Trichloroethane | Not detected | 1 | 0.27 | ug/L | 1 | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | 50 | 0.35 | ug/L | 1 | 108-10-1 | |
| 2-Hexanone | Not detected | 50 | 0.19 | ug/L | 1 | 591-78-6 | |
| Carbon tetrachloride | Not detected | 1 | 0.19 | ug/L | 1 | 56-23-5 | |
| Benzene | Not detected | 1 | 0.11 | ug/L | 1 | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | 1 | 0.17 | ug/L | 1 | 107-06-2 | |
| Trichloroethene | Not detected | 1 | 0.29 | ug/L | 1 | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | 1 | 0.18 | ug/L | 1 | 78-87-5 | |
| Bromodichloromethane | Not detected | 1 | 0.19 | ug/L | 1 | 75-27-4 | |
| Dibromomethane | Not detected | 5 | 0.45 | ug/L | 1 | 74-95-3 | |
| cis-1,3-Dichloropropene | Not detected | 1 | 0.17 | ug/L | 1 | 10061-01-5 | |
| Toluene | Not detected | 1 | 0.17 | ug/L | 1 | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | 1 | 0.20 | ug/L | 1 | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | 1 | 0.34 | ug/L | 1 | 79-00-5 | |
| Tetrachloroethene | Not detected | 1 | 0.13 | ug/L | 1 | 127-18-4 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43068.02 (continued)

Sample Tag: Trip Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/09/22 14:51, Analyst: KAG (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------------------|--------------|----|------|-------|----------|----------|-------|
| trans-1,4-Dichloro-2-butene | Not detected | 1 | 0.26 | ug/L | 1 | 110-57-6 | |
| Dibromochloromethane | Not detected | 5 | 0.20 | ug/L | 1 | 124-48-1 | |
| 1,2-Dibromoethane | Not detected | 1 | 0.12 | ug/L | 1 | 106-93-4 | |
| Chlorobenzene | Not detected | 1 | 0.16 | ug/L | 1 | 108-90-7 | |
| 1,1,1,2-Tetrachloroethane | Not detected | 1 | 0.22 | ug/L | 1 | 630-20-6 | |
| Ethylbenzene | Not detected | 1 | 0.10 | ug/L | 1 | 100-41-4 | |
| p,m-Xylene* | Not detected | 2 | 0.42 | ug/L | 1 | | |
| o-Xylene | Not detected | 1 | 0.16 | ug/L | 1 | 95-47-6 | |
| Styrene | Not detected | 1 | 0.13 | ug/L | 1 | 100-42-5 | |
| Isopropylbenzene | Not detected | 5 | 0.12 | ug/L | 1 | 98-82-8 | |
| Bromoform | Not detected | 1 | 0.35 | ug/L | 1 | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | 1 | 0.27 | ug/L | 1 | 79-34-5 | |
| 1,2,3-Trichloropropane | Not detected | 1 | 0.54 | ug/L | 1 | 96-18-4 | |
| n-Propylbenzene | Not detected | 1 | 0.12 | ug/L | 1 | 103-65-1 | |
| Bromobenzene | Not detected | 1 | 0.15 | ug/L | 1 | 108-86-1 | |
| 1,3,5-Trimethylbenzene | Not detected | 1 | 0.18 | ug/L | 1 | 108-67-8 | |
| tert-Butylbenzene | Not detected | 1 | 0.14 | ug/L | 1 | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | 1 | 0.16 | ug/L | 1 | 95-63-6 | |
| sec-Butylbenzene | Not detected | 1 | 0.16 | ug/L | 1 | 135-98-8 | |
| p-Isopropyltoluene | Not detected | 5 | 0.19 | ug/L | 1 | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.20 | ug/L | 1 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.18 | ug/L | 1 | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.13 | ug/L | 1 | 95-50-1 | |
| 1,2,3-Trimethylbenzene | Not detected | 1 | 0.14 | ug/L | 1 | 526-73-8 | |
| n-Butylbenzene | Not detected | 1 | 0.17 | ug/L | 1 | 104-51-8 | |
| Hexachloroethane | Not detected | 5 | 0.35 | ug/L | 1 | 67-72-1 | |
| 1,2-Dibromo-3-chloropropane | Not detected | 5 | 0.48 | ug/L | 1 | 96-12-8 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.24 | ug/L | 1 | 120-82-1 | |
| 1,2,3-Trichlorobenzene | Not detected | 5 | 0.25 | ug/L | 1 | 87-61-6 | |
| Naphthalene | Not detected | 5 | 0.18 | ug/L | 1 | 91-20-3 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.21 | ug/L | 1 | 91-57-6 | |

Merit Laboratories Login Checklist

Lab Set ID:S43068

Client:WSP (WSP)

Project: Former JB Sims Generating Station, Harbor Island, GrandHaven

Submitted: 12/02/2022 08:15 Login User: MMC

Attention: Saamih Bashir

Address: WSP

45850 Magellan Drive, Suite 190
Novi, MI 48377

Phone: n/a

FAX:

Email: Saamih.Bashir@wsp.com

| Selection | Description | Note |
|--------------------------|--|--|
| Sample Receiving | | |
| 01. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 4.9 |
| 02. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun |
| 03. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped |
| 04. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box |
| 05. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |
| Chain of Custody | | |
| 06. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out |
| 07. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab |
| 08. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC |
| 09. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to: |
| Preservation | | |
| 10. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation |
| 11. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs) |
| 12. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab? |
| Bottle Conditions | | |
| 13. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact |
| 14. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used |
| 15. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used |
| 16. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received |
| 17. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration |
| 18. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time |
| 19. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace |

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

WSP USA Environment & Infrastructure Inc.
 46850 Magellan Drive, Suite 190
 Novi, Michigan 48377
 (248) 926-4008

CHAIN OF CUSTODY

SHIP TO:
 Merit Laboratories, Inc.
 2680 East Lansing Drive
 East Lansing, MI 48823
 Atten: Johanna Murray
 Lab Phone# 517-827-2755

DATE: 12/2/2022
 COC #: _____
 PAGE: 1 OF 2

| | | | |
|--|---------------------------------------|---|-----------------------------------|
| Project Name: Former JB Sims Generating Station, Harbor Island, Grand Haven | Project Contact: Zach McCurley | Bill To: WSP USA Environment & Infrastructure Inc. | Disposal Instructions: LAB |
| Project Number: 3650220203.02.02.3650 | Phone Number: 248-776-9823 | Attn: Saamih Bashir | Shipment Method: FEDEX |
| Project Manager: Saamih Bashir | Purchase Order: C012407104 | 46850 Magellan Dr. Sta. 190 Novi, MI 48377 | Waybill Number: N/A |
| Sampler Name: Jared Walbert | | | Waybill Number: N/A |

MATRIX Code W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL SW=SURFACE WATER
 L=LIQUID SD=SEDIMENT SL=SLUDGE DW=DRINKING WATER O=OIL A=AIR WS=WASTE

| | | | |
|---------------------------------|------------------------------|-----------------------------------|---|
| TURNAROUND TIME REQUIRED | 2 Days | 5 Days | <input checked="" type="checkbox"/> Standard (10 TAT) |
| DELIVERABLES REQUIRED | <input type="checkbox"/> STD | <input type="checkbox"/> Level II | <input type="checkbox"/> Level III <input checked="" type="checkbox"/> Level IV <input checked="" type="checkbox"/> EDD |

| Sample Information | | | | | | | Methods for Analysis | | | | | | | RUSH | | | | |
|--------------------|---------------------|----------------|-----------|-------|--------|--------------|------------------------------|---------------------|----------------------|-----------------------------|-------------------------------|--------------------------------------|----------------------|---------|---------|---------|--------|--|
| No. | Lab ID | Sample ID | Date | Time | Matrix | # of Bottles | PFAS ASTM D7979 Per Contract | VOCs (Per Contract) | SVOCs (Per Contract) | MI 10 Metals (per Contract) | pH/corrosivity (per Contract) | particle size (sieve and hydrometer) | Total Organic Carbon | 24 Hour | 48 Hour | 72 Hour | 5 Days | |
| 1 | 43065.01 | VAS06-3-8 | 12/1/2022 | 12:30 | GW | 3 | x | | | | | | | | | | | |
| 2 | .02 | VAS06-16-20 | 12/1/2022 | 14:15 | GW | 3 | x | | | | | | | | | | | |
| 3 | .03 | VAS07-3-8 | 12/1/2022 | 13:30 | GW | 3 | x | | | | | | | | | | | |
| 4 | .04 | VAS07-16-20 | 12/1/2022 | 15:35 | GW | 3 | x | | | | | | | | | | | |
| 5 | .05 | VAS08-4-9 | 12/1/2022 | 16:45 | GW | 3 | x | | | | | | | | | | | |
| 6 | 43067.01 / 43068.01 | MW-34 | 12/1/2022 | 15:40 | GW | 6 | x | x | | | | | | | | | | |
| 7 | 43065.06 | MW-33 | 12/1/2022 | 18:20 | GW | 3 | x | | | | | | | | | | | |
| 8 | .07 / .08 / .09 | VAS08-16-20 | 12/2/2022 | 9:45 | GW | 9 | x | | | | | | | | | | | |
| 9 | .10 | VAS09-4-9 | 12/2/2022 | 11:25 | GW | 3 | x | | | | | | | | | | | |
| 10 | .11 | VAS10-2-7 | 12/2/2022 | 12:30 | GW | 3 | x | | | | | | | | | | | |
| 11 | .12 | DUP02-02122022 | 12/2/2022 | 0:00 | GW | 3 | x | | | | | | | | | | | |
| 12 | .13 | VAS09-16-20 | 12/2/2022 | 13:35 | GW | 3 | x | | | | | | | | | | | |

| | | | | |
|--|---------------|------------|---------------------------------------|--|
| Relinquished By/Affiliation: <i>Keith White</i> | Date: 12/2/22 | Time: | For Lab Use | Comments: |
| Received By: <i>Johanna Murray</i> | Date: 12/2/22 | Time: 1644 | Does COC match samples: Y or N | VAS08-16-20-MS and VAS08-16-20-MSD collected 12/2/2022 9:45 <i>* Rush (5-day) sample MW-34 for VOCs and PFAS</i> |
| Relinquished By/Affiliation: | Date: | Time: | Broken Container: Y or N | |
| Received By: | Date: | Time: | COC seal intact: Y or N | |
| Relinquished By/Affiliation: | Date: | Time: | Other problems: Y or N | |
| Received By (LAB): | Date: | Time: | WSDOT contacted: Y or N | NUMBER OF COOLERS SENT: 1 |
| | Date: | Time: | WSDOT contacted: Y or N | |
| | Date: | Time: | Date contacted: _____ | |
| | Date: | Time: | Cooler Temperature at receipt: 4.9 °C | |

WSP USA Environment & Infrastructure Inc.
 46850 Magellan Drive, Suite 190
 Novi, Michigan 48377
 (248) 926-4008

CHAIN OF CUSTODY

SHIP TO:
 Merit Laboratories, Inc.
 2680 East Lansing Drive
 East Lansing, MI 48823
 Attn: Johanna Murray
 Lab Phone# 517-827-2755

DATE: 12/2/2022
 COC #:
 PAGE: 2 OF 2

| | | | |
|--|---------------------------------------|---|-----------------------------------|
| Project Name: Former JB Sims Generating Station, Harbor Island, Grand Haven | Project Contact: Zach McCurley | Bill To: WSP USA Environment & Infrastructure Inc. | Disposal Instructions: LAB |
| Project Number: 3650220203.02.02.3650 | Phone Number: 248-775-9823 | Attn: Saamih Bashir | Shipment Method: FEDEX |
| Project Manager: Saamih Bashir | Purchase Order: C012407104 | Address: 46850 Magellan Dr., Ste 190 Novi, MI 48377 | Waybill Number: N/A |
| Sampler Name: Jared Walbert | | | Waybill Number: N/A |

MATRIX Code W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL SW=SURFACE WATER
 L=LIQUID SD=SEDIMENT SL=SLUDGE DW=DRINKING WATER O=OIL A=AIR WS=WASTE

TURNAROUND TIME REQUIRED: 2 Days 5 Days Standard (10 TAT)

DELIVERABLES REQUIRED: STD Level II Level III Level IV EDD

| Sample Information | | | | | | Methods for Analysis | | | | | | | RUSH | | | | | | | | |
|--------------------|----------|-----------------------------|-----------|-------|--------|----------------------|------------------------------|----------------------------|----------------------|-----------------------------|-------------------------------|--------------------------------------|----------------------|---------|---------|---------|--------|--|--|--|--|
| No. | Lab ID | Sample ID | Date | Time | Matrix | # of Bottles | PFAS A5TMD57979 Per Contract | VOCs (Per Contract) | SVOCs (Per Contract) | MI 10 Metals (per Contract) | pH/corrosivity (per Contract) | particle size (sieve and hydrometer) | Total Organic Carbon | 24 Hour | 48 Hour | 72 Hour | 5 Days | | | | |
| 1 | | VAS08-16-20 | 12/2/2022 | 13:35 | GW | 3 | x | <i>See Duplicate Entry</i> | | | | | | | | | | | | | |
| 2 | 43065.14 | VAS10-16-20 | 12/2/2022 | 14:35 | GW | 3 | x | | | | | | | | | | | | | | |
| 3 | .15 | Equipment Blank-01-02122022 | 12/2/2022 | 14:30 | GW | 3 | x | | | | | | | | | | | | | | |
| 4 | 43068.02 | Field Blank Trip | 12/2/2022 | 7:30 | GW | 1 | x | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | |

| | | | | | |
|--|----------------------|-------------------|--------------------------------|--------|--|
| Relinquished By/Affiliation: <i>Kurti White</i> | Date: 12/2/22 | Time: | For Lab Use | | Comments: VAS08-16-20-MS and VAS08-16-20-MSD collected 12/2/2022 9:45 *Rush (5-day) sample MW-34 for VOCs + PFAS NUMBER OF COOLERS SENT: 1 |
| Received By: <i>Johanna Murray</i> | Date: 12/2/22 | Time: 1644 | Does COC match samples: | Y or N | |
| Relinquished By/Affiliation: | Date: | Time: | Broken Container: | Y or N | |
| Received By: | Date: | Time: | COC seal intact: | Y or N | |
| Relinquished By/Affiliation: | Date: | Time: | Other problems: | Y or N | |
| Received By (LAB): | Date: | Time: | WSDOT contacted: | Y or N | |
| | | | Date contacted: | | |
| | | | Cooler Temperature at receipt: | 49 °C | |



Analytical Laboratory Report

Report ID: S43221.01(01)
Generated on 12/14/2022

Report to

Attention: Saamih Bashir
WSP
45850 Magellan Drive, Suite 190
Novi, MI 48377

Phone: n/a FAX:
Email: Saamih.Bashir@wsp.com

Additional Contacts: Jared Walbert

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S43221.01-S43221.02
Project: Former JB Sims Generating Station, Harbor Island, GrandHaven
Collected Date(s): 12/05/2022 - 12/06/2022
Submitted Date/Time: 12/07/2022 15:53
Sampled by: Jared Walbert
P.O. #: C012407104

Table of Contents

- Cover Page (Page 1)
- General Report Notes (Page 2)
- Report Narrative (Page 2)
- Laboratory Certifications (Page 3)
- Qualifier Descriptions (Page 3)
- Glossary of Abbreviations (Page 3)
- Method Summary (Page 4)
- Sample Summary (Page 5)

Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Certifications

| Authority | Certification ID |
|---------------------|------------------|
| Michigan DEQ | #9956 |
| DOD ELAP/ISO 17025 | #69699 |
| WBENC | #2005110032 |
| Ohio VAP | #CL0002 |
| Indiana DOH | #C-MI-07 |
| New York NELAC | #11814 |
| North Carolina DENR | #680 |
| North Carolina DOH | #26702 |
| Alaska CSLAP | #17-001 |
| Pennsylvania DEP | #68-05884 |
| Wisconsin DNR | FID# 399147320 |

Qualifier Descriptions

| Qualifier | Description |
|-----------|---|
| ! | Result is outside of stated limit criteria |
| B | Compound also found in associated method blank |
| E | Concentration exceeds calibration range |
| F | Analysis run outside of holding time |
| G | Estimated result due to extraction run outside of holding time |
| H | Sample submitted and run outside of holding time |
| I | Matrix interference with internal standard |
| J | Estimated value less than reporting limit, but greater than MDL |
| L | Elevated reporting limit due to low sample amount |
| M | Result reported to MDL not RDL |
| O | Analysis performed by outside laboratory. See attached report. |
| R | Preliminary result |
| S | Surrogate recovery outside of control limits |
| T | No correction for total solids |
| X | Elevated reporting limit due to matrix interference |
| Y | Elevated reporting limit due to high target concentration |
| b | Value detected less than reporting limit, but greater than MDL |
| e | Reported value estimated due to interference |
| j | Analyte also found in associated method blank |
| p | Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak. |
| x | Preserved from bulk sample |

Glossary of Abbreviations

| Abbreviation | Description |
|--------------|--|
| RL/RDL | Reporting Limit |
| MDL | Method Detection Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| SW | EPA SW 846 (Soil and Wastewater) Methods |
| E | EPA Methods |
| SM | Standard Methods |
| LN | Linear |
| BR | Branched |



Analytical Laboratory Report

Method Summary

| Method | Version |
|---------------|---|
| ASTMD7979-19M | ASTM Method D7979 - 19 Modified (Isotopic Dilution) |

Parameter Summary

| Parameter | Synonym | Cas # |
|------------------|--|--------------|
| PFBA | Perfluorobutanoic Acid | 375-22-4 |
| PFPeA | Perfluoropentanoic Acid | 2706-90-3 |
| 4:2 FTSA | 4:2 Fluorotelomer Sulfonic Acid | 757124-72-4 |
| PFHxA | Perfluorohexanoic Acid | 307-24-4 |
| PFBS | Perfluorobutane sulfonic Acid | 375-73-5 |
| PFFHpA | Perfluoroheptanoic Acid | 375-85-9 |
| PFPeS | Perfluoropentane Sulfonic Acid | 2706-91-4 |
| 6:2 FTSA | 6:2 Fluorotelomer Sulfonic Acid | 27619-97-2 |
| PFOA | Perfluorooctanoic Acid | 335-67-1 |
| PFHxS | Perfluorohexane Sulfonic Acid | 355-46-4 |
| PFHxS-LN | Perfluorohexane Sulfonic Acid - LN | 355-46-4-LN |
| PFHxS-BR | Perfluorohexane Sulfonic Acid - BR | 355-46-4-BR |
| PFNA | Perfluorononanoic Acid | 375-95-1 |
| 8:2 FTSA | 8:2 Fluorotelomer Sulfonic Acid | 39108-34-4 |
| PFFHpS | Perfluoroheptane Sulfonic Acid | 375-92-8 |
| PFDA | Perfluorodecanoic Acid | 335-76-2 |
| N-MeFOSAA | N-methyl perfluorooctanesulfonamidoacetic acid | 2355-31-9 |
| EtFOSAA | N-Ethyl Perfluorooctane Sulfonamidoacetic Acid | 2991-50-6 |
| PFOS | Perfluorooctane Sulfonic Acid | 1763-23-1 |
| PFOS-LN | Perfluorooctane Sulfonic Acid - LN | 1763-23-1-LN |
| PFOS-BR | Perfluorooctane Sulfonic Acid - BR | 1763-23-1-BR |
| PFUnDA | Perfluoroundecanoic Acid | 2058-94-8 |
| PFNS | Perfluorononane Sulfonic Acid | 68259-12-1 |
| PFDoDA | Perfluorododecanoic Acid | 307-55-1 |
| PFDS | Perfluorodecane Sulfonic Acid | 335-77-3 |
| PFFTrDA | Perfluorotridecanoic Acid | 72629-94-8 |
| FOSA | Perfluorooctane Sulfonamide | 754-91-6 |
| PFFTeDA | Perfluorotetradecanoic Acid | 376-06-7 |
| 11Cl-PF3OUdS | 11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid | 763051-92-9 |
| 9Cl-PF3ONS | 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid | 756426-58-1 |
| ADONA | 4,8-dioxa-3H-perfluorononanoic acid | 919005-14-4 |
| HFPO-DA | Hexafluoropropylene oxide dimer | 13252-13-6 |
| FHpPA (7:3 FTCA) | 3-Perfluoroheptyl propanoic acid | 812-70-4 |
| FPePA (5:3 FTCA) | 3-Perfluoropentyl propanoic acid | 914637-49-3 |
| FPrPA (3:3 FTCA) | 3-Perfluoropropyl propanoic acid | 356-02-5 |
| PFBSA | Perfluorobutanesulfonamide | 30334-69-1 |
| PFECHS | Perfluoro-4-ethylcyclohexanesulfonate | 67584-42-3 |
| PFHxSA | Perfluorohexanesulfonamide | 41997-13-1 |



Analytical Laboratory Report

Sample Summary (2 samples)

| Sample ID | Sample Tag | Matrix | Collected Date/Time |
|-----------|------------|-------------|---------------------|
| S43221.01 | VAS13-3-7 | Groundwater | 12/05/22 14:30 |
| S43221.02 | VAS-15-3-7 | Groundwater | 12/06/22 12:10 |



Analytical Laboratory Report

Lab Sample ID: S43221.01

Sample Tag: VAS13-3-7

Collected Date/Time: 12/05/2022 14:30

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.95/6.56/11 | ASTMD7979-19M | 12/09/22 12:00 | KCV | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/09/22 21:52, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | Not detected | 10 | 10 | ng/L | 2.04 | 375-22-4 | |
| PFPeA* | 5.2 | 4.1 | 1.0 | ng/L | 2.04 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 2.04 | 757124-72-4 | |
| PFHxA* | 4.1 | 2.0 | 1.4 | ng/L | 2.04 | 307-24-4 | |
| PFBS* | Not detected | 2.0 | 1.4 | ng/L | 2.04 | 375-73-5 | |
| PFHpA* | Not detected | 2.0 | 1.4 | ng/L | 2.04 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 2.04 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 2.04 | 27619-97-2 | |
| PFOA* | 2.8 | 2.0 | 1.6 | ng/L | 2.04 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.6 | ng/L | 2.04 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.6 | ng/L | 2.04 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 2.04 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 2.04 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2.04 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 2.04 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 2.04 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 2.04 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.1 | 2.0 | ng/L | 2.04 | 2991-50-6 | |
| PFOS* | 4.2 | 2.0 | 2.0 | ng/L | 2.04 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 2.0 | ng/L | 2.04 | 1763-23-1-LN | |
| PFOS-BR* | 2.6 | 2.0 | 2.0 | ng/L | 2.04 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 2.04 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 2.04 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 2.04 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 2.04 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 2.04 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 2.04 | 754-91-6 | |
| PFTeDA* | Not detected | 4.1 | 1.8 | ng/L | 2.04 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 2.04 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 2.04 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 2.04 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.0 | ng/L | 2.04 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.1 | 3.1 | ng/L | 2.04 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.1 | 2.2 | ng/L | 2.04 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.1 | 1.2 | ng/L | 2.04 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 2.04 | 30334-69-1 | |
| PFECHS* | Not detected | 2.0 | 1.2 | ng/L | 2.04 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S43221.01 (continued)

Sample Tag: VAS13-3-7

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/09/22 21:52, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|-----|-------|----------|------------|-------|
| PFHxSA* | Not detected | 2.0 | 1.0 | ng/L | 2.04 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43221.02

Sample Tag: VAS-15-3-7

Collected Date/Time: 12/06/2022 12:10

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.98/6.50/11 | ASTMD7979-19M | 12/09/22 12:00 | KCV | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/09/22 22:11, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | 90 | 10 | 10 | ng/L | 2.01 | 375-22-4 | |
| PFPeA* | 400 | 4.0 | 1.0 | ng/L | 2.01 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 2.01 | 757124-72-4 | |
| PFHxA* | 210 | 2.0 | 1.4 | ng/L | 2.01 | 307-24-4 | |
| PFBS* | 13 | 2.0 | 1.4 | ng/L | 2.01 | 375-73-5 | |
| PFHpA* | 48 | 2.0 | 1.4 | ng/L | 2.01 | 375-85-9 | |
| PFPeS* | 9.2 | 2.0 | 1.8 | ng/L | 2.01 | 2706-91-4 | |
| 6:2 FTSA* | 140 | 2.0 | 2.0 | ng/L | 2.01 | 27619-97-2 | |
| PFOA* | 24 | 2.0 | 1.6 | ng/L | 2.01 | 335-67-1 | |
| PFHxS* | 19 | 2.0 | 1.6 | ng/L | 2.01 | 355-46-4 | |
| PFHxS-LN* | 13 | 2.0 | 1.6 | ng/L | 2.01 | 355-46-4-LN | |
| PFHxS-BR* | 6.5 | 2.0 | 1.6 | ng/L | 2.01 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 2.01 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 2.01 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 2.01 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 2.01 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 2.01 | 2991-50-6 | |
| PFOS* | 13 | 2.0 | 2.0 | ng/L | 2.01 | 1763-23-1 | |
| PFOS-LN* | 4.0 | 2.0 | 2.0 | ng/L | 2.01 | 1763-23-1-LN | |
| PFOS-BR* | 9.3 | 2.0 | 2.0 | ng/L | 2.01 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 2.01 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 2.01 | 68259-12-1 | |
| PFDoDA* | Not detected | 2.0 | 1.6 | ng/L | 2.01 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 2.01 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 2.01 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 2.01 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 2.01 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 2.01 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 2.01 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.0 | ng/L | 2.01 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 2.01 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 2.01 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 2.01 | 356-02-5 | |
| PFBSA* | 9.4 | 2.0 | 1.2 | ng/L | 2.01 | 30334-69-1 | |
| PFECHS* | 4.8 | 2.0 | 1.2 | ng/L | 2.01 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S43221.02 (continued)

Sample Tag: VAS-15-3-7

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/09/22 22:11, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|-----|-------|----------|------------|-------|
| PFHxSA* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 41997-13-1 | |

Merit Laboratories Login Checklist

Lab Set ID:S43221

Client:WSP (WSP)

Project: Former JB Sims Generating Station, Harbor Island, GrandHaven

Submitted: 12/07/2022 15:53 Login User: BJB

Attention: Saamih Bashir

Address: WSP

45850 Magellan Drive, Suite 190
Novi, MI 48377

Phone: n/a

FAX:

Email: Saamih.Bashir@wsp.com

| Selection | Description | Note |
|-----------|-------------|------|
|-----------|-------------|------|

Sample Receiving

- | | | |
|-----|--|--|
| 01. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 4.9 |
| 02. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun |
| 03. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped |
| 04. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box |
| 05. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |

Chain of Custody

- | | | |
|-----|--|--|
| 06. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out |
| 07. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab |
| 08. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC |
| 09. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to: |

Preservation

- | | | |
|-----|--|---|
| 10. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation |
| 11. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs) |
| 12. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab? |

Bottle Conditions

- | | | |
|-----|--|---|
| 13. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact |
| 14. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used |
| 15. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used |
| 16. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received |
| 17. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration |
| 18. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time |
| 19. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace |

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Certifications

| Authority | Certification ID |
|---------------------|------------------|
| Michigan DEQ | #9956 |
| DOD ELAP/ISO 17025 | #69699 |
| WBENC | #2005110032 |
| Ohio VAP | #CL0002 |
| Indiana DOH | #C-MI-07 |
| New York NELAC | #11814 |
| North Carolina DENR | #680 |
| North Carolina DOH | #26702 |
| Alaska CSLAP | #17-001 |
| Pennsylvania DEP | #68-05884 |
| Wisconsin DNR | FID# 399147320 |

Qualifier Descriptions

| Qualifier | Description |
|-----------|---|
| ! | Result is outside of stated limit criteria |
| B | Compound also found in associated method blank |
| E | Concentration exceeds calibration range |
| F | Analysis run outside of holding time |
| G | Estimated result due to extraction run outside of holding time |
| H | Sample submitted and run outside of holding time |
| I | Matrix interference with internal standard |
| J | Estimated value less than reporting limit, but greater than MDL |
| L | Elevated reporting limit due to low sample amount |
| M | Result reported to MDL not RDL |
| O | Analysis performed by outside laboratory. See attached report. |
| R | Preliminary result |
| S | Surrogate recovery outside of control limits |
| T | No correction for total solids |
| X | Elevated reporting limit due to matrix interference |
| Y | Elevated reporting limit due to high target concentration |
| b | Value detected less than reporting limit, but greater than MDL |
| e | Reported value estimated due to interference |
| j | Analyte also found in associated method blank |
| p | Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak. |
| x | Preserved from bulk sample |

Glossary of Abbreviations

| Abbreviation | Description |
|--------------|--|
| RL/RDL | Reporting Limit |
| MDL | Method Detection Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| SW | EPA SW 846 (Soil and Wastewater) Methods |
| E | EPA Methods |
| SM | Standard Methods |
| LN | Linear |
| BR | Branched |



Analytical Laboratory Report

Method Summary

| Method | Version |
|----------------|---|
| ASTM D7968-17M | ASTM Method D7968 - 17 Modified (Isotopic Dilution) |
| ASTMD7979-19M | ASTM Method D7979 - 19 Modified (Isotopic Dilution) |
| SM2540B | Standard Method 2540 B 2015 |

Parameter Summary

| Parameter | Synonym | Cas # |
|------------------|---|--------------|
| PFBA | Perfluorobutanoic Acid | 375-22-4 |
| PFPeA | Perfluoropentanoic Acid | 2706-90-3 |
| 4:2 FTSA | 4:2 Fluorotelomer Sulfonic Acid | 757124-72-4 |
| PFHxA | Perfluorohexanoic Acid | 307-24-4 |
| PFBS | Perfluorobutane sulfonic Acid | 375-73-5 |
| PFHpA | Perfluoroheptanoic Acid | 375-85-9 |
| PFPeS | Perfluoropentane Sulfonic Acid | 2706-91-4 |
| 6:2 FTSA | 6:2 Fluorotelomer Sulfonic Acid | 27619-97-2 |
| PFOA | Perfluorooctanoic Acid | 335-67-1 |
| PFHxS | Perfluorohexane Sulfonic Acid | 355-46-4 |
| PFHxS-LN | Perfluorohexane Sulfonic Acid - LN | 355-46-4-LN |
| PFHxS-BR | Perfluorohexane Sulfonic Acid - BR | 355-46-4-BR |
| PFNA | Perfluorononanoic Acid | 375-95-1 |
| 8:2 FTSA | 8:2 Fluorotelomer Sulfonic Acid | 39108-34-4 |
| PFHpS | Perfluoroheptane Sulfonic Acid | 375-92-8 |
| PFDA | Perfluorodecanoic Acid | 335-76-2 |
| N-MeFOSAA | N-methyl perfluorooctanesulfonamidoacetic acid | 2355-31-9 |
| EtFOSAA | N-Ethyl Perfluorooctane Sulfonamidoacetic Acid | 2991-50-6 |
| PFOS | Perfluorooctane Sulfonic Acid | 1763-23-1 |
| PFOS-LN | Perfluorooctane Sulfonic Acid - LN | 1763-23-1-LN |
| PFOS-BR | Perfluorooctane Sulfonic Acid - BR | 1763-23-1-BR |
| PFUnDA | Perfluoroundecanoic Acid | 2058-94-8 |
| PFNS | Perfluorononane Sulfonic Acid | 68259-12-1 |
| PFDoDA | Perfluorododecanoic Acid | 307-55-1 |
| PFDS | Perfluorodecane Sulfonic Acid | 335-77-3 |
| PFTTrDA | Perfluorotridecanoic Acid | 72629-94-8 |
| FOSA | Perfluorooctane Sulfonamide | 754-91-6 |
| PFTeDA | Perfluorotetradecanoic Acid | 376-06-7 |
| 11Cl-PF3OUdS | 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | 763051-92-9 |
| 9Cl-PF3ONS | 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid | 756426-58-1 |
| ADONA | 4,8-dioxa-3H-perfluorononanoic acid | 919005-14-4 |
| HFPO-DA | Hexafluoropropylene oxide dimer | 13252-13-6 |
| FHpPA (7:3 FTCA) | 3-Perfluoroheptyl propanoic acid | 812-70-4 |
| FPePA (5:3 FTCA) | 3-Perfluoropentyl propanoic acid | 914637-49-3 |
| FPrPA (3:3 FTCA) | 3-Perfluoropropyl propanoic acid | 356-02-5 |
| PFBSA | Perfluorobutanesulfonamide | 30334-69-1 |
| PFECHS | Perfluoro-4-ethylcyclohexanesulfonate | 67584-42-3 |
| PFHxSA | Perfluorohexanesulfonamide | 41997-13-1 |



Analytical Laboratory Report

Sample Summary (22 samples)

| Sample ID | Sample Tag | Matrix | Collected Date/Time |
|-----------|-----------------|-------------|---------------------|
| S43222.01 | VAS11-16-20 | Groundwater | 12/05/22 12:15 |
| S43222.02 | VAS11-2-6 | Groundwater | 12/05/22 10:10 |
| S43222.03 | VAS12-16-20 | Groundwater | 12/05/22 13:25 |
| S43222.04 | VAS12-3-7 | Groundwater | 12/05/22 11:20 |
| S43222.05 | VAS13-16-20 | Groundwater | 12/06/22 09:20 |
| S43222.06 | VAS14-1-5 | Groundwater | 12/05/22 16:15 |
| S43222.07 | VAS14-16-20 | Groundwater | 12/05/22 17:15 |
| S43222.08 | VAS15-16-20 | Groundwater | 12/06/22 11:00 |
| S43222.09 | VAS16-3-7 | Groundwater | 12/06/22 13:15 |
| S43222.10 | VAS17-3-7 | Groundwater | 12/06/22 14:45 |
| S43222.11 | VAS17-16-20 | Groundwater | 12/06/22 16:15 |
| S43222.12 | VAS18-16-20 | Groundwater | 12/06/22 17:50 |
| S43222.13 | VAS18-3-7 | Groundwater | 12/06/22 17:20 |
| S43222.14 | DUP-03-06122022 | Groundwater | 12/06/22 00:01 |
| S43222.15 | VAS19-5-9 | Groundwater | 12/07/22 10:40 |
| S43222.16 | VAS19-16-20 | Groundwater | 12/07/22 12:05 |
| S43222.17 | VAS19-16-20 MS | Groundwater | 12/07/22 12:05 |
| S43222.18 | VAS19-16-20 MSD | Groundwater | 12/07/22 12:05 |
| S43222.19 | DUP-04-07122022 | Groundwater | 12/07/22 00:01 |
| S43222.20 | VAS13-SB-2-3 | Soil | 12/05/22 14:30 |
| S43222.21 | VAS15-SB-3-5 | Soil | 12/06/22 10:30 |
| S43222.22 | VAS19-SB-5-7 | Soil | 12/07/22 10:25 |



Analytical Laboratory Report

Lab Sample ID: S43222.01

Sample Tag: VAS11-16-20

Collected Date/Time: 12/05/2022 12:15

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.26/6.52/11 | ASTMD7979-19M | 12/12/22 12:12 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/13/22 21:58, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.6 | 9.6 | ng/L | 1.92 | 375-22-4 | |
| PFPeA* | Not detected | 3.8 | 0.96 | ng/L | 1.92 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 1.5 | ng/L | 1.92 | 757124-72-4 | |
| PFHxA* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 307-24-4 | |
| PFBS* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 375-73-5 | |
| PFHpA* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.92 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 27619-97-2 | |
| PFOA* | Not detected | 1.9 | 1.5 | ng/L | 1.92 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.5 | ng/L | 1.92 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.5 | ng/L | 1.92 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.5 | ng/L | 1.92 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 1.7 | ng/L | 1.92 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.8 | 1.9 | ng/L | 1.92 | 2991-50-6 | |
| PFOS* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.92 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.92 | 754-91-6 | |
| PFTeDA* | Not detected | 3.8 | 1.7 | ng/L | 1.92 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.92 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.6 | 1.9 | ng/L | 1.92 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.8 | 2.9 | ng/L | 1.92 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.8 | 2.1 | ng/L | 1.92 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.8 | 1.2 | ng/L | 1.92 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 30334-69-1 | |
| PFECHS* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S43222.01 (continued)

Sample Tag: VAS11-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/13/22 21:58, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43222.02

Sample Tag: VAS11-2-6

Collected Date/Time: 12/05/2022 10:10

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.45/6.53/12 | ASTMD7979-19M | 12/12/22 12:12 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/13/22 22:17, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | 20 | 10 | 10 | ng/L | 2.03 | 375-22-4 | |
| PFPeA* | 49 | 4.1 | 1.0 | ng/L | 2.03 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 2.03 | 757124-72-4 | |
| PFHxA* | 25 | 2.0 | 1.4 | ng/L | 2.03 | 307-24-4 | |
| PFBS* | 3.3 | 2.0 | 1.4 | ng/L | 2.03 | 375-73-5 | |
| PFHpA* | 13 | 2.0 | 1.4 | ng/L | 2.03 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 2.03 | 2706-91-4 | |
| 6:2 FTSA* | 6.3 | 2.0 | 2.0 | ng/L | 2.03 | 27619-97-2 | |
| PFOA* | 12 | 2.0 | 1.6 | ng/L | 2.03 | 335-67-1 | |
| PFHxS* | 6.3 | 2.0 | 1.6 | ng/L | 2.03 | 355-46-4 | |
| PFHxS-LN* | 4.8 | 2.0 | 1.6 | ng/L | 2.03 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 2.03 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 2.03 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2.03 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.1 | 2.0 | ng/L | 2.03 | 2991-50-6 | |
| PFOS* | 11 | 2.0 | 2.0 | ng/L | 2.03 | 1763-23-1 | |
| PFOS-LN* | 3.7 | 2.0 | 2.0 | ng/L | 2.03 | 1763-23-1-LN | |
| PFOS-BR* | 6.8 | 2.0 | 2.0 | ng/L | 2.03 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 2.03 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 2.03 | 754-91-6 | |
| PFTeDA* | Not detected | 4.1 | 1.8 | ng/L | 2.03 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 2.03 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.0 | ng/L | 2.03 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.1 | 3.0 | ng/L | 2.03 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.1 | 2.2 | ng/L | 2.03 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.1 | 1.2 | ng/L | 2.03 | 356-02-5 | |
| PFBSA* | 1.9 | 2.0 | 1.2 | ng/L | 2.03 | 30334-69-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43222.02 (continued)

Sample Tag: VAS11-2-6

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/13/22 22:17, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|-----|-------|----------|------------|-------|
| PFECHS* | 2.3 | 2.0 | 1.2 | ng/L | 2.03 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 1.0 | ng/L | 2.03 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43222.03

Sample Tag: VAS12-16-20

Collected Date/Time: 12/05/2022 13:25

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.96/6.48/10 | ASTMD7979-19M | 12/12/22 12:12 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/13/22 22:37, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.1 | 9.1 | ng/L | 1.82 | 375-22-4 | |
| PFPeA* | 1.6 | 3.6 | 0.91 | ng/L | 1.82 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 1.8 | 1.5 | ng/L | 1.82 | 757124-72-4 | |
| PFHxA* | Not detected | 1.8 | 1.3 | ng/L | 1.82 | 307-24-4 | |
| PFBS* | Not detected | 1.8 | 1.3 | ng/L | 1.82 | 375-73-5 | |
| PFHpA* | Not detected | 1.8 | 1.3 | ng/L | 1.82 | 375-85-9 | |
| PFPeS* | Not detected | 1.8 | 1.6 | ng/L | 1.82 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.8 | 1.8 | ng/L | 1.82 | 27619-97-2 | |
| PFOA* | Not detected | 1.8 | 1.5 | ng/L | 1.82 | 335-67-1 | |
| PFHxS* | Not detected | 1.8 | 1.5 | ng/L | 1.82 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.8 | 1.5 | ng/L | 1.82 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.8 | 1.5 | ng/L | 1.82 | 355-46-4-BR | |
| PFNA* | Not detected | 1.8 | 1.6 | ng/L | 1.82 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.8 | 0.91 | ng/L | 1.82 | 39108-34-4 | |
| PFHpS* | Not detected | 1.8 | 1.8 | ng/L | 1.82 | 375-92-8 | |
| PFDA* | Not detected | 1.8 | 1.8 | ng/L | 1.82 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.8 | 1.8 | ng/L | 1.82 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.6 | 1.8 | ng/L | 1.82 | 2991-50-6 | |
| PFOS* | Not detected | 1.8 | 1.8 | ng/L | 1.82 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.8 | 1.8 | ng/L | 1.82 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.8 | 1.8 | ng/L | 1.82 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.8 | 1.3 | ng/L | 1.82 | 2058-94-8 | |
| PFNS* | Not detected | 1.8 | 1.3 | ng/L | 1.82 | 68259-12-1 | |
| PFDODA* | Not detected | 1.8 | 1.5 | ng/L | 1.82 | 307-55-1 | |
| PFDS* | Not detected | 1.8 | 1.3 | ng/L | 1.82 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.8 | 1.1 | ng/L | 1.82 | 72629-94-8 | |
| FOSA* | Not detected | 1.8 | 1.6 | ng/L | 1.82 | 754-91-6 | |
| PFTeDA* | Not detected | 3.6 | 1.6 | ng/L | 1.82 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.8 | 1.6 | ng/L | 1.82 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.8 | 1.3 | ng/L | 1.82 | 756426-58-1 | |
| ADONA* | Not detected | 1.8 | 1.8 | ng/L | 1.82 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.1 | 1.8 | ng/L | 1.82 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.6 | 2.7 | ng/L | 1.82 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.6 | 2.0 | ng/L | 1.82 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.6 | 1.1 | ng/L | 1.82 | 356-02-5 | |
| PFBSA* | Not detected | 1.8 | 1.1 | ng/L | 1.82 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43222.03 (continued)

Sample Tag: VAS12-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/13/22 22:37, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 1.8 | 1.1 | ng/L | 1.82 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.8 | 0.91 | ng/L | 1.82 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43222.04

Sample Tag: VAS12-3-7

Collected Date/Time: 12/05/2022 11:20

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.68/6.59/10 | ASTMD7979-19M | 12/12/22 12:12 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/13/22 22:56, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 22 | 9.8 | 9.8 | ng/L | 1.96 | 375-22-4 | |
| PFPeA* | 66 | 3.9 | 0.98 | ng/L | 1.96 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.96 | 757124-72-4 | |
| PFHxA* | 38 | 2.0 | 1.4 | ng/L | 1.96 | 307-24-4 | |
| PFBS* | 3.2 | 2.0 | 1.4 | ng/L | 1.96 | 375-73-5 | |
| PFHpA* | 21 | 2.0 | 1.4 | ng/L | 1.96 | 375-85-9 | |
| PFPeS* | 1.9 | 2.0 | 1.8 | ng/L | 1.96 | 2706-91-4 | J |
| 6:2 FTSA* | 2.3 | 2.0 | 2.0 | ng/L | 1.96 | 27619-97-2 | |
| PFOA* | 7.8 | 2.0 | 1.6 | ng/L | 1.96 | 335-67-1 | |
| PFHxS* | 7.1 | 2.0 | 1.6 | ng/L | 1.96 | 355-46-4 | |
| PFHxS-LN* | 5.0 | 2.0 | 1.6 | ng/L | 1.96 | 355-46-4-LN | |
| PFHxS-BR* | 2.2 | 2.0 | 1.6 | ng/L | 1.96 | 355-46-4-BR | |
| PFNA* | 1.9 | 2.0 | 1.8 | ng/L | 1.96 | 375-95-1 | J |
| 8:2 FTSA* | 1.1 | 2.0 | 0.98 | ng/L | 1.96 | 39108-34-4 | J |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 2991-50-6 | |
| PFOS* | 7.0 | 2.0 | 1.9 | ng/L | 1.96 | 1763-23-1 | |
| PFOS-LN* | 2.5 | 2.0 | 1.9 | ng/L | 1.96 | 1763-23-1-LN | |
| PFOS-BR* | 4.4 | 2.0 | 1.9 | ng/L | 1.96 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.96 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.96 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.8 | ng/L | 1.96 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.96 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.8 | 2.0 | ng/L | 1.96 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.9 | ng/L | 1.96 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.2 | ng/L | 1.96 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.96 | 356-02-5 | |
| PFBSA* | 2.4 | 2.0 | 1.2 | ng/L | 1.96 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43222.04 (continued)

Sample Tag: VAS12-3-7

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/13/22 22:56, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 67584-42-3 | |
| PFHxSA* | 1.1 | 2.0 | 0.98 | ng/L | 1.96 | 41997-13-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43222.05

Sample Tag: VAS13-16-20

Collected Date/Time: 12/06/2022 09:20

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.09/6.56/11 | ASTMD7979-19M | 12/12/22 12:12 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/13/22 23:16, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|------|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 10.0 | 10.0 | ng/L | 1.99 | 375-22-4 | |
| PFPeA* | 8.0 | 4.0 | 1.00 | ng/L | 1.99 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 757124-72-4 | |
| PFHxA* | 4.6 | 2.0 | 1.4 | ng/L | 1.99 | 307-24-4 | |
| PFBS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 375-73-5 | |
| PFHpA* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 27619-97-2 | |
| PFOA* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 1.99 | 2991-50-6 | |
| PFOS* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 1.99 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10.0 | 2.0 | ng/L | 1.99 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 1.99 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 1.99 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 1.99 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 30334-69-1 | |
| PFCHS* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S43222.05 (continued)

Sample Tag: VAS13-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/13/22 23:16, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43222.06

Sample Tag: VAS14-1-5

Collected Date/Time: 12/05/2022 16:15

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.17/6.52/11 | ASTMD7979-19M | 12/12/22 12:12 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/13/22 23:35, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 140 | 9.8 | 9.8 | ng/L | 1.95 | 375-22-4 | |
| PFPeA* | 480 | 3.9 | 0.98 | ng/L | 1.95 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.95 | 757124-72-4 | |
| PFHxA* | 260 | 2.0 | 1.4 | ng/L | 1.95 | 307-24-4 | |
| PFBS* | 21 | 2.0 | 1.4 | ng/L | 1.95 | 375-73-5 | |
| PFHpA* | 72 | 2.0 | 1.4 | ng/L | 1.95 | 375-85-9 | |
| PFPeS* | 13 | 2.0 | 1.8 | ng/L | 1.95 | 2706-91-4 | |
| 6:2 FTSA* | 33 | 2.0 | 2.0 | ng/L | 1.95 | 27619-97-2 | |
| PFOA* | 56 | 2.0 | 1.6 | ng/L | 1.95 | 335-67-1 | |
| PFHxS* | 38 | 2.0 | 1.6 | ng/L | 1.95 | 355-46-4 | |
| PFHxS-LN* | 26 | 2.0 | 1.6 | ng/L | 1.95 | 355-46-4-LN | |
| PFHxS-BR* | 11 | 2.0 | 1.6 | ng/L | 1.95 | 355-46-4-BR | |
| PFNA* | 14 | 2.0 | 1.8 | ng/L | 1.95 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.98 | ng/L | 1.95 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.95 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.95 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.95 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.95 | 2991-50-6 | |
| PFOS* | 46 | 2.0 | 1.9 | ng/L | 1.95 | 1763-23-1 | |
| PFOS-LN* | 18 | 2.0 | 1.9 | ng/L | 1.95 | 1763-23-1-LN | |
| PFOS-BR* | 27 | 2.0 | 1.9 | ng/L | 1.95 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.95 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.95 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.8 | ng/L | 1.95 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.95 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.95 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.8 | 2.0 | ng/L | 1.95 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.9 | ng/L | 1.95 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.1 | ng/L | 1.95 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.95 | 356-02-5 | |
| PFBSA* | 6.0 | 2.0 | 1.2 | ng/L | 1.95 | 30334-69-1 | |
| PFECHS* | 3.1 | 2.0 | 1.2 | ng/L | 1.95 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S43222.06 (continued)

Sample Tag: VAS14-1-5

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/13/22 23:35, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 2.0 | 0.98 | ng/L | 1.95 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43222.07

Sample Tag: VAS14-16-20

Collected Date/Time: 12/05/2022 17:15

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.86/6.52/10 | ASTMD7979-19M | 12/12/22 12:12 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/13/22 23:55, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.4 | 9.4 | ng/L | 1.87 | 375-22-4 | |
| PFPeA* | 5.4 | 3.7 | 0.94 | ng/L | 1.87 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 1.5 | ng/L | 1.87 | 757124-72-4 | |
| PFHxA* | 3.7 | 1.9 | 1.3 | ng/L | 1.87 | 307-24-4 | |
| PFBS* | Not detected | 1.9 | 1.3 | ng/L | 1.87 | 375-73-5 | |
| PFHpA* | Not detected | 1.9 | 1.3 | ng/L | 1.87 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.87 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.9 | ng/L | 1.87 | 27619-97-2 | |
| PFOA* | Not detected | 1.9 | 1.5 | ng/L | 1.87 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.5 | ng/L | 1.87 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.5 | ng/L | 1.87 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.5 | ng/L | 1.87 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 1.7 | ng/L | 1.87 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.94 | ng/L | 1.87 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.87 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.87 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.87 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.7 | 1.9 | ng/L | 1.87 | 2991-50-6 | |
| PFOS* | Not detected | 1.9 | 1.8 | ng/L | 1.87 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.9 | 1.8 | ng/L | 1.87 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.9 | 1.8 | ng/L | 1.87 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.3 | ng/L | 1.87 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.3 | ng/L | 1.87 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.87 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.3 | ng/L | 1.87 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.1 | ng/L | 1.87 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.87 | 754-91-6 | |
| PFTeDA* | Not detected | 3.7 | 1.7 | ng/L | 1.87 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.87 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.3 | ng/L | 1.87 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.87 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.4 | 1.9 | ng/L | 1.87 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.7 | 2.8 | ng/L | 1.87 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.7 | 2.1 | ng/L | 1.87 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.7 | 1.1 | ng/L | 1.87 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.1 | ng/L | 1.87 | 30334-69-1 | |
| PFCHS* | Not detected | 1.9 | 1.1 | ng/L | 1.87 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S43222.07 (continued)

Sample Tag: VAS14-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/13/22 23:55, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 1.9 | 0.94 | ng/L | 1.87 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43222.08

Sample Tag: VAS15-16-20

Collected Date/Time: 12/06/2022 11:00

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.81/6.52/10 | ASTMD7979-19M | 12/12/22 12:12 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 00:14, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.5 | 9.5 | ng/L | 1.89 | 375-22-4 | |
| PFPeA* | 12 | 3.8 | 0.95 | ng/L | 1.89 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 1.5 | ng/L | 1.89 | 757124-72-4 | |
| PFHxA* | 9.6 | 1.9 | 1.3 | ng/L | 1.89 | 307-24-4 | |
| PFBS* | 1.9 | 1.9 | 1.3 | ng/L | 1.89 | 375-73-5 | J |
| PFHpA* | 5.2 | 1.9 | 1.3 | ng/L | 1.89 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.89 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.9 | ng/L | 1.89 | 27619-97-2 | |
| PFOA* | 1.7 | 1.9 | 1.5 | ng/L | 1.89 | 335-67-1 | J |
| PFHxS* | Not detected | 1.9 | 1.5 | ng/L | 1.89 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.5 | ng/L | 1.89 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.5 | ng/L | 1.89 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 1.7 | ng/L | 1.89 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.95 | ng/L | 1.89 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.89 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.89 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.89 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.8 | 1.9 | ng/L | 1.89 | 2991-50-6 | |
| PFOS* | Not detected | 1.9 | 1.9 | ng/L | 1.89 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.9 | 1.9 | ng/L | 1.89 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.9 | 1.9 | ng/L | 1.89 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.3 | ng/L | 1.89 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.3 | ng/L | 1.89 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.89 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.3 | ng/L | 1.89 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.1 | ng/L | 1.89 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.89 | 754-91-6 | |
| PFTeDA* | Not detected | 3.8 | 1.7 | ng/L | 1.89 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.89 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.3 | ng/L | 1.89 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.89 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.5 | 1.9 | ng/L | 1.89 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.8 | 2.8 | ng/L | 1.89 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.8 | 2.1 | ng/L | 1.89 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.8 | 1.1 | ng/L | 1.89 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.1 | ng/L | 1.89 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43222.08 (continued)

Sample Tag: VAS15-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 00:14, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 1.9 | 1.1 | ng/L | 1.89 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.9 | 0.95 | ng/L | 1.89 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43222.09

Sample Tag: VAS16-3-7

Collected Date/Time: 12/06/2022 13:15

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.93/6.53/10 | ASTMD7979-19M | 12/12/22 12:12 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 09:10, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 93 | 9.3 | ng/L | 1.85 | 375-22-4 | X |
| PFPeA* | 100 | 3.7 | 0.93 | ng/L | 1.85 | 2706-90-3 | |
| 4:2 FTSA* | 15 | 1.9 | 1.5 | ng/L | 1.85 | 757124-72-4 | |
| PFHxA* | 150 | 1.9 | 1.3 | ng/L | 1.85 | 307-24-4 | |
| PFBS* | 15 | 1.9 | 1.3 | ng/L | 1.85 | 375-73-5 | |
| PFHpA* | 18 | 1.9 | 1.3 | ng/L | 1.85 | 375-85-9 | |
| PFPeS* | 6.2 | 1.9 | 1.7 | ng/L | 1.85 | 2706-91-4 | |
| 6:2 FTSA* | 760 | 1.9 | 1.9 | ng/L | 1.85 | 27619-97-2 | |
| PFOA* | 32 | 1.9 | 1.5 | ng/L | 1.85 | 335-67-1 | |
| PFHxS* | 25 | 1.9 | 1.5 | ng/L | 1.85 | 355-46-4 | |
| PFHxS-LN* | 19 | 1.9 | 1.5 | ng/L | 1.85 | 355-46-4-LN | |
| PFHxS-BR* | 6.0 | 1.9 | 1.5 | ng/L | 1.85 | 355-46-4-BR | |
| PFNA* | 1.9 | 1.9 | 1.7 | ng/L | 1.85 | 375-95-1 | |
| 8:2 FTSA* | 20 | 1.9 | 0.93 | ng/L | 1.85 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.85 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.85 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.85 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.7 | 1.9 | ng/L | 1.85 | 2991-50-6 | |
| PFOS* | 44 | 1.9 | 1.8 | ng/L | 1.85 | 1763-23-1 | |
| PFOS-LN* | 21 | 1.9 | 1.8 | ng/L | 1.85 | 1763-23-1-LN | |
| PFOS-BR* | 22 | 1.9 | 1.8 | ng/L | 1.85 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.3 | ng/L | 1.85 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.3 | ng/L | 1.85 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.85 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.3 | ng/L | 1.85 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.1 | ng/L | 1.85 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.85 | 754-91-6 | |
| PFTeDA* | Not detected | 3.7 | 1.7 | ng/L | 1.85 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.85 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.3 | ng/L | 1.85 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.85 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.3 | 1.9 | ng/L | 1.85 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.7 | 2.8 | ng/L | 1.85 | 812-70-4 | |
| FPePA (5:3 FTCA)* | 17 | 3.7 | 2.0 | ng/L | 1.85 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.7 | 1.1 | ng/L | 1.85 | 356-02-5 | |
| PFBSA* | 11 | 1.9 | 1.1 | ng/L | 1.85 | 30334-69-1 | |

X-Elevated reporting limit due to matrix interference



Analytical Laboratory Report

Lab Sample ID: S43222.09 (continued)

Sample Tag: VAS16-3-7

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 09:10, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFECHS* | 2.5 | 1.9 | 1.1 | ng/L | 1.85 | 67584-42-3 | |
| PFHxSA* | 22 | 1.9 | 0.93 | ng/L | 1.85 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43222.10

Sample Tag: VAS17-3-7

Collected Date/Time: 12/06/2022 14:45

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.74/6.50/10 | ASTMD7979-19M | 12/12/22 12:12 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 00:53, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.6 | 9.6 | ng/L | 1.91 | 375-22-4 | |
| PFPeA* | 10 | 3.8 | 0.96 | ng/L | 1.91 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 1.5 | ng/L | 1.91 | 757124-72-4 | |
| PFHxA* | 5.3 | 1.9 | 1.3 | ng/L | 1.91 | 307-24-4 | |
| PFBS* | Not detected | 1.9 | 1.3 | ng/L | 1.91 | 375-73-5 | |
| PFHpA* | Not detected | 1.9 | 1.3 | ng/L | 1.91 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.91 | 2706-91-4 | |
| 6:2 FTSA* | 1.9 | 1.9 | 1.9 | ng/L | 1.91 | 27619-97-2 | |
| PFOA* | Not detected | 1.9 | 1.5 | ng/L | 1.91 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.5 | ng/L | 1.91 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.5 | ng/L | 1.91 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.5 | ng/L | 1.91 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 1.7 | ng/L | 1.91 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.96 | ng/L | 1.91 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.91 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.91 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.91 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.8 | 1.9 | ng/L | 1.91 | 2991-50-6 | |
| PFOS* | 2.5 | 1.9 | 1.9 | ng/L | 1.91 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.9 | 1.9 | ng/L | 1.91 | 1763-23-1-LN | |
| PFOS-BR* | 2.1 | 1.9 | 1.9 | ng/L | 1.91 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.3 | ng/L | 1.91 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.3 | ng/L | 1.91 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.91 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.3 | ng/L | 1.91 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.1 | ng/L | 1.91 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.91 | 754-91-6 | |
| PFTeDA* | Not detected | 3.8 | 1.7 | ng/L | 1.91 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.91 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.3 | ng/L | 1.91 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.91 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.6 | 1.9 | ng/L | 1.91 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.8 | 2.9 | ng/L | 1.91 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.8 | 2.1 | ng/L | 1.91 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.8 | 1.1 | ng/L | 1.91 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.1 | ng/L | 1.91 | 30334-69-1 | |
| PFECHS* | 2.0 | 1.9 | 1.1 | ng/L | 1.91 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S43222.10 (continued)

Sample Tag: VAS17-3-7

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 00:53, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 1.9 | 0.96 | ng/L | 1.91 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43222.11

Sample Tag: VAS17-16-20

Collected Date/Time: 12/06/2022 16:15

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.80/6.50/10 | ASTMD7979-19M | 12/12/22 12:12 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 01:13, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.5 | 9.5 | ng/L | 1.89 | 375-22-4 | |
| PFPeA* | 7.5 | 3.8 | 0.95 | ng/L | 1.89 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 1.5 | ng/L | 1.89 | 757124-72-4 | |
| PFHxA* | 7.4 | 1.9 | 1.3 | ng/L | 1.89 | 307-24-4 | |
| PFBS* | Not detected | 1.9 | 1.3 | ng/L | 1.89 | 375-73-5 | |
| PFHpA* | 1.7 | 1.9 | 1.3 | ng/L | 1.89 | 375-85-9 | J |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.89 | 2706-91-4 | |
| 6:2 FTSA* | 2.0 | 1.9 | 1.9 | ng/L | 1.89 | 27619-97-2 | |
| PFOA* | Not detected | 1.9 | 1.5 | ng/L | 1.89 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.5 | ng/L | 1.89 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.5 | ng/L | 1.89 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.5 | ng/L | 1.89 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 1.7 | ng/L | 1.89 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.95 | ng/L | 1.89 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.89 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.89 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.89 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.8 | 1.9 | ng/L | 1.89 | 2991-50-6 | |
| PFOS* | Not detected | 1.9 | 1.9 | ng/L | 1.89 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.9 | 1.9 | ng/L | 1.89 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.9 | 1.9 | ng/L | 1.89 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.3 | ng/L | 1.89 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.3 | ng/L | 1.89 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.89 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.3 | ng/L | 1.89 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.1 | ng/L | 1.89 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.89 | 754-91-6 | |
| PFTeDA* | Not detected | 3.8 | 1.7 | ng/L | 1.89 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.89 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.3 | ng/L | 1.89 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.89 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.5 | 1.9 | ng/L | 1.89 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.8 | 2.8 | ng/L | 1.89 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.8 | 2.1 | ng/L | 1.89 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.8 | 1.1 | ng/L | 1.89 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.1 | ng/L | 1.89 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43222.11 (continued)

Sample Tag: VAS17-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 01:13, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 1.9 | 1.1 | ng/L | 1.89 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.9 | 0.95 | ng/L | 1.89 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43222.12

Sample Tag: VAS18-16-20

Collected Date/Time: 12/06/2022 17:50

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.14/6.57/11 | ASTMD7979-19M | 12/12/22 12:12 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 09:30, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.9 | 9.9 | ng/L | 1.97 | 375-22-4 | |
| PFPeA* | 3.1 | 3.9 | 0.99 | ng/L | 1.97 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 757124-72-4 | I |
| PFHxA* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 307-24-4 | |
| PFBS* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 375-73-5 | |
| PFHpA* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 1.97 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 27619-97-2 | |
| PFOA* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.97 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.97 | 2991-50-6 | |
| PFOS* | Not detected | 2.0 | 1.9 | ng/L | 1.97 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 1.9 | ng/L | 1.97 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 1.9 | ng/L | 1.97 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.97 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.8 | ng/L | 1.97 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.97 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.9 | 2.0 | ng/L | 1.97 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 3.0 | ng/L | 1.97 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.2 | ng/L | 1.97 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.97 | 356-02-5 | |

J-Estimated value less than reporting limit, but greater than MDL

I-Matrix interference with internal standard



Analytical Laboratory Report

Lab Sample ID: S43222.12 (continued)

Sample Tag: VAS18-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 09:30, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 30334-69-1 | |
| PFECHS* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43222.13

Sample Tag: VAS18-3-7

Collected Date/Time: 12/06/2022 17:20

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.19/6.48/11 | ASTMD7979-19M | 12/12/22 12:12 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 01:52, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 25 | 9.7 | 9.7 | ng/L | 1.93 | 375-22-4 | |
| PFPeA* | 80 | 3.9 | 0.97 | ng/L | 1.93 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 757124-72-4 | |
| PFHxA* | 30 | 1.9 | 1.4 | ng/L | 1.93 | 307-24-4 | |
| PFBS* | 2.2 | 1.9 | 1.4 | ng/L | 1.93 | 375-73-5 | |
| PFHpA* | 5.1 | 1.9 | 1.4 | ng/L | 1.93 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 2706-91-4 | |
| 6:2 FTSA* | 34 | 1.9 | 1.9 | ng/L | 1.93 | 27619-97-2 | |
| PFOA* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 335-67-1 | |
| PFHxS* | 1.7 | 1.9 | 1.5 | ng/L | 1.93 | 355-46-4 | J |
| PFHxS-LN* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 1.9 | ng/L | 1.93 | 2991-50-6 | |
| PFOS* | 3.4 | 1.9 | 1.9 | ng/L | 1.93 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.7 | ng/L | 1.93 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.7 | 1.9 | ng/L | 1.93 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.9 | ng/L | 1.93 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.1 | ng/L | 1.93 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.93 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43222.13 (continued)

Sample Tag: VAS18-3-7

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 01:52, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43222.14

Sample Tag: DUP-03-06122022

Collected Date/Time: 12/06/2022 00:01

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.03/6.54/11 | ASTMD7979-19M | 12/12/22 12:12 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 02:11, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | 23 | 10 | 10 | ng/L | 2 | 375-22-4 | |
| PFPeA* | 72 | 4.0 | 1.0 | ng/L | 2 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 2 | 757124-72-4 | |
| PFHxA* | 33 | 2.0 | 1.4 | ng/L | 2 | 307-24-4 | |
| PFBS* | 2.1 | 2.0 | 1.4 | ng/L | 2 | 375-73-5 | |
| PFHpA* | 4.7 | 2.0 | 1.4 | ng/L | 2 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 2 | 2706-91-4 | |
| 6:2 FTSA* | 28 | 2.0 | 2.0 | ng/L | 2 | 27619-97-2 | |
| PFOA* | Not detected | 2.0 | 1.6 | ng/L | 2 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.6 | ng/L | 2 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.6 | ng/L | 2 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 2 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 2 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 2 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 2 | 2991-50-6 | |
| PFOS* | 3.7 | 2.0 | 2.0 | ng/L | 2 | 1763-23-1 | |
| PFOS-LN* | 2.0 | 2.0 | 2.0 | ng/L | 2 | 1763-23-1-LN | J |
| PFOS-BR* | Not detected | 2.0 | 2.0 | ng/L | 2 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 2 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 2 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 2 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 2 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 2 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 2 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.0 | ng/L | 2 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 2 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 2 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 2 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 2 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43222.14 (continued)

Sample Tag: DUP-03-06122022

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 02:11, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|-----|-------|----------|------------|-------|
| PFECHS* | Not detected | 2.0 | 1.2 | ng/L | 2 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 1.0 | ng/L | 2 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43222.15

Sample Tag: VAS19-5-9

Collected Date/Time: 12/07/2022 10:40

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.85/6.47/11 | ASTMD7979-19M | 12/12/22 12:12 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 02:31, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | 36 | 10 | 10 | ng/L | 2.04 | 375-22-4 | |
| PFPeA* | 110 | 4.1 | 1.0 | ng/L | 2.04 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 2.04 | 757124-72-4 | |
| PFHxA* | 64 | 2.0 | 1.4 | ng/L | 2.04 | 307-24-4 | |
| PFBS* | 8.1 | 2.0 | 1.4 | ng/L | 2.04 | 375-73-5 | |
| PFHpA* | 17 | 2.0 | 1.4 | ng/L | 2.04 | 375-85-9 | |
| PFPeS* | 5.2 | 2.0 | 1.8 | ng/L | 2.04 | 2706-91-4 | |
| 6:2 FTSA* | 13 | 2.0 | 2.0 | ng/L | 2.04 | 27619-97-2 | |
| PFOA* | 20 | 2.0 | 1.6 | ng/L | 2.04 | 335-67-1 | |
| PFHxS* | 12 | 2.0 | 1.6 | ng/L | 2.04 | 355-46-4 | |
| PFHxS-LN* | 9.0 | 2.0 | 1.6 | ng/L | 2.04 | 355-46-4-LN | |
| PFHxS-BR* | 3.1 | 2.0 | 1.6 | ng/L | 2.04 | 355-46-4-BR | |
| PFNA* | 1.9 | 2.0 | 1.8 | ng/L | 2.04 | 375-95-1 | J |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2.04 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 2.04 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 2.04 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 2.04 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.1 | 2.0 | ng/L | 2.04 | 2991-50-6 | |
| PFOS* | 10 | 2.0 | 2.0 | ng/L | 2.04 | 1763-23-1 | |
| PFOS-LN* | 4.2 | 2.0 | 2.0 | ng/L | 2.04 | 1763-23-1-LN | |
| PFOS-BR* | 6.3 | 2.0 | 2.0 | ng/L | 2.04 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 2.04 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 2.04 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 2.04 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 2.04 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 2.04 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 2.04 | 754-91-6 | |
| PFTeDA* | Not detected | 4.1 | 1.8 | ng/L | 2.04 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 2.04 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 2.04 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 2.04 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.0 | ng/L | 2.04 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.1 | 3.1 | ng/L | 2.04 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.1 | 2.2 | ng/L | 2.04 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.1 | 1.2 | ng/L | 2.04 | 356-02-5 | |
| PFBSA* | 3.5 | 2.0 | 1.2 | ng/L | 2.04 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43222.15 (continued)

Sample Tag: VAS19-5-9

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 02:31, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|-----|-------|----------|------------|-------|
| PFECHS* | 7.1 | 2.0 | 1.2 | ng/L | 2.04 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 1.0 | ng/L | 2.04 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43222.16

Sample Tag: VAS19-16-20

Collected Date/Time: 12/07/2022 12:05

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.27/6.57/11 | ASTMD7979-19M | 12/12/22 12:12 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 02:50, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.7 | 9.7 | ng/L | 1.93 | 375-22-4 | |
| PFPeA* | 3.2 | 3.9 | 0.97 | ng/L | 1.93 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 757124-72-4 | |
| PFHxA* | 2.0 | 1.9 | 1.4 | ng/L | 1.93 | 307-24-4 | |
| PFBS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 375-73-5 | |
| PFHpA* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 27619-97-2 | |
| PFOA* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 1.9 | ng/L | 1.93 | 2991-50-6 | |
| PFOS* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.7 | ng/L | 1.93 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.7 | 1.9 | ng/L | 1.93 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.9 | ng/L | 1.93 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.1 | ng/L | 1.93 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.93 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43222.16 (continued)

Sample Tag: VAS19-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 02:50, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43222.17

Sample Tag: VAS19-16-20 MS

Collected Date/Time: 12/07/2022 12:05

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.27/6.55/11 | ASTMD7979-19M | 12/12/22 12:12 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 09:49, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------|-----|------|-------|----------|--------------|-------|
| PFBA* | 100 | 9.6 | 9.6 | ng/L | 1.92 | 375-22-4 | 1 |
| PFPeA* | 100 | 3.8 | 0.96 | ng/L | 1.92 | 2706-90-3 | 1 |
| 4:2 FTSA* | 100 | 1.9 | 1.5 | ng/L | 1.92 | 757124-72-4 | 1 |
| PFHxA* | 99 | 1.9 | 1.3 | ng/L | 1.92 | 307-24-4 | 1 |
| PFBS* | 98 | 1.9 | 1.3 | ng/L | 1.92 | 375-73-5 | 1 |
| PFHpA* | 110 | 1.9 | 1.3 | ng/L | 1.92 | 375-85-9 | 1 |
| PFPeS* | 95 | 1.9 | 1.7 | ng/L | 1.92 | 2706-91-4 | 1 |
| 6:2 FTSA* | 92 | 1.9 | 1.9 | ng/L | 1.92 | 27619-97-2 | 1 |
| PFOA* | 110 | 1.9 | 1.5 | ng/L | 1.92 | 335-67-1 | 1 |
| PFHxS* | 93 | 1.9 | 1.5 | ng/L | 1.92 | 355-46-4 | 1 |
| PFHxS-LN* | 79 | 1.9 | 1.5 | ng/L | 1.92 | 355-46-4-LN | 1 |
| PFHxS-BR* | 14 | 1.9 | 1.5 | ng/L | 1.92 | 355-46-4-BR | 1 |
| PFNA* | 110 | 1.9 | 1.7 | ng/L | 1.92 | 375-95-1 | 1 |
| 8:2 FTSA* | 110 | 1.9 | 0.96 | ng/L | 1.92 | 39108-34-4 | 1 |
| PFHpS* | 100 | 1.9 | 1.9 | ng/L | 1.92 | 375-92-8 | 1 |
| PFDA* | 110 | 1.9 | 1.9 | ng/L | 1.92 | 335-76-2 | 1 |
| N-MeFOSAA* | 110 | 1.9 | 1.9 | ng/L | 1.92 | 2355-31-9 | 1 |
| EtFOSAA* | 91 | 3.8 | 1.9 | ng/L | 1.92 | 2991-50-6 | 1 |
| PFOS* | 110 | 1.9 | 1.9 | ng/L | 1.92 | 1763-23-1 | 1 |
| PFOS-LN* | 74 | 1.9 | 1.9 | ng/L | 1.92 | 1763-23-1-LN | 1 |
| PFOS-BR* | 32 | 1.9 | 1.9 | ng/L | 1.92 | 1763-23-1-BR | 1 |
| PFUnDA* | 83 | 1.9 | 1.3 | ng/L | 1.92 | 2058-94-8 | 1 |
| PFNS* | 110 | 1.9 | 1.3 | ng/L | 1.92 | 68259-12-1 | 1 |
| PFDODA* | 110 | 1.9 | 1.5 | ng/L | 1.92 | 307-55-1 | 1 |
| PFDS* | 110 | 1.9 | 1.3 | ng/L | 1.92 | 335-77-3 | 1 |
| PFTDA* | 95 | 1.9 | 1.2 | ng/L | 1.92 | 72629-94-8 | 1 |
| FOSA* | 99 | 1.9 | 1.7 | ng/L | 1.92 | 754-91-6 | 1 |
| PFTeDA* | 89 | 3.8 | 1.7 | ng/L | 1.92 | 376-06-7 | 1 |
| 11Cl-PF3OUdS* | 100 | 1.9 | 1.7 | ng/L | 1.92 | 763051-92-9 | 1 |
| 9Cl-PF3ONS* | 110 | 1.9 | 1.3 | ng/L | 1.92 | 756426-58-1 | 1 |
| ADONA* | 98 | 1.9 | 1.9 | ng/L | 1.92 | 919005-14-4 | 1 |
| HFPO-DA* | 92 | 9.6 | 1.9 | ng/L | 1.92 | 13252-13-6 | 1 |
| FHpPA (7:3 FTCA)* | 96 | 3.8 | 2.9 | ng/L | 1.92 | 812-70-4 | 1 |
| FPePA (5:3 FTCA)* | 91 | 3.8 | 2.1 | ng/L | 1.92 | 914637-49-3 | 1 |
| FPrPA (3:3 FTCA)* | 87 | 3.8 | 1.2 | ng/L | 1.92 | 356-02-5 | 1 |
| PFBSA* | 84 | 1.9 | 1.2 | ng/L | 1.92 | 30334-69-1 | 1 |

1-spiked @ 96 ng/L



Analytical Laboratory Report

Lab Sample ID: S43222.17 (continued)

Sample Tag: VAS19-16-20 MS

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 09:49, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFECHS* | 96 | 1.9 | 1.2 | ng/L | 1.92 | 67584-42-3 | 1 |
| PFHxSA* | 86 | 1.9 | 0.96 | ng/L | 1.92 | 41997-13-1 | 1 |

1-spiked @ 96 ng/L



Analytical Laboratory Report

Lab Sample ID: S43222.18

Sample Tag: VAS19-16-20 MSD

Collected Date/Time: 12/07/2022 12:05

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.56/6.49/10 | ASTMD7979-19M | 12/12/22 12:12 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 10:09, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------|-----|------|-------|----------|--------------|-------|
| PFBA* | 95 | 9.9 | 9.9 | ng/L | 1.97 | 375-22-4 | 1 |
| PFPeA* | 100 | 3.9 | 0.99 | ng/L | 1.97 | 2706-90-3 | 1 |
| 4:2 FTSA* | 120 | 2.0 | 1.6 | ng/L | 1.97 | 757124-72-4 | 1 |
| PFHxA* | 91 | 2.0 | 1.4 | ng/L | 1.97 | 307-24-4 | 1 |
| PFBS* | 99 | 2.0 | 1.4 | ng/L | 1.97 | 375-73-5 | 1 |
| PFHpA* | 100 | 2.0 | 1.4 | ng/L | 1.97 | 375-85-9 | 1 |
| PFPeS* | 89 | 2.0 | 1.8 | ng/L | 1.97 | 2706-91-4 | 1 |
| 6:2 FTSA* | 110 | 2.0 | 2.0 | ng/L | 1.97 | 27619-97-2 | 1 |
| PFOA* | 100 | 2.0 | 1.6 | ng/L | 1.97 | 335-67-1 | 1 |
| PFHxS* | 95 | 2.0 | 1.6 | ng/L | 1.97 | 355-46-4 | 1 |
| PFHxS-LN* | 81 | 2.0 | 1.6 | ng/L | 1.97 | 355-46-4-LN | 1 |
| PFHxS-BR* | 14 | 2.0 | 1.6 | ng/L | 1.97 | 355-46-4-BR | 1 |
| PFNA* | 110 | 2.0 | 1.8 | ng/L | 1.97 | 375-95-1 | 1 |
| 8:2 FTSA* | 110 | 2.0 | 0.99 | ng/L | 1.97 | 39108-34-4 | 11 |
| PFHpS* | 96 | 2.0 | 2.0 | ng/L | 1.97 | 375-92-8 | 1 |
| PFDA* | 110 | 2.0 | 2.0 | ng/L | 1.97 | 335-76-2 | 1 |
| N-MeFOSAA* | 100 | 2.0 | 2.0 | ng/L | 1.97 | 2355-31-9 | 1 |
| EtFOSAA* | 98 | 3.9 | 2.0 | ng/L | 1.97 | 2991-50-6 | 1 |
| PFOS* | 94 | 2.0 | 1.9 | ng/L | 1.97 | 1763-23-1 | 1 |
| PFOS-LN* | 61 | 2.0 | 1.9 | ng/L | 1.97 | 1763-23-1-LN | 1 |
| PFOS-BR* | 32 | 2.0 | 1.9 | ng/L | 1.97 | 1763-23-1-BR | 1 |
| PFUnDA* | 93 | 2.0 | 1.4 | ng/L | 1.97 | 2058-94-8 | 1 |
| PFNS* | 100 | 2.0 | 1.4 | ng/L | 1.97 | 68259-12-1 | 1 |
| PFDODA* | 100 | 2.0 | 1.6 | ng/L | 1.97 | 307-55-1 | 1 |
| PFDS* | 110 | 2.0 | 1.4 | ng/L | 1.97 | 335-77-3 | 1 |
| PFTDA* | 84 | 2.0 | 1.2 | ng/L | 1.97 | 72629-94-8 | 1 |
| FOSA* | 92 | 2.0 | 1.8 | ng/L | 1.97 | 754-91-6 | 1 |
| PFTeDA* | 94 | 3.9 | 1.8 | ng/L | 1.97 | 376-06-7 | 1 |
| 11Cl-PF3OUdS* | 100 | 2.0 | 1.8 | ng/L | 1.97 | 763051-92-9 | 1 |
| 9Cl-PF3ONS* | 100 | 2.0 | 1.4 | ng/L | 1.97 | 756426-58-1 | 1 |
| ADONA* | 94 | 2.0 | 2.0 | ng/L | 1.97 | 919005-14-4 | 1 |
| HFPO-DA* | 84 | 9.9 | 2.0 | ng/L | 1.97 | 13252-13-6 | 1 |
| FHpPA (7:3 FTCA)* | 100 | 3.9 | 3.0 | ng/L | 1.97 | 812-70-4 | 1 |
| FPePA (5:3 FTCA)* | 86 | 3.9 | 2.2 | ng/L | 1.97 | 914637-49-3 | 1 |
| FPrPA (3:3 FTCA)* | 80 | 3.9 | 1.2 | ng/L | 1.97 | 356-02-5 | 1 |

1-spiked @ 98.5 ng/L

I-Matrix interference with internal standard



Analytical Laboratory Report

Lab Sample ID: S43222.18 (continued)

Sample Tag: VAS19-16-20 MSD

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 10:09, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFBSA* | 78 | 2.0 | 1.2 | ng/L | 1.97 | 30334-69-1 | 1 |
| PFECHS* | 97 | 2.0 | 1.2 | ng/L | 1.97 | 67584-42-3 | 1 |
| PFHxSA* | 77 | 2.0 | 0.99 | ng/L | 1.97 | 41997-13-1 | 1 |

1-spiked @ 98.5 ng/L



Analytical Laboratory Report

Lab Sample ID: S43222.19

Sample Tag: DUP-04-07122022

Collected Date/Time: 12/07/2022 00:01

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.68/6.48/10 | ASTMD7979-19M | 12/14/22 12:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 20:32, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 39 | 9.6 | 9.6 | ng/L | 1.92 | 375-22-4 | |
| PFPeA* | 99 | 3.8 | 0.96 | ng/L | 1.92 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 1.5 | ng/L | 1.92 | 757124-72-4 | |
| PFHxA* | 65 | 1.9 | 1.3 | ng/L | 1.92 | 307-24-4 | |
| PFBS* | 7.4 | 1.9 | 1.3 | ng/L | 1.92 | 375-73-5 | |
| PFHpA* | 25 | 1.9 | 1.3 | ng/L | 1.92 | 375-85-9 | |
| PFPeS* | 4.4 | 1.9 | 1.7 | ng/L | 1.92 | 2706-91-4 | |
| 6:2 FTSA* | 17 | 1.9 | 1.9 | ng/L | 1.92 | 27619-97-2 | |
| PFOA* | 23 | 1.9 | 1.5 | ng/L | 1.92 | 335-67-1 | |
| PFHxS* | 14 | 1.9 | 1.5 | ng/L | 1.92 | 355-46-4 | |
| PFHxS-LN* | 10 | 1.9 | 1.5 | ng/L | 1.92 | 355-46-4-LN | |
| PFHxS-BR* | 3.7 | 1.9 | 1.5 | ng/L | 1.92 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 1.7 | ng/L | 1.92 | 375-95-1 | |
| 8:2 FTSA* | 1.2 | 1.9 | 0.96 | ng/L | 1.92 | 39108-34-4 | J |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.8 | 1.9 | ng/L | 1.92 | 2991-50-6 | |
| PFOS* | 10 | 1.9 | 1.9 | ng/L | 1.92 | 1763-23-1 | |
| PFOS-LN* | 3.6 | 1.9 | 1.9 | ng/L | 1.92 | 1763-23-1-LN | |
| PFOS-BR* | 6.7 | 1.9 | 1.9 | ng/L | 1.92 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.92 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.92 | 754-91-6 | |
| PFTeDA* | Not detected | 3.8 | 1.7 | ng/L | 1.92 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.92 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.6 | 1.9 | ng/L | 1.92 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.8 | 2.9 | ng/L | 1.92 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.8 | 2.1 | ng/L | 1.92 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.8 | 1.2 | ng/L | 1.92 | 356-02-5 | |
| PFBSA* | 3.7 | 1.9 | 1.2 | ng/L | 1.92 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43222.19 (continued)

Sample Tag: DUP-04-07122022

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 20:32, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFECHS* | 6.3 | 1.9 | 1.2 | ng/L | 1.92 | 67584-42-3 | |
| PFHxSA* | 1.1 | 1.9 | 0.96 | ng/L | 1.92 | 41997-13-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43222.20

Sample Tag: VAS13-SB-2-3

Collected Date/Time: 12/05/2022 14:30

Matrix: Soil

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |
| 1 | 250ml Plastic | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|----------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 7.33/6.55/10 | ASTM D7968-17M | 12/19/22 10:00 | KCV | |

Inorganics

Method: SM2540B, Run Date: 12/07/22 17:07, Analyst: MAM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------|--------|----|-----|-------|----------|------|-------|
| Total Solids* | 75 | 1 | 1 | % | 1 | | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/21/22 03:54, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | Not detected | 340 | 27 | ng/kg | 17.1 | 375-22-4 | |
| PFPeA* | 15 | 170 | 14 | ng/kg | 17.1 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 170 | 27 | ng/kg | 17.1 | 757124-72-4 | |
| PFHxA* | Not detected | 170 | 19 | ng/kg | 17.1 | 307-24-4 | |
| PFBS* | Not detected | 170 | 24 | ng/kg | 17.1 | 375-73-5 | |
| PFHpA* | Not detected | 170 | 34 | ng/kg | 17.1 | 375-85-9 | |
| PFPeS* | Not detected | 170 | 29 | ng/kg | 17.1 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 170 | 43 | ng/kg | 17.1 | 27619-97-2 | |
| PFOA* | Not detected | 170 | 32 | ng/kg | 17.1 | 335-67-1 | |
| PFHxS* | Not detected | 170 | 31 | ng/kg | 17.1 | 355-46-4 | |
| PFHxS-LN* | Not detected | 170 | 31 | ng/kg | 17.1 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 170 | 31 | ng/kg | 17.1 | 355-46-4-BR | |
| PFNA* | Not detected | 170 | 24 | ng/kg | 17.1 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 170 | 50 | ng/kg | 17.1 | 39108-34-4 | |
| PFHpS* | Not detected | 170 | 22 | ng/kg | 17.1 | 375-92-8 | |
| PFDA* | Not detected | 170 | 27 | ng/kg | 17.1 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 170 | 53 | ng/kg | 17.1 | 2355-31-9 | |
| EtFOSAA* | Not detected | 170 | 21 | ng/kg | 17.1 | 2991-50-6 | |
| PFOS* | 65 | 170 | 24 | ng/kg | 17.1 | 1763-23-1 | J |
| PFOS-LN* | 51 | 170 | 24 | ng/kg | 17.1 | 1763-23-1-LN | J |
| PFOS-BR* | Not detected | 170 | 24 | ng/kg | 17.1 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 170 | 32 | ng/kg | 17.1 | 2058-94-8 | |
| PFNS* | Not detected | 170 | 38 | ng/kg | 17.1 | 68259-12-1 | |
| PFDODA* | Not detected | 170 | 19 | ng/kg | 17.1 | 307-55-1 | |
| PFDS* | Not detected | 170 | 24 | ng/kg | 17.1 | 335-77-3 | |
| PFTTrDA* | Not detected | 170 | 34 | ng/kg | 17.1 | 72629-94-8 | |
| FOSA* | Not detected | 170 | 21 | ng/kg | 17.1 | 754-91-6 | |
| PFTeDA* | Not detected | 170 | 29 | ng/kg | 17.1 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 170 | 21 | ng/kg | 17.1 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 170 | 32 | ng/kg | 17.1 | 756426-58-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43222.20 (continued)

Sample Tag: VAS13-SB-2-3

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/21/22 03:54, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|-------------|-------|
| ADONA* | Not detected | 170 | 24 | ng/kg | 17.1 | 919005-14-4 | |
| HFPO-DA* | Not detected | 170 | 44 | ng/kg | 17.1 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 170 | 26 | ng/kg | 17.1 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 170 | 41 | ng/kg | 17.1 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 170 | 41 | ng/kg | 17.1 | 356-02-5 | |
| PFBSA* | Not detected | 170 | 27 | ng/kg | 17.1 | 30334-69-1 | |
| PFECHS* | Not detected | 170 | 26 | ng/kg | 17.1 | 67584-42-3 | |
| PFHxSA* | Not detected | 170 | 32 | ng/kg | 17.1 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43222.21

Sample Tag: VAS15-SB-3-5

Collected Date/Time: 12/06/2022 10:30

Matrix: Soil

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |
| 1 | 250ml Plastic | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|----------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 8.00/6.50/10 | ASTM D7968-17M | 12/19/22 10:00 | KCV | |

Inorganics

Method: SM2540B, Run Date: 12/07/22 17:07, Analyst: MAM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------|--------|----|-----|-------|----------|------|-------|
| Total Solids* | 82 | 1 | 1 | % | 1 | | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/21/22 04:33, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | Not detected | 160 | 13 | ng/kg | 8.13 | 375-22-4 | |
| PFPeA* | Not detected | 81 | 6.5 | ng/kg | 8.13 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 81 | 13 | ng/kg | 8.13 | 757124-72-4 | |
| PFHxA* | 10 | 81 | 8.9 | ng/kg | 8.13 | 307-24-4 | J |
| PFBS* | Not detected | 81 | 11 | ng/kg | 8.13 | 375-73-5 | |
| PFHpA* | Not detected | 81 | 16 | ng/kg | 8.13 | 375-85-9 | |
| PFPeS* | Not detected | 81 | 14 | ng/kg | 8.13 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 81 | 20 | ng/kg | 8.13 | 27619-97-2 | I |
| PFOA* | Not detected | 81 | 15 | ng/kg | 8.13 | 335-67-1 | |
| PFHxS* | Not detected | 81 | 15 | ng/kg | 8.13 | 355-46-4 | |
| PFHxS-LN* | Not detected | 81 | 15 | ng/kg | 8.13 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 81 | 15 | ng/kg | 8.13 | 355-46-4-BR | |
| PFNA* | Not detected | 81 | 11 | ng/kg | 8.13 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 81 | 24 | ng/kg | 8.13 | 39108-34-4 | I |
| PFHpS* | Not detected | 81 | 11 | ng/kg | 8.13 | 375-92-8 | |
| PFDA* | Not detected | 81 | 13 | ng/kg | 8.13 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 81 | 25 | ng/kg | 8.13 | 2355-31-9 | |
| EtFOSAA* | Not detected | 81 | 9.8 | ng/kg | 8.13 | 2991-50-6 | I |
| PFOS* | 93 | 81 | 11 | ng/kg | 8.13 | 1763-23-1 | |
| PFOS-LN* | 55 | 81 | 11 | ng/kg | 8.13 | 1763-23-1-LN | J |
| PFOS-BR* | 39 | 81 | 11 | ng/kg | 8.13 | 1763-23-1-BR | J |
| PFUnDA* | Not detected | 81 | 15 | ng/kg | 8.13 | 2058-94-8 | |
| PFNS* | Not detected | 81 | 18 | ng/kg | 8.13 | 68259-12-1 | |
| PFDODA* | Not detected | 81 | 8.9 | ng/kg | 8.13 | 307-55-1 | |
| PFDS* | Not detected | 81 | 11 | ng/kg | 8.13 | 335-77-3 | |
| PFTTrDA* | Not detected | 81 | 16 | ng/kg | 8.13 | 72629-94-8 | |
| FOSA* | Not detected | 81 | 9.8 | ng/kg | 8.13 | 754-91-6 | |
| PFTeDA* | Not detected | 81 | 14 | ng/kg | 8.13 | 376-06-7 | |
| 11CI-PF3OUdS* | Not detected | 81 | 9.8 | ng/kg | 8.13 | 763051-92-9 | |

J-Estimated value less than reporting limit, but greater than MDL

I-Matrix interference with internal standard



Analytical Laboratory Report

Lab Sample ID: S43222.21 (continued)

Sample Tag: VAS15-SB-3-5

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/21/22 04:33, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|----|-----|-------|----------|-------------|-------|
| 9CI-PF3ONS* | Not detected | 81 | 15 | ng/kg | 8.13 | 756426-58-1 | |
| ADONA* | Not detected | 81 | 11 | ng/kg | 8.13 | 919005-14-4 | |
| HFPO-DA* | Not detected | 81 | 21 | ng/kg | 8.13 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 81 | 12 | ng/kg | 8.13 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 81 | 20 | ng/kg | 8.13 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 81 | 20 | ng/kg | 8.13 | 356-02-5 | |
| PFBSA* | Not detected | 81 | 13 | ng/kg | 8.13 | 30334-69-1 | |
| PFECHS* | Not detected | 81 | 12 | ng/kg | 8.13 | 67584-42-3 | |
| PFHxSA* | Not detected | 81 | 15 | ng/kg | 8.13 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43222.22

Sample Tag: VAS19-SB-5-7

Collected Date/Time: 12/07/2022 10:25

Matrix: Soil

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 4.9 | IR |
| 1 | 250ml Plastic | None | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|----------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 7.71/6.42/10 | ASTM D7968-17M | 12/19/22 10:00 | KCV | |

Inorganics

Method: SM2540B, Run Date: 12/07/22 17:07, Analyst: MAM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------|--------|----|-----|-------|----------|------|-------|
| Total Solids* | 67 | 1 | 1 | % | 1 | | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/20/22 01:12, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | Not detected | 230 | 19 | ng/kg | 11.6 | 375-22-4 | |
| PFPeA* | Not detected | 120 | 9.3 | ng/kg | 11.6 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 120 | 19 | ng/kg | 11.6 | 757124-72-4 | |
| PFHxA* | Not detected | 120 | 13 | ng/kg | 11.6 | 307-24-4 | |
| PFBS* | Not detected | 120 | 16 | ng/kg | 11.6 | 375-73-5 | |
| PFHpA* | Not detected | 120 | 23 | ng/kg | 11.6 | 375-85-9 | |
| PFPeS* | Not detected | 120 | 20 | ng/kg | 11.6 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 120 | 29 | ng/kg | 11.6 | 27619-97-2 | |
| PFOA* | Not detected | 120 | 22 | ng/kg | 11.6 | 335-67-1 | |
| PFHxS* | Not detected | 120 | 21 | ng/kg | 11.6 | 355-46-4 | |
| PFHxS-LN* | Not detected | 120 | 21 | ng/kg | 11.6 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 120 | 21 | ng/kg | 11.6 | 355-46-4-BR | |
| PFNA* | Not detected | 120 | 16 | ng/kg | 11.6 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 120 | 34 | ng/kg | 11.6 | 39108-34-4 | |
| PFHpS* | Not detected | 120 | 15 | ng/kg | 11.6 | 375-92-8 | |
| PFDA* | Not detected | 120 | 19 | ng/kg | 11.6 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 120 | 36 | ng/kg | 11.6 | 2355-31-9 | |
| EtFOSAA* | Not detected | 120 | 14 | ng/kg | 11.6 | 2991-50-6 | |
| PFOS* | 290 | 120 | 16 | ng/kg | 11.6 | 1763-23-1 | |
| PFOS-LN* | 240 | 120 | 16 | ng/kg | 11.6 | 1763-23-1-LN | |
| PFOS-BR* | 47 | 120 | 16 | ng/kg | 11.6 | 1763-23-1-BR | J |
| PFUnDA* | Not detected | 120 | 22 | ng/kg | 11.6 | 2058-94-8 | |
| PFNS* | Not detected | 120 | 26 | ng/kg | 11.6 | 68259-12-1 | |
| PFDODA* | Not detected | 120 | 13 | ng/kg | 11.6 | 307-55-1 | |
| PFDS* | Not detected | 120 | 16 | ng/kg | 11.6 | 335-77-3 | |
| PFTTrDA* | Not detected | 120 | 23 | ng/kg | 11.6 | 72629-94-8 | |
| FOSA* | Not detected | 120 | 14 | ng/kg | 11.6 | 754-91-6 | |
| PFTeDA* | Not detected | 120 | 20 | ng/kg | 11.6 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 120 | 14 | ng/kg | 11.6 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 120 | 22 | ng/kg | 11.6 | 756426-58-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43222.22 (continued)

Sample Tag: VAS19-SB-5-7

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/20/22 01:12, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|-------------|-------|
| ADONA* | Not detected | 120 | 16 | ng/kg | 11.6 | 919005-14-4 | |
| HFPO-DA* | Not detected | 120 | 30 | ng/kg | 11.6 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 120 | 17 | ng/kg | 11.6 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 120 | 28 | ng/kg | 11.6 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 120 | 28 | ng/kg | 11.6 | 356-02-5 | |
| PFBSA* | Not detected | 120 | 19 | ng/kg | 11.6 | 30334-69-1 | |
| PFECHS* | 28 | 120 | 17 | ng/kg | 11.6 | 67584-42-3 | J |
| PFHxSA* | Not detected | 120 | 22 | ng/kg | 11.6 | 41997-13-1 | |

J-Estimated value less than reporting limit, but greater than MDL

Merit Laboratories Login Checklist

Lab Set ID:S43222

Client:WSP (WSP)

Project: Former JB Sims Generating Station, Harbor Island, GrandHaven

Submitted: 12/07/2022 15:53 Login User: BJB

Attention: Saamih Bashir

Address: WSP

45850 Magellan Drive, Suite 190
Novi, MI 48377

Phone: n/a

FAX:

Email: Saamih.Bashir@wsp.com

| Selection | Description | Note |
|--------------------------|--|--|
| Sample Receiving | | |
| 01. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 4.9 |
| 02. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun |
| 03. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped |
| 04. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box |
| 05. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |
| Chain of Custody | | |
| 06. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out |
| 07. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab |
| 08. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC |
| 09. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to: |
| Preservation | | |
| 10. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation |
| 11. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs) |
| 12. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab? |
| Bottle Conditions | | |
| 13. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact |
| 14. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used |
| 15. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used |
| 16. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received |
| 17. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration |
| 18. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time |
| 19. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace |

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

WSP USA Environment & Infrastructure Inc.
 46850 Magellan Drive, Suite 190
 Novi, Michigan 48377
 (248) 926-4008

CHAIN OF CUSTODY

SHIP TO:
 Merit Laboratories, Inc.
 2680 East Lansing Drive
 East Lansing, MI 48823
 Atten: Johanna Murray
 Lab Phone# 517-827-2755

DATE: 12/7/2022

COC #: _____

PAGE: 1 OF 4

| | | | |
|--|---------------------------------------|---|-----------------------------------|
| Project Name: Former JB Sims Generating Station, Harbor Island, Grand Haven | Project Contact: Zach McCurley | Bill To: WSP USA Environment & Infrastructure Inc. | Disposal Instructions: LAB |
| Project Number: 3650220203.02.02.3650 | Phone Number: 248-775-9823 | Attn: Saamih Bashir | Shipment Method: FEDEX |
| Project Manager: Saamih Bashir | Purchase Order: C012407104 | 46850 Magellan Dr., Ste 190 | Waybill Number: N/A |
| Sampler Name: Jared Walbert | | Novi, MI 48377 | Waybill Number: N/A |

MATRIX Code W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL SW=SURFACE WATER
 L=LIQUID SD=SEDIMENT SL=SLUDGE DW=DRINKING WATER O=OIL A=AIR WS=WASTE

TURNAROUND TIME REQUIRED: 2 Days 5 Days Standard (10 TAT)

DELIVERABLES REQUIRED: STD Level II Level III Level IV EDD

| Sample Information | | | | | | | Methods for Analysis | | | | | | | | | | RUSH | | | | | | |
|--------------------|----------|--------------|-----------|-------|--------|--------------|-----------------------------|---------------------|----------------------|-----------------------------|-------------------------------|--------------------------------------|----------------------|--------|--|--|------|--|---------|---------|---------|--------|--|
| No. | Lab ID | Sample ID | Date | Time | Matrix | # of Bottles | PFAS A5TMD7979 Per Contract | VOCs (Per Contract) | SVOCs (Per Contract) | MI 10 Metals (per Contract) | pH/corrosivity (per Contract) | particle size (sieve and hydrometer) | Total Organic Carbon | MS/MSD | | | | | 24 Hour | 48 Hour | 72 Hour | 5 Days | |
| 1 | 43222.01 | VAS11-16-20 | 12/5/2022 | 12:15 | GW | 3 | X | | | | | | | | | | | | | | | | |
| 2 | .02 | VAS11-2-6 | 12/5/2022 | 10:10 | GW | 3 | X | | | | | | | | | | | | | | | | |
| 3 | .03 | VAS12-16-20 | 12/5/2022 | 13:25 | GW | 3 | X | | | | | | | | | | | | | | | | |
| 4 | .04 | VAS12-3-7 | 12/5/2022 | 11:20 | GW | 3 | X | | | | | | | | | | | | | | | | |
| 5 | .05 | VAS13-16-20 | 12/6/2022 | 9:20 | GW | 3 | X | | | | | | | | | | | | | | | | |
| 6 | 43223.01 | VAS13-3-7 | 12/5/2022 | 14:30 | GW | 6 | | X | X | X | | | | | | | | | | | | | |
| 7 | 43222.00 | VAS14-1-5 | 12/5/2022 | 16:15 | GW | 3 | X | | | | | | | | | | | | | | | | |
| 8 | .07 | VAS14-16-20 | 12/5/2022 | 17:15 | GW | 3 | X | | | | | | | | | | | | | | | | |
| 9 | .08 | VAS-15-16-20 | 12/6/2022 | 11:00 | GW | 3 | X | | | | | | | | | | | | | | | | |
| 10 | 43223.02 | VAS-15-3-7 | 12/6/2022 | 12:10 | GW | 6 | | X | X | X | | | | | | | | | | | | | |
| 11 | 43222.09 | VAS16-3-7 | 12/6/2022 | 13:15 | GW | 3 | X | | | | | | | | | | | | | | | | |
| 12 | .10 | VAS17-3-7 | 12/6/2022 | 14:45 | GW | 3 | X | | | | | | | | | | | | | | | | |

| | | | | | |
|--|---------------|------------|--------------------------------|--------|----------------|
| Relinquished By/Affiliation: <i>Saamih Bashir</i> | Date: 12-7-22 | Time: 6:53 | For Lab Use | | Comments: X |
| Received By: <i>Johanna Murray</i> | Date: 12/7/22 | Time: 1553 | Does COC match samples: | Y or N | |
| Relinquished By/Affiliation: | Date: | Time: | Broken Container: | Y or N | |
| Received By: | Date: | Time: | COC seal intact: | Y or N | |
| Relinquished By/Affiliation: | Date: | Time: | Other problems: | Y or N | |
| Received By (LAB): | Date: | Time: | WSDOT contacted: | Y or N | |
| | | | Date contacted: | | |
| | | | Cooler Temperature at receipt: | 49 °C | |
| | | | NUMBER OF COOLERS SENT: 1 | | |



Analytical Laboratory Report

Report ID: S43223.01(01)
Generated on 01/05/2023

Report to

Attention: Saamih Bashir
WSP
45850 Magellan Drive, Suite 190
Novi, MI 48377

Phone: n/a FAX:
Email: Saamih.Bashir@wsp.com

Additional Contacts: Jared Walbert

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S43223.01-S43223.08
Project: Former JB Sims Generating Station, Harbor Island, GrandHaven
Collected Date(s): 12/05/2022 - 12/07/2022
Submitted Date/Time: 12/07/2022 15:53
Sampled by: Jared Walbert
P.O. #: C012407104

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Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Certifications

| Authority | Certification ID |
|---------------------|------------------|
| Michigan DEQ | #9956 |
| DOD ELAP/ISO 17025 | #69699 |
| WBENC | #2005110032 |
| Ohio VAP | #CL0002 |
| Indiana DOH | #C-MI-07 |
| New York NELAC | #11814 |
| North Carolina DENR | #680 |
| North Carolina DOH | #26702 |
| Alaska CSLAP | #17-001 |
| Pennsylvania DEP | #68-05884 |
| Wisconsin DNR | FID# 399147320 |

Qualifier Descriptions

| Qualifier | Description |
|-----------|---|
| ! | Result is outside of stated limit criteria |
| B | Compound also found in associated method blank |
| E | Concentration exceeds calibration range |
| F | Analysis run outside of holding time |
| G | Estimated result due to extraction run outside of holding time |
| H | Sample submitted and run outside of holding time |
| I | Matrix interference with internal standard |
| J | Estimated value less than reporting limit, but greater than MDL |
| L | Elevated reporting limit due to low sample amount |
| M | Result reported to MDL not RDL |
| O | Analysis performed by outside laboratory. See attached report. |
| R | Preliminary result |
| S | Surrogate recovery outside of control limits |
| T | No correction for total solids |
| X | Elevated reporting limit due to matrix interference |
| Y | Elevated reporting limit due to high target concentration |
| b | Value detected less than reporting limit, but greater than MDL |
| e | Reported value estimated due to interference |
| j | Analyte also found in associated method blank |
| p | Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak. |
| x | Preserved from bulk sample |

Glossary of Abbreviations

| Abbreviation | Description |
|--------------|--|
| RL/RDL | Reporting Limit |
| MDL | Method Detection Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| SW | EPA SW 846 (Soil and Wastewater) Methods |
| E | EPA Methods |
| SM | Standard Methods |
| LN | Linear |
| BR | Branched |



Analytical Laboratory Report

Method Summary

| Method | Version |
|---------------|--|
| E200.8 | EPA Method 200.8 Revision 5.4 |
| E245.1 | EPA Method 245.1 Revision 3.0 |
| N/A | Not Applicable |
| SW3015A | SW 846 Method 3015A Revision 1 February 2007 |
| SW3510C | SW 846 Method 3510C Revision 3 December 1996 |
| SW5030C/8260C | SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003 |
| SW8270D | SW 846 Method 8270D Revision 4 February 2007 |
| SW9045D | SW 846 Method 9045D Revision 4 November 2004 |



Analytical Laboratory Report

Sample Summary (8 samples)

| Sample ID | Sample Tag | Matrix | Collected Date/Time |
|-----------|--------------|-------------|---------------------|
| S43223.01 | VAS13-3-7 | Groundwater | 12/05/22 14:30 |
| S43223.02 | VAS15-3-7 | Groundwater | 12/06/22 12:10 |
| S43223.03 | TB-02 | Groundwater | 12/07/22 13:00 |
| S43223.04 | VAS13-SB-2-3 | Soil | 12/05/22 14:30 |
| S43223.05 | VAS15-SB-3-5 | Soil | 12/06/22 10:30 |
| S43223.06 | VAS19-SB-5-7 | Soil | 12/07/22 10:25 |
| S43223.07 | VAS17-3-7 | Groundwater | 12/06/22 14:45 |
| S43223.08 | VAS19-5-9 | Groundwater | 12/07/22 10:40 |



Analytical Laboratory Report

Lab Sample ID: S43223.01

Sample Tag: VAS13-3-7

Collected Date/Time: 12/05/2022 14:30

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 1L Amber | None | Yes | 4.9 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 4.9 | IR |
| 3 | 40ml Glass | HCL | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1 | 12/08/22 12:55 | CTV | |
| pH check for VOCs* | <2 | N/A | 12/12/22 10:30 | BDO | |
| Metal Digestion | Completed | SW3015A | 12/09/22 11:45 | CCM | |
| BNA Extraction | Completed | SW3510C | 12/12/22 11:00 | JWR | |

Metals

Method: E200.8, Run Date: 12/09/22 13:07, Analyst: CCM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|-----------|-------|----------|-----------|-------|
| Arsenic | 0.009 | 0.002 | 0.000255 | mg/L | 5 | 7440-38-2 | |
| Barium | 0.333 | 0.005 | 0.000162 | mg/L | 5 | 7440-39-3 | |
| Cadmium | 0.0042 | 0.0005 | 0.000190 | mg/L | 5 | 7440-43-9 | |
| Chromium | 0.007 | 0.005 | 0.0000965 | mg/L | 5 | 7440-47-3 | |
| Copper | 0.048 | 0.005 | 0.000377 | mg/L | 5 | 7440-50-8 | |
| Lead | 0.234 | 0.003 | 0.000190 | mg/L | 5 | 7439-92-1 | |
| Selenium | Not detected | 0.005 | 0.00209 | mg/L | 5 | 7782-49-2 | |
| Silver | 0.000112 | 0.0005 | 0.0000675 | mg/L | 5 | 7440-22-4 | b |
| Zinc | 0.382 | 0.005 | 0.000730 | mg/L | 5 | 7440-66-6 | |

Method: E245.1, Run Date: 12/08/22 14:47, Analyst: CTV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|----------|-------|----------|-----------|-------|
| Mercury | Not detected | 0.0002 | 0.000016 | mg/L | 1 | 7439-97-6 | |

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 01:26, Analyst: PL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------------|--------------|----|------|-------|----------|----------|-------|
| Acenaphthene | Not detected | 5 | 0.58 | ug/L | 2 | 83-32-9 | |
| Acenaphthylene | Not detected | 5 | 0.69 | ug/L | 2 | 208-96-8 | |
| Anthracene | Not detected | 5 | 0.71 | ug/L | 2 | 120-12-7 | |
| Benzo(a)anthracene | Not detected | 1 | 0.80 | ug/L | 2 | 56-55-3 | |
| Benzo(b)fluoranthene | Not detected | 1 | 0.77 | ug/L | 2 | 205-99-2 | |
| Benzo(k)fluoranthene | Not detected | 1 | 0.81 | ug/L | 2 | 207-08-9 | |
| Benzo(ghi)perylene | Not detected | 1 | 0.97 | ug/L | 2 | 191-24-2 | |
| Benzo(a)pyrene | Not detected | 1 | 0.99 | ug/L | 2 | 50-32-8 | |
| bis(2-Chloroethoxy)methane | Not detected | 5 | 0.60 | ug/L | 2 | 111-91-1 | |
| bis(2-Chloroethyl)ether | Not detected | 5 | 0.57 | ug/L | 2 | 111-44-4 | |
| bis(2-Chloroisopropyl)ether* | Not detected | 5 | 0.67 | ug/L | 2 | 108-60-1 | |
| bis(2-Ethylhexyl)phthalate | Not detected | 5 | 1.3 | ug/L | 2 | 117-81-7 | |
| 4-Bromophenyl phenyl ether | Not detected | 5 | 0.55 | ug/L | 2 | 101-55-3 | |
| Butyl benzyl phthalate | Not detected | 5 | 1.0 | ug/L | 2 | 85-68-7 | |

b-Value detected less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43223.01 (continued)

Sample Tag: VAS13-3-7

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 01:26, Analyst: PL (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------------------------|--------------|----|------|-------|----------|------------|-------|
| 4-Chloroaniline | Not detected | 10 | 0.57 | ug/L | 2 | 106-47-8 | |
| 2-Chloronaphthalene | Not detected | 5 | 0.55 | ug/L | 2 | 91-58-7 | |
| 4-Chloro-3-methylphenol | Not detected | 5 | 0.60 | ug/L | 2 | 59-50-7 | |
| 2-Chlorophenol | Not detected | 10 | 0.53 | ug/L | 2 | 95-57-8 | |
| 4-Chlorophenyl phenyl ether | Not detected | 5 | 0.51 | ug/L | 2 | 7005-72-3 | |
| Chrysene | Not detected | 1 | 0.60 | ug/L | 2 | 218-01-9 | |
| 3-, 4-Methylphenol (p,m-Cresol) | Not detected | 20 | 1.1 | ug/L | 2 | 3/4-CRESOL | |
| 2-Methylphenol (o-Cresol) | Not detected | 10 | 0.57 | ug/L | 2 | 95-48-7 | |
| Dibenzo(ah)anthracene | Not detected | 2 | 0.90 | ug/L | 2 | 53-70-3 | |
| Dibenzofuran | Not detected | 4 | 0.54 | ug/L | 2 | 132-64-9 | |
| di-n-Butyl phthalate | Not detected | 5 | 0.64 | ug/L | 2 | 84-74-2 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.50 | ug/L | 2 | 95-50-1 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.54 | ug/L | 2 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.51 | ug/L | 2 | 106-46-7 | |
| 3,3'-Dichlorobenzidine | Not detected | 5 | 1.6 | ug/L | 2 | 91-94-1 | |
| 2,4-Dichlorophenol | Not detected | 10 | 0.61 | ug/L | 2 | 120-83-2 | |
| Diethyl phthalate | Not detected | 5 | 0.72 | ug/L | 2 | 84-66-2 | |
| 2,4-Dimethylphenol | Not detected | 5 | 0.71 | ug/L | 2 | 105-67-9 | |
| Dimethyl phthalate | Not detected | 5 | 0.63 | ug/L | 2 | 131-11-3 | |
| 4,6-Dinitro-2-methylphenol | Not detected | 20 | 0.26 | ug/L | 2 | 534-52-1 | |
| 2,4-Dinitrophenol | Not detected | 25 | 0.18 | ug/L | 2 | 51-28-5 | |
| 2,4-Dinitrotoluene | Not detected | 5 | 0.56 | ug/L | 2 | 121-14-2 | |
| 2,6-Dinitrotoluene | Not detected | 5 | 0.61 | ug/L | 2 | 606-20-2 | |
| 1,2-Diphenylhydrazine* | Not detected | 5 | 0.63 | ug/L | 2 | 122-66-7 | |
| di-n-Octyl phthalate | Not detected | 5 | 1.4 | ug/L | 2 | 117-84-0 | |
| Fluoranthene | Not detected | 1 | 0.68 | ug/L | 2 | 206-44-0 | |
| Fluorene | Not detected | 5 | 0.64 | ug/L | 2 | 86-73-7 | |
| Hexachlorobenzene | Not detected | 5 | 0.65 | ug/L | 2 | 118-74-1 | |
| Hexachlorobutadiene | Not detected | 10 | 0.59 | ug/L | 2 | 87-68-3 | |
| Hexachlorocyclopentadiene* | Not detected | 5 | 0.30 | ug/L | 2 | 77-47-4 | |
| Hexachloroethane | Not detected | 5 | 0.54 | ug/L | 2 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | Not detected | 2 | 0.90 | ug/L | 2 | 193-39-5 | |
| Isophorone | Not detected | 5 | 0.62 | ug/L | 2 | 78-59-1 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.50 | ug/L | 2 | 91-57-6 | |
| Naphthalene | Not detected | 5 | 0.63 | ug/L | 2 | 91-20-3 | |
| 2-Nitroaniline | Not detected | 25 | 0.50 | ug/L | 2 | 88-74-4 | |
| 3-Nitroaniline | Not detected | 25 | 0.48 | ug/L | 2 | 99-09-2 | |
| 4-Nitroaniline | Not detected | 25 | 0.47 | ug/L | 2 | 100-01-6 | |
| Nitrobenzene | Not detected | 5 | 0.81 | ug/L | 2 | 98-95-3 | |
| 2-Nitrophenol | Not detected | 5 | 0.46 | ug/L | 2 | 88-75-5 | |
| 4-Nitrophenol | Not detected | 25 | 0.64 | ug/L | 2 | 100-02-7 | |
| N-Nitrosodiphenylamine | Not detected | 5 | 0.72 | ug/L | 2 | 86-30-6 | |
| N-Nitrosodi-n-propylamine | Not detected | 5 | 0.74 | ug/L | 2 | 621-64-7 | |
| Pentachlorophenol | Not detected | 5 | 0.42 | ug/L | 2 | 87-86-5 | |
| Phenanthrene | Not detected | 2 | 0.72 | ug/L | 2 | 85-01-8 | |
| Phenol | Not detected | 5 | 0.60 | ug/L | 2 | 108-95-2 | |
| Pyrene | Not detected | 5 | 0.84 | ug/L | 2 | 129-00-0 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.65 | ug/L | 2 | 120-82-1 | |
| 2,4,5-Trichlorophenol | Not detected | 5 | 0.66 | ug/L | 2 | 95-95-4 | |
| 2,4,6-Trichlorophenol | Not detected | 4 | 0.55 | ug/L | 2 | 88-06-2 | |



Analytical Laboratory Report

Lab Sample ID: S43223.01 (continued)

Sample Tag: VAS13-3-7

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/13/22 01:40, Analyst: KAG

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|--------------------------------|--------------|----|------|-------|----------|------------|-------|
| Diethyl ether | Not detected | 10 | 0.27 | ug/L | 1 | 60-29-7 | |
| Acetone | Not detected | 50 | 4.0 | ug/L | 1 | 67-64-1 | |
| Methyl iodide | Not detected | 1 | 0.24 | ug/L | 1 | 74-88-4 | |
| Carbon disulfide | 0.15 | 5 | 0.13 | ug/L | 1 | 75-15-0 | JB |
| tert-Methyl butyl ether (MTBE) | Not detected | 5 | 0.25 | ug/L | 1 | 1634-04-4 | |
| Acrylonitrile | Not detected | 2 | 0.38 | ug/L | 1 | 107-13-1 | |
| 2-Butanone (MEK) | Not detected | 25 | 3.3 | ug/L | 1 | 78-93-3 | |
| Dichlorodifluoromethane | Not detected | 5 | 0.57 | ug/L | 1 | 75-71-8 | |
| Chloromethane | 0.27 | 5 | 0.20 | ug/L | 1 | 74-87-3 | J |
| Vinyl chloride | Not detected | 1 | 0.24 | ug/L | 1 | 75-01-4 | |
| Bromomethane | Not detected | 5 | 0.18 | ug/L | 1 | 74-83-9 | |
| Chloroethane | Not detected | 5 | 0.21 | ug/L | 1 | 75-00-3 | |
| Trichlorofluoromethane | Not detected | 1 | 0.28 | ug/L | 1 | 75-69-4 | |
| 1,1-Dichloroethene | Not detected | 1 | 0.27 | ug/L | 1 | 75-35-4 | |
| Methylene chloride | Not detected | 5 | 0.16 | ug/L | 1 | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | 1 | 0.14 | ug/L | 1 | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | 1 | 0.15 | ug/L | 1 | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | 1 | 0.21 | ug/L | 1 | 156-59-2 | |
| Tetrahydrofuran* | Not detected | 90 | 1.2 | ug/L | 1 | 109-99-9 | |
| Chloroform | Not detected | 1 | 0.15 | ug/L | 1 | 67-66-3 | |
| Bromochloromethane | Not detected | 1 | 0.36 | ug/L | 1 | 74-97-5 | |
| 1,1,1-Trichloroethane | Not detected | 1 | 0.27 | ug/L | 1 | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | 50 | 0.35 | ug/L | 1 | 108-10-1 | |
| 2-Hexanone | Not detected | 50 | 0.19 | ug/L | 1 | 591-78-6 | |
| Carbon tetrachloride | Not detected | 1 | 0.19 | ug/L | 1 | 56-23-5 | |
| Benzene | Not detected | 1 | 0.11 | ug/L | 1 | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | 1 | 0.17 | ug/L | 1 | 107-06-2 | |
| Trichloroethene | Not detected | 1 | 0.29 | ug/L | 1 | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | 1 | 0.18 | ug/L | 1 | 78-87-5 | |
| Bromodichloromethane | Not detected | 1 | 0.19 | ug/L | 1 | 75-27-4 | |
| Dibromomethane | Not detected | 5 | 0.45 | ug/L | 1 | 74-95-3 | |
| cis-1,3-Dichloropropene | Not detected | 1 | 0.17 | ug/L | 1 | 10061-01-5 | |
| Toluene | Not detected | 1 | 0.17 | ug/L | 1 | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | 1 | 0.20 | ug/L | 1 | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | 1 | 0.34 | ug/L | 1 | 79-00-5 | |
| Tetrachloroethene | Not detected | 1 | 0.13 | ug/L | 1 | 127-18-4 | |
| trans-1,4-Dichloro-2-butene | Not detected | 1 | 0.26 | ug/L | 1 | 110-57-6 | |
| Dibromochloromethane | Not detected | 5 | 0.20 | ug/L | 1 | 124-48-1 | |
| 1,2-Dibromoethane | Not detected | 1 | 0.12 | ug/L | 1 | 106-93-4 | |
| Chlorobenzene | Not detected | 1 | 0.16 | ug/L | 1 | 108-90-7 | |
| 1,1,1,2-Tetrachloroethane | Not detected | 1 | 0.22 | ug/L | 1 | 630-20-6 | |
| Ethylbenzene | Not detected | 1 | 0.10 | ug/L | 1 | 100-41-4 | |
| p,m-Xylene* | Not detected | 2 | 0.42 | ug/L | 1 | | |
| o-Xylene | Not detected | 1 | 0.16 | ug/L | 1 | 95-47-6 | |
| Styrene | Not detected | 1 | 0.13 | ug/L | 1 | 100-42-5 | |
| Isopropylbenzene | Not detected | 5 | 0.12 | ug/L | 1 | 98-82-8 | |
| Bromoform | Not detected | 1 | 0.35 | ug/L | 1 | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | 1 | 0.27 | ug/L | 1 | 79-34-5 | |

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank



Analytical Laboratory Report

Lab Sample ID: S43223.01 (continued)

Sample Tag: VAS13-3-7

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/13/22 01:40, Analyst: KAG (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------------------|--------------|----|------|-------|----------|----------|-------|
| 1,2,3-Trichloropropane | Not detected | 1 | 0.54 | ug/L | 1 | 96-18-4 | |
| n-Propylbenzene | Not detected | 1 | 0.12 | ug/L | 1 | 103-65-1 | |
| Bromobenzene | Not detected | 1 | 0.15 | ug/L | 1 | 108-86-1 | |
| 1,3,5-Trimethylbenzene | Not detected | 1 | 0.18 | ug/L | 1 | 108-67-8 | |
| tert-Butylbenzene | Not detected | 1 | 0.14 | ug/L | 1 | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | 1 | 0.16 | ug/L | 1 | 95-63-6 | |
| sec-Butylbenzene | Not detected | 1 | 0.16 | ug/L | 1 | 135-98-8 | |
| p-Isopropyltoluene | Not detected | 5 | 0.19 | ug/L | 1 | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.20 | ug/L | 1 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.18 | ug/L | 1 | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.13 | ug/L | 1 | 95-50-1 | |
| 1,2,3-Trimethylbenzene | Not detected | 1 | 0.14 | ug/L | 1 | 526-73-8 | |
| n-Butylbenzene | Not detected | 1 | 0.17 | ug/L | 1 | 104-51-8 | |
| Hexachloroethane | Not detected | 5 | 0.35 | ug/L | 1 | 67-72-1 | |
| 1,2-Dibromo-3-chloropropane | Not detected | 5 | 0.48 | ug/L | 1 | 96-12-8 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.24 | ug/L | 1 | 120-82-1 | |
| 1,2,3-Trichlorobenzene | Not detected | 5 | 0.25 | ug/L | 1 | 87-61-6 | |
| Naphthalene | Not detected | 5 | 0.18 | ug/L | 1 | 91-20-3 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.21 | ug/L | 1 | 91-57-6 | |



Analytical Laboratory Report

Lab Sample ID: S43223.02

Sample Tag: VAS15-3-7

Collected Date/Time: 12/06/2022 12:10

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 1L Amber | None | Yes | 4.9 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 4.9 | IR |
| 3 | 40ml Glass | HCL | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1 | 12/08/22 12:55 | CTV | |
| pH check for VOCs* | <2 | N/A | 12/12/22 10:30 | BDO | |
| Metal Digestion | Completed | SW3015A | 12/09/22 11:45 | CCM | |
| BNA Extraction | Completed | SW3510C | 12/12/22 11:00 | JWR | |

Metals

Method: E200.8, Run Date: 12/09/22 13:10, Analyst: CCM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|-----------|-------|----------|-----------|-------|
| Arsenic | 0.003 | 0.002 | 0.000255 | mg/L | 5 | 7440-38-2 | |
| Barium | 0.453 | 0.005 | 0.000162 | mg/L | 5 | 7440-39-3 | |
| Cadmium | Not detected | 0.0005 | 0.000190 | mg/L | 5 | 7440-43-9 | |
| Chromium | 0.00253 | 0.005 | 0.0000965 | mg/L | 5 | 7440-47-3 | b |
| Copper | 0.00132 | 0.005 | 0.000377 | mg/L | 5 | 7440-50-8 | b |
| Lead | 0.00209 | 0.003 | 0.000190 | mg/L | 5 | 7439-92-1 | b |
| Selenium | Not detected | 0.005 | 0.00209 | mg/L | 5 | 7782-49-2 | |
| Silver | Not detected | 0.0005 | 0.0000675 | mg/L | 5 | 7440-22-4 | |
| Zinc | 0.005 | 0.005 | 0.000730 | mg/L | 5 | 7440-66-6 | |

Method: E245.1, Run Date: 12/08/22 14:50, Analyst: CTV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|----------|-------|----------|-----------|-------|
| Mercury | Not detected | 0.0002 | 0.000016 | mg/L | 1 | 7439-97-6 | |

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 01:56, Analyst: PL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------------|--------------|----|------|-------|----------|----------|-------|
| Acenaphthene | Not detected | 5 | 0.58 | ug/L | 2 | 83-32-9 | |
| Acenaphthylene | Not detected | 5 | 0.68 | ug/L | 2 | 208-96-8 | |
| Anthracene | Not detected | 5 | 0.70 | ug/L | 2 | 120-12-7 | |
| Benzo(a)anthracene | Not detected | 1 | 0.79 | ug/L | 2 | 56-55-3 | |
| Benzo(b)fluoranthene | Not detected | 1 | 0.77 | ug/L | 2 | 205-99-2 | |
| Benzo(k)fluoranthene | Not detected | 1 | 0.81 | ug/L | 2 | 207-08-9 | |
| Benzo(ghi)perylene | Not detected | 1 | 0.96 | ug/L | 2 | 191-24-2 | |
| Benzo(a)pyrene | Not detected | 1 | 0.98 | ug/L | 2 | 50-32-8 | |
| bis(2-Chloroethoxy)methane | Not detected | 5 | 0.60 | ug/L | 2 | 111-91-1 | |
| bis(2-Chloroethyl)ether | Not detected | 5 | 0.56 | ug/L | 2 | 111-44-4 | |
| bis(2-Chloroisopropyl)ether* | Not detected | 5 | 0.66 | ug/L | 2 | 108-60-1 | |
| bis(2-Ethylhexyl)phthalate | Not detected | 5 | 1.3 | ug/L | 2 | 117-81-7 | |
| 4-Bromophenyl phenyl ether | Not detected | 5 | 0.54 | ug/L | 2 | 101-55-3 | |
| Butyl benzyl phthalate | Not detected | 5 | 1.0 | ug/L | 2 | 85-68-7 | |

b-Value detected less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43223.02 (continued)

Sample Tag: VAS15-3-7

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 01:56, Analyst: PL (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------------------------|--------------|----|------|-------|----------|------------|-------|
| 4-Chloroaniline | Not detected | 10 | 0.57 | ug/L | 2 | 106-47-8 | |
| 2-Chloronaphthalene | Not detected | 5 | 0.55 | ug/L | 2 | 91-58-7 | |
| 4-Chloro-3-methylphenol | Not detected | 5 | 0.59 | ug/L | 2 | 59-50-7 | |
| 2-Chlorophenol | Not detected | 10 | 0.53 | ug/L | 2 | 95-57-8 | |
| 4-Chlorophenyl phenyl ether | Not detected | 5 | 0.51 | ug/L | 2 | 7005-72-3 | |
| Chrysene | Not detected | 1 | 0.60 | ug/L | 2 | 218-01-9 | |
| 3-, 4-Methylphenol (p,m-Cresol) | Not detected | 20 | 1.1 | ug/L | 2 | 3/4-CRESOL | |
| 2-Methylphenol (o-Cresol) | Not detected | 10 | 0.56 | ug/L | 2 | 95-48-7 | |
| Dibenzo(ah)anthracene | Not detected | 2 | 0.89 | ug/L | 2 | 53-70-3 | |
| Dibenzofuran | Not detected | 4 | 0.53 | ug/L | 2 | 132-64-9 | |
| di-n-Butyl phthalate | Not detected | 5 | 0.63 | ug/L | 2 | 84-74-2 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.49 | ug/L | 2 | 95-50-1 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.53 | ug/L | 2 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.50 | ug/L | 2 | 106-46-7 | |
| 3,3'-Dichlorobenzidine | Not detected | 5 | 1.6 | ug/L | 2 | 91-94-1 | |
| 2,4-Dichlorophenol | Not detected | 10 | 0.61 | ug/L | 2 | 120-83-2 | |
| Diethyl phthalate | Not detected | 5 | 0.71 | ug/L | 2 | 84-66-2 | |
| 2,4-Dimethylphenol | Not detected | 5 | 0.71 | ug/L | 2 | 105-67-9 | |
| Dimethyl phthalate | Not detected | 5 | 0.63 | ug/L | 2 | 131-11-3 | |
| 4,6-Dinitro-2-methylphenol | Not detected | 20 | 0.26 | ug/L | 2 | 534-52-1 | |
| 2,4-Dinitrophenol | Not detected | 25 | 0.17 | ug/L | 2 | 51-28-5 | |
| 2,4-Dinitrotoluene | Not detected | 5 | 0.55 | ug/L | 2 | 121-14-2 | |
| 2,6-Dinitrotoluene | Not detected | 5 | 0.61 | ug/L | 2 | 606-20-2 | |
| 1,2-Diphenylhydrazine* | Not detected | 5 | 0.62 | ug/L | 2 | 122-66-7 | |
| di-n-Octyl phthalate | Not detected | 5 | 1.4 | ug/L | 2 | 117-84-0 | |
| Fluoranthene | Not detected | 1 | 0.68 | ug/L | 2 | 206-44-0 | |
| Fluorene | Not detected | 5 | 0.63 | ug/L | 2 | 86-73-7 | |
| Hexachlorobenzene | Not detected | 5 | 0.64 | ug/L | 2 | 118-74-1 | |
| Hexachlorobutadiene | Not detected | 10 | 0.59 | ug/L | 2 | 87-68-3 | |
| Hexachlorocyclopentadiene* | Not detected | 5 | 0.30 | ug/L | 2 | 77-47-4 | |
| Hexachloroethane | Not detected | 5 | 0.53 | ug/L | 2 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | Not detected | 2 | 0.89 | ug/L | 2 | 193-39-5 | |
| Isophorone | Not detected | 5 | 0.61 | ug/L | 2 | 78-59-1 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.49 | ug/L | 2 | 91-57-6 | |
| Naphthalene | Not detected | 5 | 0.63 | ug/L | 2 | 91-20-3 | |
| 2-Nitroaniline | Not detected | 25 | 0.49 | ug/L | 2 | 88-74-4 | |
| 3-Nitroaniline | Not detected | 25 | 0.47 | ug/L | 2 | 99-09-2 | |
| 4-Nitroaniline | Not detected | 25 | 0.47 | ug/L | 2 | 100-01-6 | |
| Nitrobenzene | Not detected | 5 | 0.80 | ug/L | 2 | 98-95-3 | |
| 2-Nitrophenol | Not detected | 5 | 0.45 | ug/L | 2 | 88-75-5 | |
| 4-Nitrophenol | Not detected | 25 | 0.63 | ug/L | 2 | 100-02-7 | |
| N-Nitrosodiphenylamine | Not detected | 5 | 0.71 | ug/L | 2 | 86-30-6 | |
| N-Nitrosodi-n-propylamine | Not detected | 5 | 0.73 | ug/L | 2 | 621-64-7 | |
| Pentachlorophenol | Not detected | 5 | 0.42 | ug/L | 2 | 87-86-5 | |
| Phenanthrene | Not detected | 2 | 0.71 | ug/L | 2 | 85-01-8 | |
| Phenol | Not detected | 5 | 0.60 | ug/L | 2 | 108-95-2 | |
| Pyrene | Not detected | 5 | 0.83 | ug/L | 2 | 129-00-0 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.64 | ug/L | 2 | 120-82-1 | |
| 2,4,5-Trichlorophenol | Not detected | 5 | 0.65 | ug/L | 2 | 95-95-4 | |
| 2,4,6-Trichlorophenol | Not detected | 4 | 0.55 | ug/L | 2 | 88-06-2 | |



Analytical Laboratory Report

Lab Sample ID: S43223.02 (continued)

Sample Tag: VAS15-3-7

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/13/22 02:04, Analyst: KAG

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|--------------------------------|--------------|----|------|-------|----------|------------|-------|
| Diethyl ether | Not detected | 10 | 0.27 | ug/L | 1 | 60-29-7 | |
| Acetone | Not detected | 50 | 4.0 | ug/L | 1 | 67-64-1 | |
| Methyl iodide | Not detected | 1 | 0.24 | ug/L | 1 | 74-88-4 | |
| Carbon disulfide | Not detected | 5 | 0.13 | ug/L | 1 | 75-15-0 | |
| tert-Methyl butyl ether (MTBE) | Not detected | 5 | 0.25 | ug/L | 1 | 1634-04-4 | |
| Acrylonitrile | Not detected | 2 | 0.38 | ug/L | 1 | 107-13-1 | |
| 2-Butanone (MEK) | Not detected | 25 | 3.3 | ug/L | 1 | 78-93-3 | |
| Dichlorodifluoromethane | Not detected | 5 | 0.57 | ug/L | 1 | 75-71-8 | |
| Chloromethane | Not detected | 5 | 0.20 | ug/L | 1 | 74-87-3 | |
| Vinyl chloride | Not detected | 1 | 0.24 | ug/L | 1 | 75-01-4 | |
| Bromomethane | Not detected | 5 | 0.18 | ug/L | 1 | 74-83-9 | |
| Chloroethane | Not detected | 5 | 0.21 | ug/L | 1 | 75-00-3 | |
| Trichlorofluoromethane | Not detected | 1 | 0.28 | ug/L | 1 | 75-69-4 | |
| 1,1-Dichloroethene | Not detected | 1 | 0.27 | ug/L | 1 | 75-35-4 | |
| Methylene chloride | Not detected | 5 | 0.16 | ug/L | 1 | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | 1 | 0.14 | ug/L | 1 | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | 1 | 0.15 | ug/L | 1 | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | 1 | 0.21 | ug/L | 1 | 156-59-2 | |
| Tetrahydrofuran* | Not detected | 90 | 1.2 | ug/L | 1 | 109-99-9 | |
| Chloroform | Not detected | 1 | 0.15 | ug/L | 1 | 67-66-3 | |
| Bromochloromethane | Not detected | 1 | 0.36 | ug/L | 1 | 74-97-5 | |
| 1,1,1-Trichloroethane | Not detected | 1 | 0.27 | ug/L | 1 | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | 50 | 0.35 | ug/L | 1 | 108-10-1 | |
| 2-Hexanone | Not detected | 50 | 0.19 | ug/L | 1 | 591-78-6 | |
| Carbon tetrachloride | Not detected | 1 | 0.19 | ug/L | 1 | 56-23-5 | |
| Benzene | Not detected | 1 | 0.11 | ug/L | 1 | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | 1 | 0.17 | ug/L | 1 | 107-06-2 | |
| Trichloroethene | Not detected | 1 | 0.29 | ug/L | 1 | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | 1 | 0.18 | ug/L | 1 | 78-87-5 | |
| Bromodichloromethane | Not detected | 1 | 0.19 | ug/L | 1 | 75-27-4 | |
| Dibromomethane | Not detected | 5 | 0.45 | ug/L | 1 | 74-95-3 | |
| cis-1,3-Dichloropropene | Not detected | 1 | 0.17 | ug/L | 1 | 10061-01-5 | |
| Toluene | Not detected | 1 | 0.17 | ug/L | 1 | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | 1 | 0.20 | ug/L | 1 | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | 1 | 0.34 | ug/L | 1 | 79-00-5 | |
| Tetrachloroethene | Not detected | 1 | 0.13 | ug/L | 1 | 127-18-4 | |
| trans-1,4-Dichloro-2-butene | Not detected | 1 | 0.26 | ug/L | 1 | 110-57-6 | |
| Dibromochloromethane | Not detected | 5 | 0.20 | ug/L | 1 | 124-48-1 | |
| 1,2-Dibromoethane | Not detected | 1 | 0.12 | ug/L | 1 | 106-93-4 | |
| Chlorobenzene | Not detected | 1 | 0.16 | ug/L | 1 | 108-90-7 | |
| 1,1,1,2-Tetrachloroethane | Not detected | 1 | 0.22 | ug/L | 1 | 630-20-6 | |
| Ethylbenzene | Not detected | 1 | 0.10 | ug/L | 1 | 100-41-4 | |
| p,m-Xylene* | Not detected | 2 | 0.42 | ug/L | 1 | | |
| o-Xylene | Not detected | 1 | 0.16 | ug/L | 1 | 95-47-6 | |
| Styrene | Not detected | 1 | 0.13 | ug/L | 1 | 100-42-5 | |
| Isopropylbenzene | Not detected | 5 | 0.12 | ug/L | 1 | 98-82-8 | |
| Bromoform | Not detected | 1 | 0.35 | ug/L | 1 | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | 1 | 0.27 | ug/L | 1 | 79-34-5 | |
| 1,2,3-Trichloropropane | Not detected | 1 | 0.54 | ug/L | 1 | 96-18-4 | |



Analytical Laboratory Report

Lab Sample ID: S43223.02 (continued)

Sample Tag: VAS15-3-7

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/13/22 02:04, Analyst: KAG (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------------------|--------------|----|------|-------|----------|----------|-------|
| n-Propylbenzene | Not detected | 1 | 0.12 | ug/L | 1 | 103-65-1 | |
| Bromobenzene | Not detected | 1 | 0.15 | ug/L | 1 | 108-86-1 | |
| 1,3,5-Trimethylbenzene | Not detected | 1 | 0.18 | ug/L | 1 | 108-67-8 | |
| tert-Butylbenzene | Not detected | 1 | 0.14 | ug/L | 1 | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | 1 | 0.16 | ug/L | 1 | 95-63-6 | |
| sec-Butylbenzene | Not detected | 1 | 0.16 | ug/L | 1 | 135-98-8 | |
| p-Isopropyltoluene | Not detected | 5 | 0.19 | ug/L | 1 | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.20 | ug/L | 1 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.18 | ug/L | 1 | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.13 | ug/L | 1 | 95-50-1 | |
| 1,2,3-Trimethylbenzene | Not detected | 1 | 0.14 | ug/L | 1 | 526-73-8 | |
| n-Butylbenzene | Not detected | 1 | 0.17 | ug/L | 1 | 104-51-8 | |
| Hexachloroethane | Not detected | 5 | 0.35 | ug/L | 1 | 67-72-1 | |
| 1,2-Dibromo-3-chloropropane | Not detected | 5 | 0.48 | ug/L | 1 | 96-12-8 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.24 | ug/L | 1 | 120-82-1 | |
| 1,2,3-Trichlorobenzene | Not detected | 5 | 0.25 | ug/L | 1 | 87-61-6 | |
| Naphthalene | Not detected | 5 | 0.18 | ug/L | 1 | 91-20-3 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.21 | ug/L | 1 | 91-57-6 | |



Analytical Laboratory Report

Lab Sample ID: S43223.03

Sample Tag: TB-02

Collected Date/Time: 12/07/2022 13:00

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|------------|-----------------|---------------|-------------------|---------------|
| 1 | 40ml Glass | HCL | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--------------------|--------|--------|----------------|---------|-------|
| pH check for VOCs* | <2 | N/A | 12/12/22 10:30 | BDO | |

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/10/22 05:39, Analyst: KAG

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|--------------------------------|--------------|----|------|-------|----------|------------|-------|
| Diethyl ether | Not detected | 10 | 0.27 | ug/L | 1 | 60-29-7 | |
| Acetone | 7.0 | 50 | 4.0 | ug/L | 1 | 67-64-1 | J |
| Methyl iodide | Not detected | 1 | 0.24 | ug/L | 1 | 74-88-4 | |
| Carbon disulfide | 0.23 | 5 | 0.13 | ug/L | 1 | 75-15-0 | JB |
| tert-Methyl butyl ether (MTBE) | Not detected | 5 | 0.25 | ug/L | 1 | 1634-04-4 | |
| Acrylonitrile | Not detected | 2 | 0.38 | ug/L | 1 | 107-13-1 | |
| 2-Butanone (MEK) | Not detected | 25 | 3.3 | ug/L | 1 | 78-93-3 | |
| Dichlorodifluoromethane | Not detected | 5 | 0.57 | ug/L | 1 | 75-71-8 | |
| Chloromethane | Not detected | 5 | 0.20 | ug/L | 1 | 74-87-3 | |
| Vinyl chloride | Not detected | 1 | 0.24 | ug/L | 1 | 75-01-4 | |
| Bromomethane | Not detected | 5 | 0.18 | ug/L | 1 | 74-83-9 | |
| Chloroethane | Not detected | 5 | 0.21 | ug/L | 1 | 75-00-3 | |
| Trichlorofluoromethane | Not detected | 1 | 0.28 | ug/L | 1 | 75-69-4 | |
| 1,1-Dichloroethene | Not detected | 1 | 0.27 | ug/L | 1 | 75-35-4 | |
| Methylene chloride | 0.31 | 5 | 0.16 | ug/L | 1 | 75-09-2 | JB |
| trans-1,2-Dichloroethene | Not detected | 1 | 0.14 | ug/L | 1 | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | 1 | 0.15 | ug/L | 1 | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | 1 | 0.21 | ug/L | 1 | 156-59-2 | |
| Tetrahydrofuran* | Not detected | 90 | 1.2 | ug/L | 1 | 109-99-9 | |
| Chloroform | Not detected | 1 | 0.15 | ug/L | 1 | 67-66-3 | |
| Bromochloromethane | Not detected | 1 | 0.36 | ug/L | 1 | 74-97-5 | |
| 1,1,1-Trichloroethane | Not detected | 1 | 0.27 | ug/L | 1 | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | 50 | 0.35 | ug/L | 1 | 108-10-1 | |
| 2-Hexanone | Not detected | 50 | 0.19 | ug/L | 1 | 591-78-6 | |
| Carbon tetrachloride | Not detected | 1 | 0.19 | ug/L | 1 | 56-23-5 | |
| Benzene | Not detected | 1 | 0.11 | ug/L | 1 | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | 1 | 0.17 | ug/L | 1 | 107-06-2 | |
| Trichloroethene | Not detected | 1 | 0.29 | ug/L | 1 | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | 1 | 0.18 | ug/L | 1 | 78-87-5 | |
| Bromodichloromethane | Not detected | 1 | 0.19 | ug/L | 1 | 75-27-4 | |
| Dibromomethane | Not detected | 5 | 0.45 | ug/L | 1 | 74-95-3 | |
| cis-1,3-Dichloropropene | Not detected | 1 | 0.17 | ug/L | 1 | 10061-01-5 | |
| Toluene | Not detected | 1 | 0.17 | ug/L | 1 | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | 1 | 0.20 | ug/L | 1 | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | 1 | 0.34 | ug/L | 1 | 79-00-5 | |

J-Estimated value less than reporting limit, but greater than MDL

B-Compound also found in associated method blank



Analytical Laboratory Report

Lab Sample ID: S43223.03 (continued)

Sample Tag: TB-02

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/10/22 05:39, Analyst: KAG (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------------------|--------------|----|------|-------|----------|----------|-------|
| Tetrachloroethene | Not detected | 1 | 0.13 | ug/L | 1 | 127-18-4 | |
| trans-1,4-Dichloro-2-butene | Not detected | 1 | 0.26 | ug/L | 1 | 110-57-6 | |
| Dibromochloromethane | Not detected | 5 | 0.20 | ug/L | 1 | 124-48-1 | |
| 1,2-Dibromoethane | Not detected | 1 | 0.12 | ug/L | 1 | 106-93-4 | |
| Chlorobenzene | Not detected | 1 | 0.16 | ug/L | 1 | 108-90-7 | |
| 1,1,1,2-Tetrachloroethane | Not detected | 1 | 0.22 | ug/L | 1 | 630-20-6 | |
| Ethylbenzene | Not detected | 1 | 0.10 | ug/L | 1 | 100-41-4 | |
| p,m-Xylene* | Not detected | 2 | 0.42 | ug/L | 1 | | |
| o-Xylene | Not detected | 1 | 0.16 | ug/L | 1 | 95-47-6 | |
| Styrene | Not detected | 1 | 0.13 | ug/L | 1 | 100-42-5 | |
| Isopropylbenzene | Not detected | 5 | 0.12 | ug/L | 1 | 98-82-8 | |
| Bromoform | Not detected | 1 | 0.35 | ug/L | 1 | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | 1 | 0.27 | ug/L | 1 | 79-34-5 | |
| 1,2,3-Trichloropropane | Not detected | 1 | 0.54 | ug/L | 1 | 96-18-4 | |
| n-Propylbenzene | Not detected | 1 | 0.12 | ug/L | 1 | 103-65-1 | |
| Bromobenzene | Not detected | 1 | 0.15 | ug/L | 1 | 108-86-1 | |
| 1,3,5-Trimethylbenzene | Not detected | 1 | 0.18 | ug/L | 1 | 108-67-8 | |
| tert-Butylbenzene | Not detected | 1 | 0.14 | ug/L | 1 | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | 1 | 0.16 | ug/L | 1 | 95-63-6 | |
| sec-Butylbenzene | Not detected | 1 | 0.16 | ug/L | 1 | 135-98-8 | |
| p-Isopropyltoluene | Not detected | 5 | 0.19 | ug/L | 1 | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.20 | ug/L | 1 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.18 | ug/L | 1 | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.13 | ug/L | 1 | 95-50-1 | |
| 1,2,3-Trimethylbenzene | Not detected | 1 | 0.14 | ug/L | 1 | 526-73-8 | |
| n-Butylbenzene | Not detected | 1 | 0.17 | ug/L | 1 | 104-51-8 | |
| Hexachloroethane | Not detected | 5 | 0.35 | ug/L | 1 | 67-72-1 | |
| 1,2-Dibromo-3-chloropropane | Not detected | 5 | 0.48 | ug/L | 1 | 96-12-8 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.24 | ug/L | 1 | 120-82-1 | |
| 1,2,3-Trichlorobenzene | Not detected | 5 | 0.25 | ug/L | 1 | 87-61-6 | |
| Naphthalene | Not detected | 5 | 0.18 | ug/L | 1 | 91-20-3 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.21 | ug/L | 1 | 91-57-6 | |



Analytical Laboratory Report

Lab Sample ID: S43223.04

Sample Tag: VAS13-SB-2-3

Collected Date/Time: 12/05/2022 14:30

Matrix: Soil

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|------------|-----------------|---------------|-------------------|---------------|
| 1 | 32oz Glass | None | Yes | 4.9 | IR |
| 2 | 4oz Glass | None | Yes | 4.9 | IR |

Inorganics

Method: , Run Date: 12/16/22 11:42, Analyst: GEL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|-----------|----|-----|-------|----------|------|-------|
| TOC* | Completed | | | | 1 | | O |

Method: SW9045D, Run Date: 12/15/22 14:27, Analyst: SSM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------|--------|------|------|-----------|----------|------|-------|
| pH/ Corrosivity | 7.27 | 0.01 | 0.01 | STD Units | 1 | | |

Other / Misc.

Method: , Run Date: 12/29/22 12:00, Analyst: GTS

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------|-----------|----|-----|-------|----------|------|-------|
| Misc. Special Project* | Completed | | | | 1 | | O |

O-Analysis performed by outside laboratory. See attached report.



Analytical Laboratory Report

Lab Sample ID: S43223.05

Sample Tag: VAS15-SB-3-5

Collected Date/Time: 12/06/2022 10:30

Matrix: Soil

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|------------|-----------------|---------------|-------------------|---------------|
| 1 | 32oz Glass | None | Yes | 4.9 | IR |
| 2 | 4oz Glass | None | Yes | 4.9 | IR |

Inorganics

Method: , Run Date: 12/16/22 14:58, Analyst: GEL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|-----------|----|-----|-------|----------|------|-------|
| TOC* | Completed | | | | 1 | | O |

Method: SW9045D, Run Date: 12/15/22 14:38, Analyst: SSM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------|--------|------|------|-----------|----------|------|-------|
| pH/ Corrosivity | 7.70 | 0.01 | 0.01 | STD Units | 1 | | |

Other / Misc.

Method: , Run Date: 12/29/22 12:00, Analyst: GTS

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------|-----------|----|-----|-------|----------|------|-------|
| Misc. Special Project* | Completed | | | | 1 | | O |

O-Analysis performed by outside laboratory. See attached report.



Analytical Laboratory Report

Lab Sample ID: S43223.06

Sample Tag: VAS19-SB-5-7

Collected Date/Time: 12/07/2022 10:25

Matrix: Soil

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|------------|-----------------|---------------|-------------------|---------------|
| 1 | 32oz Glass | None | Yes | 4.9 | IR |
| 2 | 4oz Glass | None | Yes | 4.9 | IR |

Inorganics

Method: , Run Date: 12/16/22 20:07, Analyst: GEL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|-----------|----|-----|-------|----------|------|-------|
| TOC* | Completed | | | | 1 | | O |

Method: SW9045D, Run Date: 12/15/22 15:50, Analyst: SSM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------|--------|------|------|-----------|----------|------|-------|
| pH/ Corrosivity | 8.09 | 0.01 | 0.01 | STD Units | 1 | | |

Other / Misc.

Method: , Run Date: 12/29/22 12:00, Analyst: GTS

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------|-----------|----|-----|-------|----------|------|-------|
| Misc. Special Project* | Completed | | | | 1 | | O |

O-Analysis performed by outside laboratory. See attached report.



Analytical Laboratory Report

Lab Sample ID: S43223.07

Sample Tag: VAS17-3-7

Collected Date/Time: 12/06/2022 14:45

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 1L Amber | None | Yes | 4.9 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 4.9 | IR |
| 3 | 40ml Glass | HCL | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1 | 12/13/22 13:23 | CTV | |
| pH check for VOCs* | <2 | N/A | 12/13/22 11:30 | BML | |
| Metal Digestion | Completed | SW3015A | 12/13/22 10:15 | CCM | |
| BNA Extraction | Completed | SW3510C | 12/12/22 11:00 | JWR | |

Metals

Method: E200.8, Run Date: 12/13/22 11:44, Analyst: CCM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|-----------|-------|----------|-----------|-------|
| Arsenic | 0.002 | 0.002 | 0.000255 | mg/L | 5 | 7440-38-2 | |
| Barium | 0.020 | 0.005 | 0.000162 | mg/L | 5 | 7440-39-3 | |
| Cadmium | Not detected | 0.0005 | 0.000190 | mg/L | 5 | 7440-43-9 | |
| Chromium | 0.00236 | 0.005 | 0.0000965 | mg/L | 5 | 7440-47-3 | b |
| Copper | 0.00380 | 0.005 | 0.000377 | mg/L | 5 | 7440-50-8 | b |
| Lead | 0.000993 | 0.003 | 0.000190 | mg/L | 5 | 7439-92-1 | b |
| Selenium | 0.010 | 0.005 | 0.00209 | mg/L | 5 | 7782-49-2 | |
| Silver | Not detected | 0.0005 | 0.0000675 | mg/L | 5 | 7440-22-4 | |
| Zinc | 0.015 | 0.005 | 0.000730 | mg/L | 5 | 7440-66-6 | |

Method: E245.1, Run Date: 12/13/22 14:42, Analyst: CTV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|----------|-------|----------|-----------|-------|
| Mercury | Not detected | 0.0002 | 0.000016 | mg/L | 1 | 7439-97-6 | |

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 02:27, Analyst: PL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------------|--------------|----|------|-------|----------|----------|-------|
| Acenaphthene | 0.60 | 5 | 0.58 | ug/L | 2 | 83-32-9 | J |
| Acenaphthylene | Not detected | 5 | 0.69 | ug/L | 2 | 208-96-8 | |
| Anthracene | Not detected | 5 | 0.71 | ug/L | 2 | 120-12-7 | |
| Benzo(a)anthracene | Not detected | 1 | 0.80 | ug/L | 2 | 56-55-3 | |
| Benzo(b)fluoranthene | Not detected | 1 | 0.77 | ug/L | 2 | 205-99-2 | |
| Benzo(k)fluoranthene | Not detected | 1 | 0.81 | ug/L | 2 | 207-08-9 | |
| Benzo(ghi)perylene | Not detected | 1 | 0.97 | ug/L | 2 | 191-24-2 | |
| Benzo(a)pyrene | Not detected | 1 | 0.99 | ug/L | 2 | 50-32-8 | |
| bis(2-Chloroethoxy)methane | Not detected | 5 | 0.60 | ug/L | 2 | 111-91-1 | |
| bis(2-Chloroethyl)ether | Not detected | 5 | 0.57 | ug/L | 2 | 111-44-4 | |
| bis(2-Chloroisopropyl)ether* | Not detected | 5 | 0.67 | ug/L | 2 | 108-60-1 | |
| bis(2-Ethylhexyl)phthalate | Not detected | 5 | 1.3 | ug/L | 2 | 117-81-7 | |
| 4-Bromophenyl phenyl ether | Not detected | 5 | 0.55 | ug/L | 2 | 101-55-3 | |

b-Value detected less than reporting limit, but greater than MDL

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43223.07 (continued)

Sample Tag: VAS17-3-7

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 02:27, Analyst: PL (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------------------------|--------------|----|------|-------|----------|------------|-------|
| Butyl benzyl phthalate | Not detected | 5 | 1.0 | ug/L | 2 | 85-68-7 | |
| 4-Chloroaniline | Not detected | 10 | 0.57 | ug/L | 2 | 106-47-8 | |
| 2-Chloronaphthalene | Not detected | 5 | 0.55 | ug/L | 2 | 91-58-7 | |
| 4-Chloro-3-methylphenol | Not detected | 5 | 0.60 | ug/L | 2 | 59-50-7 | |
| 2-Chlorophenol | Not detected | 10 | 0.53 | ug/L | 2 | 95-57-8 | |
| 4-Chlorophenyl phenyl ether | Not detected | 5 | 0.51 | ug/L | 2 | 7005-72-3 | |
| Chrysene | Not detected | 1 | 0.60 | ug/L | 2 | 218-01-9 | |
| 3-, 4-Methylphenol (p,m-Cresol) | Not detected | 20 | 1.1 | ug/L | 2 | 3/4-CRESOL | |
| 2-Methylphenol (o-Cresol) | Not detected | 10 | 0.57 | ug/L | 2 | 95-48-7 | |
| Dibenzo(ah)anthracene | Not detected | 2 | 0.90 | ug/L | 2 | 53-70-3 | |
| Dibenzofuran | Not detected | 4 | 0.54 | ug/L | 2 | 132-64-9 | |
| di-n-Butyl phthalate | Not detected | 5 | 0.64 | ug/L | 2 | 84-74-2 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.50 | ug/L | 2 | 95-50-1 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.54 | ug/L | 2 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.51 | ug/L | 2 | 106-46-7 | |
| 3,3'-Dichlorobenzidine | Not detected | 5 | 1.6 | ug/L | 2 | 91-94-1 | |
| 2,4-Dichlorophenol | Not detected | 10 | 0.61 | ug/L | 2 | 120-83-2 | |
| Diethyl phthalate | Not detected | 5 | 0.72 | ug/L | 2 | 84-66-2 | |
| 2,4-Dimethylphenol | Not detected | 5 | 0.71 | ug/L | 2 | 105-67-9 | |
| Dimethyl phthalate | Not detected | 5 | 0.63 | ug/L | 2 | 131-11-3 | |
| 4,6-Dinitro-2-methylphenol | Not detected | 20 | 0.26 | ug/L | 2 | 534-52-1 | |
| 2,4-Dinitrophenol | Not detected | 25 | 0.18 | ug/L | 2 | 51-28-5 | |
| 2,4-Dinitrotoluene | Not detected | 5 | 0.56 | ug/L | 2 | 121-14-2 | |
| 2,6-Dinitrotoluene | Not detected | 5 | 0.61 | ug/L | 2 | 606-20-2 | |
| 1,2-Diphenylhydrazine* | Not detected | 5 | 0.63 | ug/L | 2 | 122-66-7 | |
| di-n-Octyl phthalate | Not detected | 5 | 1.4 | ug/L | 2 | 117-84-0 | |
| Fluoranthene | Not detected | 1 | 0.68 | ug/L | 2 | 206-44-0 | |
| Fluorene | Not detected | 5 | 0.64 | ug/L | 2 | 86-73-7 | |
| Hexachlorobenzene | Not detected | 5 | 0.65 | ug/L | 2 | 118-74-1 | |
| Hexachlorobutadiene | Not detected | 10 | 0.59 | ug/L | 2 | 87-68-3 | |
| Hexachlorocyclopentadiene* | Not detected | 5 | 0.30 | ug/L | 2 | 77-47-4 | |
| Hexachloroethane | Not detected | 5 | 0.54 | ug/L | 2 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | Not detected | 2 | 0.90 | ug/L | 2 | 193-39-5 | |
| Isophorone | Not detected | 5 | 0.62 | ug/L | 2 | 78-59-1 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.50 | ug/L | 2 | 91-57-6 | |
| Naphthalene | 1.51 | 5 | 0.63 | ug/L | 2 | 91-20-3 | J |
| 2-Nitroaniline | Not detected | 25 | 0.50 | ug/L | 2 | 88-74-4 | |
| 3-Nitroaniline | Not detected | 25 | 0.48 | ug/L | 2 | 99-09-2 | |
| 4-Nitroaniline | Not detected | 25 | 0.47 | ug/L | 2 | 100-01-6 | |
| Nitrobenzene | Not detected | 5 | 0.81 | ug/L | 2 | 98-95-3 | |
| 2-Nitrophenol | Not detected | 5 | 0.46 | ug/L | 2 | 88-75-5 | |
| 4-Nitrophenol | Not detected | 25 | 0.64 | ug/L | 2 | 100-02-7 | |
| N-Nitrosodiphenylamine | Not detected | 5 | 0.72 | ug/L | 2 | 86-30-6 | |
| N-Nitrosodi-n-propylamine | Not detected | 5 | 0.74 | ug/L | 2 | 621-64-7 | |
| Pentachlorophenol | Not detected | 5 | 0.42 | ug/L | 2 | 87-86-5 | |
| Phenanthrene | 1.05 | 2 | 0.72 | ug/L | 2 | 85-01-8 | J |
| Phenol | Not detected | 5 | 0.60 | ug/L | 2 | 108-95-2 | |
| Pyrene | Not detected | 5 | 0.84 | ug/L | 2 | 129-00-0 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.65 | ug/L | 2 | 120-82-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43223.07 (continued)

Sample Tag: VAS17-3-7

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 02:27, Analyst: PL (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------------|--------------|----|------|-------|----------|---------|-------|
| 2,4,5-Trichlorophenol | Not detected | 5 | 0.66 | ug/L | 2 | 95-95-4 | |
| 2,4,6-Trichlorophenol | Not detected | 4 | 0.55 | ug/L | 2 | 88-06-2 | |

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/13/22 02:27, Analyst: KAG

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|--------------------------------|--------------|----|------|-------|----------|------------|-------|
| Diethyl ether | Not detected | 10 | 0.27 | ug/L | 1 | 60-29-7 | |
| Acetone | Not detected | 50 | 4.0 | ug/L | 1 | 67-64-1 | |
| Methyl iodide | Not detected | 1 | 0.24 | ug/L | 1 | 74-88-4 | |
| Carbon disulfide | 0.18 | 5 | 0.13 | ug/L | 1 | 75-15-0 | JB |
| tert-Methyl butyl ether (MTBE) | Not detected | 5 | 0.25 | ug/L | 1 | 1634-04-4 | |
| Acrylonitrile | Not detected | 2 | 0.38 | ug/L | 1 | 107-13-1 | |
| 2-Butanone (MEK) | Not detected | 25 | 3.3 | ug/L | 1 | 78-93-3 | |
| Dichlorodifluoromethane | Not detected | 5 | 0.57 | ug/L | 1 | 75-71-8 | |
| Chloromethane | Not detected | 5 | 0.20 | ug/L | 1 | 74-87-3 | |
| Vinyl chloride | Not detected | 1 | 0.24 | ug/L | 1 | 75-01-4 | |
| Bromomethane | Not detected | 5 | 0.18 | ug/L | 1 | 74-83-9 | |
| Chloroethane | Not detected | 5 | 0.21 | ug/L | 1 | 75-00-3 | |
| Trichlorofluoromethane | Not detected | 1 | 0.28 | ug/L | 1 | 75-69-4 | |
| 1,1-Dichloroethene | Not detected | 1 | 0.27 | ug/L | 1 | 75-35-4 | |
| Methylene chloride | Not detected | 5 | 0.16 | ug/L | 1 | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | 1 | 0.14 | ug/L | 1 | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | 1 | 0.15 | ug/L | 1 | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | 1 | 0.21 | ug/L | 1 | 156-59-2 | |
| Tetrahydrofuran* | Not detected | 90 | 1.2 | ug/L | 1 | 109-99-9 | |
| Chloroform | Not detected | 1 | 0.15 | ug/L | 1 | 67-66-3 | |
| Bromochloromethane | Not detected | 1 | 0.36 | ug/L | 1 | 74-97-5 | |
| 1,1,1-Trichloroethane | Not detected | 1 | 0.27 | ug/L | 1 | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | 50 | 0.35 | ug/L | 1 | 108-10-1 | |
| 2-Hexanone | Not detected | 50 | 0.19 | ug/L | 1 | 591-78-6 | |
| Carbon tetrachloride | Not detected | 1 | 0.19 | ug/L | 1 | 56-23-5 | |
| Benzene | Not detected | 1 | 0.11 | ug/L | 1 | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | 1 | 0.17 | ug/L | 1 | 107-06-2 | |
| Trichloroethene | Not detected | 1 | 0.29 | ug/L | 1 | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | 1 | 0.18 | ug/L | 1 | 78-87-5 | |
| Bromodichloromethane | Not detected | 1 | 0.19 | ug/L | 1 | 75-27-4 | |
| Dibromomethane | Not detected | 5 | 0.45 | ug/L | 1 | 74-95-3 | |
| cis-1,3-Dichloropropene | Not detected | 1 | 0.17 | ug/L | 1 | 10061-01-5 | |
| Toluene | Not detected | 1 | 0.17 | ug/L | 1 | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | 1 | 0.20 | ug/L | 1 | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | 1 | 0.34 | ug/L | 1 | 79-00-5 | |
| Tetrachloroethene | Not detected | 1 | 0.13 | ug/L | 1 | 127-18-4 | |
| trans-1,4-Dichloro-2-butene | Not detected | 1 | 0.26 | ug/L | 1 | 110-57-6 | |
| Dibromochloromethane | Not detected | 5 | 0.20 | ug/L | 1 | 124-48-1 | |
| 1,2-Dibromoethane | Not detected | 1 | 0.12 | ug/L | 1 | 106-93-4 | |
| Chlorobenzene | Not detected | 1 | 0.16 | ug/L | 1 | 108-90-7 | |
| 1,1,1,2-Tetrachloroethane | Not detected | 1 | 0.22 | ug/L | 1 | 630-20-6 | |
| Ethylbenzene | Not detected | 1 | 0.10 | ug/L | 1 | 100-41-4 | |
| p,m-Xylene* | Not detected | 2 | 0.42 | ug/L | 1 | | |

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank



Analytical Laboratory Report

Lab Sample ID: S43223.07 (continued)

Sample Tag: VAS17-3-7

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/13/22 02:27, Analyst: KAG (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------------------|--------------|----|------|-------|----------|----------|-------|
| o-Xylene | Not detected | 1 | 0.16 | ug/L | 1 | 95-47-6 | |
| Styrene | Not detected | 1 | 0.13 | ug/L | 1 | 100-42-5 | |
| Isopropylbenzene | Not detected | 5 | 0.12 | ug/L | 1 | 98-82-8 | |
| Bromoform | Not detected | 1 | 0.35 | ug/L | 1 | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | 1 | 0.27 | ug/L | 1 | 79-34-5 | |
| 1,2,3-Trichloropropane | Not detected | 1 | 0.54 | ug/L | 1 | 96-18-4 | |
| n-Propylbenzene | Not detected | 1 | 0.12 | ug/L | 1 | 103-65-1 | |
| Bromobenzene | Not detected | 1 | 0.15 | ug/L | 1 | 108-86-1 | |
| 1,3,5-Trimethylbenzene | Not detected | 1 | 0.18 | ug/L | 1 | 108-67-8 | |
| tert-Butylbenzene | Not detected | 1 | 0.14 | ug/L | 1 | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | 1 | 0.16 | ug/L | 1 | 95-63-6 | |
| sec-Butylbenzene | Not detected | 1 | 0.16 | ug/L | 1 | 135-98-8 | |
| p-Isopropyltoluene | Not detected | 5 | 0.19 | ug/L | 1 | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.20 | ug/L | 1 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.18 | ug/L | 1 | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.13 | ug/L | 1 | 95-50-1 | |
| 1,2,3-Trimethylbenzene | Not detected | 1 | 0.14 | ug/L | 1 | 526-73-8 | |
| n-Butylbenzene | Not detected | 1 | 0.17 | ug/L | 1 | 104-51-8 | |
| Hexachloroethane | Not detected | 5 | 0.35 | ug/L | 1 | 67-72-1 | |
| 1,2-Dibromo-3-chloropropane | Not detected | 5 | 0.48 | ug/L | 1 | 96-12-8 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.24 | ug/L | 1 | 120-82-1 | |
| 1,2,3-Trichlorobenzene | Not detected | 5 | 0.25 | ug/L | 1 | 87-61-6 | |
| Naphthalene | 2.17 | 5 | 0.18 | ug/L | 1 | 91-20-3 | J |
| 2-Methylnaphthalene | 0.32 | 5 | 0.21 | ug/L | 1 | 91-57-6 | JB |

J-Estimated value less than reporting limit, but greater than MDL

B-Compound also found in associated method blank



Analytical Laboratory Report

Lab Sample ID: S43223.08

Sample Tag: VAS19-5-9

Collected Date/Time: 12/07/2022 10:40

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 1L Amber | None | Yes | 4.9 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 4.9 | IR |
| 3 | 40ml Glass | HCL | Yes | 4.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1 | 12/13/22 13:23 | CTV | |
| pH check for VOCs* | <2 | N/A | 12/13/22 11:30 | BML | |
| Metal Digestion | Completed | SW3015A | 12/13/22 10:15 | CCM | |
| BNA Extraction | Completed | SW3510C | 12/12/22 11:00 | JWR | |

Metals

Method: E200.8, Run Date: 12/13/22 11:47, Analyst: CCM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|----------|--------|-----------|-------|----------|-----------|-------|
| Arsenic | 0.002 | 0.002 | 0.000255 | mg/L | 5 | 7440-38-2 | |
| Barium | 0.795 | 0.005 | 0.000162 | mg/L | 5 | 7440-39-3 | |
| Cadmium | 0.0012 | 0.0005 | 0.000190 | mg/L | 5 | 7440-43-9 | |
| Chromium | 0.004656 | 0.005 | 0.0000965 | mg/L | 5 | 7440-47-3 | b |
| Copper | 0.010 | 0.005 | 0.000377 | mg/L | 5 | 7440-50-8 | |
| Lead | 0.026 | 0.003 | 0.000190 | mg/L | 5 | 7439-92-1 | |
| Selenium | 0.00262 | 0.005 | 0.00209 | mg/L | 5 | 7782-49-2 | b |
| Silver | 0.000103 | 0.0005 | 0.0000675 | mg/L | 5 | 7440-22-4 | b |
| Zinc | 0.031 | 0.005 | 0.000730 | mg/L | 5 | 7440-66-6 | |

Method: E245.1, Run Date: 12/13/22 14:46, Analyst: CTV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|----------|-------|----------|-----------|-------|
| Mercury | Not detected | 0.0002 | 0.000016 | mg/L | 1 | 7439-97-6 | |

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 02:57, Analyst: PL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------------|--------------|----|------|-------|----------|----------|-------|
| Acenaphthene | Not detected | 5 | 0.58 | ug/L | 2 | 83-32-9 | |
| Acenaphthylene | Not detected | 5 | 0.69 | ug/L | 2 | 208-96-8 | |
| Anthracene | Not detected | 5 | 0.71 | ug/L | 2 | 120-12-7 | |
| Benzo(a)anthracene | Not detected | 1 | 0.80 | ug/L | 2 | 56-55-3 | |
| Benzo(b)fluoranthene | Not detected | 1 | 0.77 | ug/L | 2 | 205-99-2 | |
| Benzo(k)fluoranthene | Not detected | 1 | 0.81 | ug/L | 2 | 207-08-9 | |
| Benzo(ghi)perylene | Not detected | 1 | 0.97 | ug/L | 2 | 191-24-2 | |
| Benzo(a)pyrene | Not detected | 1 | 0.99 | ug/L | 2 | 50-32-8 | |
| bis(2-Chloroethoxy)methane | Not detected | 5 | 0.60 | ug/L | 2 | 111-91-1 | |
| bis(2-Chloroethyl)ether | Not detected | 5 | 0.57 | ug/L | 2 | 111-44-4 | |
| bis(2-Chloroisopropyl)ether* | Not detected | 5 | 0.67 | ug/L | 2 | 108-60-1 | |
| bis(2-Ethylhexyl)phthalate | Not detected | 5 | 1.3 | ug/L | 2 | 117-81-7 | |
| 4-Bromophenyl phenyl ether | Not detected | 5 | 0.55 | ug/L | 2 | 101-55-3 | |
| Butyl benzyl phthalate | Not detected | 5 | 1.0 | ug/L | 2 | 85-68-7 | |

b-Value detected less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43223.08 (continued)

Sample Tag: VAS19-5-9

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 02:57, Analyst: PL (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------------------------|--------------|----|------|-------|----------|------------|-------|
| 4-Chloroaniline | Not detected | 10 | 0.57 | ug/L | 2 | 106-47-8 | |
| 2-Chloronaphthalene | Not detected | 5 | 0.55 | ug/L | 2 | 91-58-7 | |
| 4-Chloro-3-methylphenol | Not detected | 5 | 0.60 | ug/L | 2 | 59-50-7 | |
| 2-Chlorophenol | Not detected | 10 | 0.53 | ug/L | 2 | 95-57-8 | |
| 4-Chlorophenyl phenyl ether | Not detected | 5 | 0.51 | ug/L | 2 | 7005-72-3 | |
| Chrysene | Not detected | 1 | 0.60 | ug/L | 2 | 218-01-9 | |
| 3-, 4-Methylphenol (p,m-Cresol) | Not detected | 20 | 1.1 | ug/L | 2 | 3/4-CRESOL | |
| 2-Methylphenol (o-Cresol) | Not detected | 10 | 0.57 | ug/L | 2 | 95-48-7 | |
| Dibenzo(ah)anthracene | Not detected | 2 | 0.90 | ug/L | 2 | 53-70-3 | |
| Dibenzofuran | Not detected | 4 | 0.54 | ug/L | 2 | 132-64-9 | |
| di-n-Butyl phthalate | Not detected | 5 | 0.64 | ug/L | 2 | 84-74-2 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.50 | ug/L | 2 | 95-50-1 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.54 | ug/L | 2 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.51 | ug/L | 2 | 106-46-7 | |
| 3,3'-Dichlorobenzidine | Not detected | 5 | 1.6 | ug/L | 2 | 91-94-1 | |
| 2,4-Dichlorophenol | Not detected | 10 | 0.61 | ug/L | 2 | 120-83-2 | |
| Diethyl phthalate | Not detected | 5 | 0.72 | ug/L | 2 | 84-66-2 | |
| 2,4-Dimethylphenol | Not detected | 5 | 0.71 | ug/L | 2 | 105-67-9 | |
| Dimethyl phthalate | Not detected | 5 | 0.63 | ug/L | 2 | 131-11-3 | |
| 4,6-Dinitro-2-methylphenol | Not detected | 20 | 0.26 | ug/L | 2 | 534-52-1 | |
| 2,4-Dinitrophenol | Not detected | 25 | 0.18 | ug/L | 2 | 51-28-5 | |
| 2,4-Dinitrotoluene | Not detected | 5 | 0.56 | ug/L | 2 | 121-14-2 | |
| 2,6-Dinitrotoluene | Not detected | 5 | 0.61 | ug/L | 2 | 606-20-2 | |
| 1,2-Diphenylhydrazine* | Not detected | 5 | 0.63 | ug/L | 2 | 122-66-7 | |
| di-n-Octyl phthalate | Not detected | 5 | 1.4 | ug/L | 2 | 117-84-0 | |
| Fluoranthene | Not detected | 1 | 0.68 | ug/L | 2 | 206-44-0 | |
| Fluorene | Not detected | 5 | 0.64 | ug/L | 2 | 86-73-7 | |
| Hexachlorobenzene | Not detected | 5 | 0.65 | ug/L | 2 | 118-74-1 | |
| Hexachlorobutadiene | Not detected | 10 | 0.59 | ug/L | 2 | 87-68-3 | |
| Hexachlorocyclopentadiene* | Not detected | 5 | 0.30 | ug/L | 2 | 77-47-4 | |
| Hexachloroethane | Not detected | 5 | 0.54 | ug/L | 2 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | Not detected | 2 | 0.90 | ug/L | 2 | 193-39-5 | |
| Isophorone | Not detected | 5 | 0.62 | ug/L | 2 | 78-59-1 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.50 | ug/L | 2 | 91-57-6 | |
| Naphthalene | Not detected | 5 | 0.63 | ug/L | 2 | 91-20-3 | |
| 2-Nitroaniline | Not detected | 25 | 0.50 | ug/L | 2 | 88-74-4 | |
| 3-Nitroaniline | Not detected | 25 | 0.48 | ug/L | 2 | 99-09-2 | |
| 4-Nitroaniline | Not detected | 25 | 0.47 | ug/L | 2 | 100-01-6 | |
| Nitrobenzene | Not detected | 5 | 0.81 | ug/L | 2 | 98-95-3 | |
| 2-Nitrophenol | Not detected | 5 | 0.46 | ug/L | 2 | 88-75-5 | |
| 4-Nitrophenol | Not detected | 25 | 0.64 | ug/L | 2 | 100-02-7 | |
| N-Nitrosodiphenylamine | Not detected | 5 | 0.72 | ug/L | 2 | 86-30-6 | |
| N-Nitrosodi-n-propylamine | Not detected | 5 | 0.74 | ug/L | 2 | 621-64-7 | |
| Pentachlorophenol | Not detected | 5 | 0.42 | ug/L | 2 | 87-86-5 | |
| Phenanthrene | Not detected | 2 | 0.72 | ug/L | 2 | 85-01-8 | |
| Phenol | Not detected | 5 | 0.60 | ug/L | 2 | 108-95-2 | |
| Pyrene | Not detected | 5 | 0.84 | ug/L | 2 | 129-00-0 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.65 | ug/L | 2 | 120-82-1 | |
| 2,4,5-Trichlorophenol | Not detected | 5 | 0.66 | ug/L | 2 | 95-95-4 | |
| 2,4,6-Trichlorophenol | Not detected | 4 | 0.55 | ug/L | 2 | 88-06-2 | |



Analytical Laboratory Report

Lab Sample ID: S43223.08 (continued)

Sample Tag: VAS19-5-9

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/13/22 02:51, Analyst: KAG

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|--------------------------------|--------------|----|------|-------|----------|------------|-------|
| Diethyl ether | Not detected | 10 | 0.27 | ug/L | 1 | 60-29-7 | |
| Acetone | Not detected | 50 | 4.0 | ug/L | 1 | 67-64-1 | |
| Methyl iodide | Not detected | 1 | 0.24 | ug/L | 1 | 74-88-4 | |
| Carbon disulfide | 0.18 | 5 | 0.13 | ug/L | 1 | 75-15-0 | JB |
| tert-Methyl butyl ether (MTBE) | Not detected | 5 | 0.25 | ug/L | 1 | 1634-04-4 | |
| Acrylonitrile | Not detected | 2 | 0.38 | ug/L | 1 | 107-13-1 | |
| 2-Butanone (MEK) | Not detected | 25 | 3.3 | ug/L | 1 | 78-93-3 | |
| Dichlorodifluoromethane | Not detected | 5 | 0.57 | ug/L | 1 | 75-71-8 | |
| Chloromethane | Not detected | 5 | 0.20 | ug/L | 1 | 74-87-3 | |
| Vinyl chloride | Not detected | 1 | 0.24 | ug/L | 1 | 75-01-4 | |
| Bromomethane | Not detected | 5 | 0.18 | ug/L | 1 | 74-83-9 | |
| Chloroethane | Not detected | 5 | 0.21 | ug/L | 1 | 75-00-3 | |
| Trichlorofluoromethane | Not detected | 1 | 0.28 | ug/L | 1 | 75-69-4 | |
| 1,1-Dichloroethene | Not detected | 1 | 0.27 | ug/L | 1 | 75-35-4 | |
| Methylene chloride | Not detected | 5 | 0.16 | ug/L | 1 | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | 1 | 0.14 | ug/L | 1 | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | 1 | 0.15 | ug/L | 1 | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | 1 | 0.21 | ug/L | 1 | 156-59-2 | |
| Tetrahydrofuran* | 1.9 | 90 | 1.2 | ug/L | 1 | 109-99-9 | J |
| Chloroform | Not detected | 1 | 0.15 | ug/L | 1 | 67-66-3 | |
| Bromochloromethane | Not detected | 1 | 0.36 | ug/L | 1 | 74-97-5 | |
| 1,1,1-Trichloroethane | Not detected | 1 | 0.27 | ug/L | 1 | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | 50 | 0.35 | ug/L | 1 | 108-10-1 | |
| 2-Hexanone | Not detected | 50 | 0.19 | ug/L | 1 | 591-78-6 | |
| Carbon tetrachloride | Not detected | 1 | 0.19 | ug/L | 1 | 56-23-5 | |
| Benzene | Not detected | 1 | 0.11 | ug/L | 1 | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | 1 | 0.17 | ug/L | 1 | 107-06-2 | |
| Trichloroethene | Not detected | 1 | 0.29 | ug/L | 1 | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | 1 | 0.18 | ug/L | 1 | 78-87-5 | |
| Bromodichloromethane | Not detected | 1 | 0.19 | ug/L | 1 | 75-27-4 | |
| Dibromomethane | Not detected | 5 | 0.45 | ug/L | 1 | 74-95-3 | |
| cis-1,3-Dichloropropene | Not detected | 1 | 0.17 | ug/L | 1 | 10061-01-5 | |
| Toluene | 0.19 | 1 | 0.17 | ug/L | 1 | 108-88-3 | J |
| trans-1,3-Dichloropropene | Not detected | 1 | 0.20 | ug/L | 1 | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | 1 | 0.34 | ug/L | 1 | 79-00-5 | |
| Tetrachloroethene | Not detected | 1 | 0.13 | ug/L | 1 | 127-18-4 | |
| trans-1,4-Dichloro-2-butene | Not detected | 1 | 0.26 | ug/L | 1 | 110-57-6 | |
| Dibromochloromethane | Not detected | 5 | 0.20 | ug/L | 1 | 124-48-1 | |
| 1,2-Dibromoethane | Not detected | 1 | 0.12 | ug/L | 1 | 106-93-4 | |
| Chlorobenzene | Not detected | 1 | 0.16 | ug/L | 1 | 108-90-7 | |
| 1,1,1,2-Tetrachloroethane | Not detected | 1 | 0.22 | ug/L | 1 | 630-20-6 | |
| Ethylbenzene | Not detected | 1 | 0.10 | ug/L | 1 | 100-41-4 | |
| p,m-Xylene* | Not detected | 2 | 0.42 | ug/L | 1 | | |
| o-Xylene | Not detected | 1 | 0.16 | ug/L | 1 | 95-47-6 | |
| Styrene | Not detected | 1 | 0.13 | ug/L | 1 | 100-42-5 | |
| Isopropylbenzene | Not detected | 5 | 0.12 | ug/L | 1 | 98-82-8 | |
| Bromoform | Not detected | 1 | 0.35 | ug/L | 1 | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | 1 | 0.27 | ug/L | 1 | 79-34-5 | |

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank



Analytical Laboratory Report

Lab Sample ID: S43223.08 (continued)

Sample Tag: VAS19-5-9

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/13/22 02:51, Analyst: KAG (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------------------|--------------|----|------|-------|----------|----------|-------|
| 1,2,3-Trichloropropane | Not detected | 1 | 0.54 | ug/L | 1 | 96-18-4 | |
| n-Propylbenzene | Not detected | 1 | 0.12 | ug/L | 1 | 103-65-1 | |
| Bromobenzene | Not detected | 1 | 0.15 | ug/L | 1 | 108-86-1 | |
| 1,3,5-Trimethylbenzene | Not detected | 1 | 0.18 | ug/L | 1 | 108-67-8 | |
| tert-Butylbenzene | Not detected | 1 | 0.14 | ug/L | 1 | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | 1 | 0.16 | ug/L | 1 | 95-63-6 | |
| sec-Butylbenzene | Not detected | 1 | 0.16 | ug/L | 1 | 135-98-8 | |
| p-Isopropyltoluene | Not detected | 5 | 0.19 | ug/L | 1 | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.20 | ug/L | 1 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.18 | ug/L | 1 | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.13 | ug/L | 1 | 95-50-1 | |
| 1,2,3-Trimethylbenzene | Not detected | 1 | 0.14 | ug/L | 1 | 526-73-8 | |
| n-Butylbenzene | Not detected | 1 | 0.17 | ug/L | 1 | 104-51-8 | |
| Hexachloroethane | Not detected | 5 | 0.35 | ug/L | 1 | 67-72-1 | |
| 1,2-Dibromo-3-chloropropane | Not detected | 5 | 0.48 | ug/L | 1 | 96-12-8 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.24 | ug/L | 1 | 120-82-1 | |
| 1,2,3-Trichlorobenzene | Not detected | 5 | 0.25 | ug/L | 1 | 87-61-6 | |
| Naphthalene | Not detected | 5 | 0.18 | ug/L | 1 | 91-20-3 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.21 | ug/L | 1 | 91-57-6 | |

Merit Laboratories Login Checklist

Lab Set ID:S43223

Client:WSP (WSP)

Project: Former JB Sims Generating Station, Harbor Island, GrandHaven

Submitted: 12/07/2022 15:53 Login User: BJB

Attention: Saamih Bashir

Address: WSP

45850 Magellan Drive, Suite 190

Novi, MI 48377

Phone: n/a

FAX:

Email: Saamih.Bashir@wsp.com

| Selection | Description | Note |
|-----------|-------------|------|
|-----------|-------------|------|

Sample Receiving

- | | | |
|-----|--|--|
| 01. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 4.8 |
| 02. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun |
| 03. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped |
| 04. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box |
| 05. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |

Chain of Custody

- | | | |
|-----|--|--|
| 06. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out Sample VAS17-3-7 and VAS19-5-9 (non-PFAS) not on COC |
| 07. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab |
| 08. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC |
| 09. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to: GEL & GeoTechnical Testing |

Preservation

- | | | |
|-----|--|---|
| 10. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation |
| 11. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs) |
| 12. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab? |

Bottle Conditions

- | | | |
|-----|--|---|
| 13. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact |
| 14. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used |
| 15. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used |
| 16. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received |
| 17. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration |
| 18. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time |
| 19. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace |

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S43223 Submitted: 12/07/2022 15:53

Client: WSP (WSP)

Project: Former JB Sims Generating Station, Harbor Island, GrandHaven

Initial Preservation Check: 12/07/2022 16:54 BJB

Preservation Recheck (E200.8): N/A

Attention: Saamih Bashir

Address: WSP

45850 Magellan Drive, Suite 190
Novi, MI 48377

Phone: n/a

FAX:

Email: Saamih.Bashir@wsp.com

| Sample ID | Bottle / Preservation | pH (Orig) | Add ml | pH (New) | Notes |
|-----------|-----------------------|-----------|--------|----------|-------|
| S43223.01 | 125ml Plastic HNO3 | <2 | | | |
| S43223.02 | 125ml Plastic HNO3 | <2 | | | |
| S43223.07 | 125ml Plastic HNO3 | <2 | | | |
| S43223.08 | 125ml Plastic HNO3 | <2 | | | |

WSP USA Environment & Infrastructure Inc.
 46850 Magellan Drive, Suite 190
 Novi, Michigan 48377
 (248) 926-4008

CHAIN OF CUSTODY

SHIP TO:
 Merit Laboratories, Inc.
 2680 East Lansing Drive
 East Lansing, MI 48823
 Atten: Johanna Murray
 Lab Phone# 517-827-2755

DATE: 12/7/2022

COC #: _____

PAGE: 1 OF 4

| | | | |
|--|---------------------------------------|---|-----------------------------------|
| Project Name: Former JB Sims Generating Station, Harbor Island, Grand Haven | Project Contact: Zach McCurley | Bill To: WSP USA Environment & Infrastructure Inc. | Disposal Instructions: LAB |
| Project Number: 3650220203.02.02.3650 | Phone Number: 248-775-9823 | Attn: Saamih Bashir | Shipment Method: FEDEX |
| Project Manager: Saamih Bashir | Purchase Order: C012407104 | 46850 Magellan Dr., Ste 190 | Waybill Number: N/A |
| Sampler Name: Jared Walbert | | Novi, MI 48377 | Waybill Number: N/A |

MATRIX Code W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL SW=SURFACE WATER
 L=LIQUID SD=SEDIMENT SL=SLUDGE DW=DRINKING WATER O=OIL A=AIR WS=WASTE

TURNAROUND TIME REQUIRED: 2 Days 5 Days Standard (10 TAT)

DELIVERABLES REQUIRED: STD Level II Level III Level IV EDD

| Sample Information | | | | | | | Methods for Analysis | | | | | | | | | | RUSH | | | | | | |
|--------------------|----------|--------------|-----------|-------|--------|--------------|-----------------------------|---------------------|----------------------|-----------------------------|-------------------------------|--------------------------------------|----------------------|--------|--|--|------|--|---------|---------|---------|--------|--|
| No. | Lab ID | Sample ID | Date | Time | Matrix | # of Bottles | PFAS A5TMD7979 Per Contract | VOCs (Per Contract) | SVOCs (Per Contract) | MI 10 Metals (per Contract) | pH/corrosivity (per Contract) | particle size (sieve and hydrometer) | Total Organic Carbon | MS/MSD | | | | | 24 Hour | 48 Hour | 72 Hour | 5 Days | |
| 1 | 43222.01 | VAS11-16-20 | 12/5/2022 | 12:15 | GW | 3 | X | | | | | | | | | | | | | | | | |
| 2 | .02 | VAS11-2-6 | 12/5/2022 | 10:10 | GW | 3 | X | | | | | | | | | | | | | | | | |
| 3 | .03 | VAS12-16-20 | 12/5/2022 | 13:25 | GW | 3 | X | | | | | | | | | | | | | | | | |
| 4 | .04 | VAS12-3-7 | 12/5/2022 | 11:20 | GW | 3 | X | | | | | | | | | | | | | | | | |
| 5 | .05 | VAS13-16-20 | 12/6/2022 | 9:20 | GW | 3 | X | | | | | | | | | | | | | | | | |
| 6 | 43223.01 | VAS13-3-7 | 12/5/2022 | 14:30 | GW | 6 | | X | X | X | | | | | | | | | | | | | |
| 7 | 43222.00 | VAS14-1-5 | 12/5/2022 | 16:15 | GW | 3 | X | | | | | | | | | | | | | | | | |
| 8 | .07 | VAS14-16-20 | 12/5/2022 | 17:15 | GW | 3 | X | | | | | | | | | | | | | | | | |
| 9 | .08 | VAS-15-16-20 | 12/6/2022 | 11:00 | GW | 3 | X | | | | | | | | | | | | | | | | |
| 10 | 43223.02 | VAS-15-3-7 | 12/6/2022 | 12:10 | GW | 6 | | X | X | X | | | | | | | | | | | | | |
| 11 | 43222.09 | VAS16-3-7 | 12/6/2022 | 13:15 | GW | 3 | X | | | | | | | | | | | | | | | | |
| 12 | .10 | VAS17-3-7 | 12/6/2022 | 14:45 | GW | 3 | X | | | | | | | | | | | | | | | | |

| | | | | | |
|--|---------------|------------|--------------------------------|--------|----------------|
| Relinquished By/Affiliation: <i>Saamih Bashir</i> | Date: 12-7-22 | Time: 6:53 | For Lab Use | | Comments: X |
| Received By: <i>Johanna Murray</i> | Date: 12/7/22 | Time: 1553 | Does COC match samples: | Y or N | |
| Relinquished By/Affiliation: | Date: | Time: | Broken Container: | Y or N | |
| Received By: | Date: | Time: | COC seal intact: | Y or N | |
| Relinquished By/Affiliation: | Date: | Time: | Other problems: | Y or N | |
| Received By (LAB): | Date: | Time: | WSDOT contacted: | Y or N | |
| | | | Date contacted: | | |
| | | | Cooler Temperature at receipt: | 49 °C | |
| | | | NUMBER OF COOLERS SENT: 1 | | |



December 29, 2022

John Laverty
Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan 48823

Re: Routine Analysis
Work Order: 603563
SDG: S43223

Dear John Laverty:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on December 09, 2022. This revised data report has been prepared and reviewed in accordance with GEL's standard operating procedures. Package was revised to level 4 package per client request

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 1614.

Sincerely,

Jordan Melton for
Delaney Stone
Project Manager

Purchase Order: GELP20-0014
Enclosures

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Case Narrative

Package was revised to level 4 package per client request

**Receipt Narrative
for
Merit Laboratories, Inc.
SDG: S43223
Work Order: 603563**

December 29, 2022

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary:

Sample receipt: The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on December 09, 2022 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

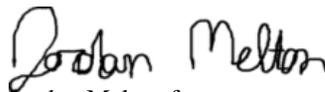
Sample Identification: The laboratory received the following samples:

| <u>Laboratory ID</u> | <u>Client ID</u> |
|-----------------------------|-------------------------|
| 603563001 | S43223.04 |
| 603563002 | S43223.05 |
| 603563003 | S43223.06 |

Case Narrative:

Sample analyses were conducted using methodology as outlined in GEL's Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry.



Jordan Melton for
Delaney Stone
Project Manager

Chain of Custody and Supporting Documentation

SAMPLE RECEIPT & REVIEW FORM

Client: MERI SDG/AR/COC/Work Order: 603 563

Received By: Thyasia Tatum Date Received: Dec. 9, 2022

Carrier and Tracking Number

Circle Applicable:
 FedEx Express FedEx Ground UPS Field Services Courier Other

as 12/9/22
17 466 477 01 6209 0590

| Suspected Hazard Information | Yes | No | *If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. |
|--|-------------------------------------|--------------------------|--|
| A) Shipped as a DOT Hazardous? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Hazard Class Shipped: _____ UN#: _____ If UN2910, Is the Radioactive Shipment Survey Compliant? Yes ___ No ___ |
| B) Did the client designate the samples are to be received as radioactive? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | COC notation or radioactive stickers on containers equal client designation. |
| C) Did the RSO classify the samples as radioactive? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>φ</u> <u>CPM</u> / mR/Hr Classified as: Rad 1 Rad 2 Rad 3 |
| D) Did the client designate samples are hazardous? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | COC notation or hazard labels on containers equal client designation. |
| E) Did the RSO identify possible hazards? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other: _____ |

| Sample Receipt Criteria | Yes | NA | No | Comments/Qualifiers (Required for Non-Conforming Items) |
|---|-------------------------------------|--------------------------|--------------------------|--|
| 1 Shipping containers received intact and sealed? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 2 Chain of custody documents included with shipment? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Circle Applicable: Client contacted and provided COC COC created upon receipt |
| 3 Samples requiring cold preservation within (0 ≤ 6 deg. C)?* | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Preservation Method: <u>Wet Ice</u> Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: <u>2°C</u> |
| 4 Daily check performed and passed on IR temperature gun? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Temperature Device Serial #: <u>IR2-20</u> Secondary Temperature Device Serial # (If Applicable): _____ |
| 5 Sample containers intact and sealed? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 6 Samples requiring chemical preservation at proper pH? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Sample ID's and Containers Affected: If Preservation added, Lot# <u>221105BP</u> |
| 7 Do any samples require Volatile Analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | If Yes, are Encores or Soil Kits present for solids? Yes ___ No ___ NA ___ (If yes, take to VOA Freezer) |
| | | | | Do liquid VOA vials contain acid preservation? Yes ___ No ___ NA ___ (If unknown, select No) |
| | | | | Are liquid VOA vials free of headspace? Yes ___ No ___ NA ___ Sample ID's and containers affected: _____ |
| 8 Samples received within holding time? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | ID's and tests affected: _____ |
| 9 Sample ID's on COC match ID's on bottles? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | ID's and containers affected: _____ |
| 10 Date & time on COC match date & time on bottles? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Circle Applicable: No dates on containers No times on containers COC missing info Other (describe) |
| 11 Number of containers received match number indicated on COC? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Circle Applicable: No container count on COC Other (describe) |
| 12 Are sample containers identifiable as GEL provided by use of GEL labels? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 13 COC form is properly signed in relinquished/received sections? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Circle Applicable: Not relinquished Other (describe) |

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials slu Date 12/12/22 Page 1 of 1

Laboratory Certifications

List of current GEL Certifications as of 29 December 2022

| State | Certification |
|---------------------------|------------------------------|
| Alabama | 42200 |
| Alaska | 17-018 |
| Alaska Drinking Water | SC00012 |
| Arkansas | 88-0651 |
| CLIA | 42D0904046 |
| California | 2940 |
| Colorado | SC00012 |
| Connecticut | PH-0169 |
| DoD ELAP/ ISO17025 A2LA | 2567.01 |
| Florida NELAP | E87156 |
| Foreign Soils Permit | P330-15-00283, P330-15-00253 |
| Georgia | SC00012 |
| Georgia SDWA | 967 |
| Hawaii | SC00012 |
| Idaho | SC00012 |
| Illinois NELAP | 200029 |
| Indiana | C-SC-01 |
| Kansas NELAP | E-10332 |
| Kentucky SDWA | 90129 |
| Kentucky Wastewater | 90129 |
| Louisiana Drinking Water | LA024 |
| Louisiana NELAP | 03046 (AI33904) |
| Maine | 2019020 |
| Maryland | 270 |
| Massachusetts | M-SC012 |
| Massachusetts PFAS Approv | Letter |
| Michigan | 9976 |
| Mississippi | SC00012 |
| Nebraska | NE-OS-26-13 |
| Nevada | SC000122023-4 |
| New Hampshire NELAP | 2054 |
| New Jersey NELAP | SC002 |
| New Mexico | SC00012 |
| New York NELAP | 11501 |
| North Carolina | 233 |
| North Carolina SDWA | 45709 |
| North Dakota | R-158 |
| Oklahoma | 2022-160 |
| Pennsylvania NELAP | 68-00485 |
| Puerto Rico | SC00012 |
| S. Carolina Radiochem | 10120002 |
| Sanitation Districts of L | 9255651 |
| South Carolina Chemistry | 10120001 |
| Tennessee | TN 02934 |
| Texas NELAP | T104704235-22-20 |
| Utah NELAP | SC000122022-37 |
| Vermont | VT87156 |
| Virginia NELAP | 460202 |
| Washington | C780 |

General Chem Analysis

Case Narrative

**General Chemistry
Technical Case Narrative
Merit Laboratories, Inc.
SDG #: S43223
Work Order #: 603563**

Product: Carbon, Total Organic

Analytical Method: SW846 9060A Modified

Analytical Procedure: GL-GC-E-062 REV# 21

Analytical Batch: 2354990

Preparation Method: SW846 9060A Modified Prep

Preparation Procedure: GL-GC-E-062 REV# 21

Preparation Batch: 2354989

The following samples were analyzed using the above methods and analytical procedure(s).

| <u>GEL Sample ID#</u> | <u>Client Sample Identification</u> |
|------------------------------|---|
| 603563001 | S43223.04 |
| 603563002 | S43223.05 |
| 603563003 | S43223.06 |
| 1205269033 | Method Blank (MB) |
| 1205269034 | Laboratory Control Sample (LCS) |
| 1205269036 | 603563001(S43223.04) Sample Duplicate (DUP) |
| 1205269038 | 603563001(S43223.04) Post Spike (PS) |

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report for

MERI001 Merit Laboratories, Inc.

Client SDG: S43223 GEL Work Order: 603563

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: 

Name: Kristen Mizzell

Date: 29 DEC 2022

Title: Group Leader

Sample Data Summary

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: December 29, 2022

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823

Contact: John Laverty
Project: Routine Analysis

| | | | |
|-------------------|-----------------|------------|-----------|
| Client Sample ID: | S43223.05 | Project: | MERI00120 |
| Sample ID: | 603563002 | Client ID: | MERI001 |
| Matrix: | Solid | | |
| Collect Date: | 06-DEC-22 10:30 | | |
| Receive Date: | 09-DEC-22 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|-----------|--------|-----|------|-------|------|----|---------|----------|------|---------|--------|
| Carbon Analysis | | | | | | | | | | | | |
| SW 9060A Total Organic Carbon "As Received" | | | | | | | | | | | | |
| Total Organic Carbon Average | | 33000 | 448 | 1120 | mg/kg | 2.24 | 1 | RM3 | 12/16/22 | 1458 | 2354990 | 1 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---------------------------|---|---------|----------|------|------------|
| SW846 9060A Modified Prep | SW846 9060A Modified Total Organic Carbon | RM3 | 12/14/22 | 0656 | 2354989 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|--------|----------------------|------------------|
| 1 | SW846 9060A Modified | |

Notes:

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 29, 2022

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823

Contact: John Laverty
Project: Routine Analysis

| | | | |
|-------------------|-----------------|------------|-----------|
| Client Sample ID: | S43223.06 | Project: | MERI00120 |
| Sample ID: | 603563003 | Client ID: | MERI001 |
| Matrix: | Solid | | |
| Collect Date: | 07-DEC-22 10:25 | | |
| Receive Date: | 09-DEC-22 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|-----------|--------|------|------|-------|------|----|---------|----------|------|---------|--------|
| Carbon Analysis | | | | | | | | | | | | |
| SW 9060A Total Organic Carbon "As Received" | | | | | | | | | | | | |
| Total Organic Carbon Average | | 275000 | 2350 | 5880 | mg/kg | 11.8 | 1 | RM3 | 12/16/22 | 2007 | 2354990 | 1 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---------------------------|---|---------|----------|------|------------|
| SW846 9060A Modified Prep | SW846 9060A Modified Total Organic Carbon | RM3 | 12/14/22 | 0656 | 2354989 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|--------|----------------------|------------------|
| 1 | SW846 9060A Modified | |

Notes:

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

MDC: Minimum Detectable Concentration

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

SQL: Sample Quantitation Limit

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: December 29, 2022

Page 1 of 2

Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan

Contact: John Laverty

Workorder: 603563

| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|------------------------------|-----------|--------|------|--------|-------|------|------|------------|-------|----------|-------|
| Carbon Analysis | | | | | | | | | | | |
| Batch | 2354990 | | | | | | | | | | |
| QC1205269036 | 603563001 | DUP | | | | | | | | | |
| Total Organic Carbon Average | | 139000 | | 138000 | mg/kg | 1.03 | | (0%-16%) | RM3 | 12/16/22 | 12:26 |
| QC1205269034 | LCS | | | | | | | | | | |
| Total Organic Carbon Average | 3870 | | | 4370 | mg/kg | | 113 | (57%-142%) | | 12/16/22 | 10:58 |
| QC1205269033 | MB | | | | | | | | | | |
| Total Organic Carbon Average | | | U | ND | mg/kg | | | | | 12/16/22 | 10:37 |
| QC1205269038 | 603563001 | PS | | | | | | | | | |
| Total Organic Carbon Average | 5000 | 29300 | | 34100 | mg/kg | | N/A | (30%-131%) | | 12/16/22 | 12:04 |

Notes:

The Qualifiers in this report are defined as follows:

- < Result is less than value reported
- > Result is greater than value reported
- B The target analyte was detected in the associated blank.
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- H Analytical holding time was exceeded
- J See case narrative for an explanation
- J Value is estimated
- N/A RPD or %Recovery limits do not apply.
- N1 See case narrative
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- R Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.
- R Sample results are rejected
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Z Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.

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QC Summary

Workorder: 603563

Page 2 of 2

| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|----------|-----|--------|------|----|-------|------|------|-------|-------|------|------|
| ^ | | | | | | | | | | | |
| d | | | | | | | | | | | |
| e | | | | | | | | | | | |
| h | | | | | | | | | | | |

^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

d 5-day BOD--The 2:1 depletion requirement was not met for this sample

e 5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for reporting purposes

h Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where the duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Instrument QC Data Summary

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Report Run On: 29-DEC-2022 09:58

GEL Laboratories LLC

Contract: MERI00120

SDG #: S43223

Carbon Analysis

Method: SW846 9060A Modified

Instrument: O-I Analytical 1030W Carbon Analyzer (TOC368)

Parmname: Total Organic Carbon
Average

Concentration Units:mg/kg

| Sample Type | Run Date | Data File | Result | Nominal | Recovery | Limits | Within Limits |
|-------------|-----------------------------|--------------------|-------------|-------------|------------|-------------------|---------------|
| ICV | 16-DEC-2022 10:17:00 | 121922b.csv | 5590 | 5000 | 112 | (80%-120%) | Yes |
| CCV | 16-DEC-2022 14:15:00 | 121922b.csv | 5670 | 5000 | 113 | (80%-120%) | Yes |
| CCV | 16-DEC-2022 15:20:00 | 121922b.csv | 5430 | 5000 | 109 | (80%-120%) | Yes |
| CCV | 16-DEC-2022 17:17:00 | 121922b.csv | 5210 | 5000 | 104 | (80%-120%) | Yes |
| CCV | 16-DEC-2022 21:46:00 | 121922b.csv | 5300 | 5000 | 106 | (80%-120%) | Yes |

| Sample Type | Run Date | Data File | Result | Limits | Within Limits |
|-------------|-----------------------------|--------------------|------------|------------|---------------|
| ICB | 16-DEC-2022 10:27:00 | 121922b.csv | 120 | 500 | Yes |
| CCB | 16-DEC-2022 14:25:00 | 121922b.csv | 190 | 500 | Yes |
| CCB | 16-DEC-2022 15:30:00 | 121922b.csv | 190 | 500 | Yes |
| CCB | 16-DEC-2022 17:34:00 | 121922b.csv | 190 | 500 | Yes |
| CCB | 16-DEC-2022 21:56:00 | 121922b.csv | 130 | 500 | Yes |

Carbon, Total Organic Raw Data

Prep Logbook

Total Carbon and Total Organic Carbon Analysis Using the OI Analytical 1030S TOC Solids Module

| | | | | | | |
|-----------------------------------|------|------------|-------------------------------|----------------|--------------|-------------|
| Batch ID: 2354989 | Type | Sample Id | Description | Serial Number | Spike Amount | Spike Units |
| Analyst: Ryan Monroe | LCS | 1205269034 | TOC Stand. Reference LCS Soil | UTC3414673-06a | .1 | ug |
| Method: SW846 9060A Modified Prep | PS | 1205269037 | Sucrose 0.01 mg C | 3414616 | | ug |
| Lab SOP: GL-GC-E-062 REV# 21 | PS | 1205269038 | Sucrose 0.01 mg C | 3414616 | | ug |
| Instrument: Ohaus BAL535 | | | | | | |

| Sample ID | Prep Date | Matrix | Instrument Aliquot (g) | Default Aliquot (g) | Prep Factor (g/g) |
|----------------------------|----------------------|--------|------------------------|---------------------|-------------------|
| 1205269033 MB | 14-DEC-2022 06:56:08 | Solid | 0.1 | 0.1 | 1 |
| 1205269034 LCS | 14-DEC-2022 06:56:08 | Solid | 0.1 | 0.1 | 1 |
| 603000001 | 14-DEC-2022 06:56:08 | Solid | 0.0755 | 0.1 | 1.3245 |
| 603563001 | 14-DEC-2022 06:56:08 | Solid | 0.021 | 0.1 | 4.7619 |
| 1205269036 DUP (603563001) | 14-DEC-2022 06:56:08 | Solid | 0.0206 | 0.1 | 4.85437 |
| 1205269038 PS (603563001) | 14-DEC-2022 06:56:08 | Solid | 0.0211 | 0.1 | 4.73934 |
| 603563002 | 14-DEC-2022 06:56:08 | Solid | 0.0446 | 0.1 | 2.24215 |
| 603563003 | 14-DEC-2022 06:56:08 | Solid | 0.0085 | 0.1 | 11.76471 |
| 603731001 | 14-DEC-2022 06:56:08 | Soil | 0.0936 | 0.1 | 1.06838 |
| 603731002 | 14-DEC-2022 06:56:08 | Soil | 0.0582 | 0.1 | 1.71821 |
| 603731003 | 14-DEC-2022 06:56:08 | Soil | 0.0553 | 0.1 | 1.80832 |
| 603731004 | 14-DEC-2022 06:56:08 | Soil | 0.0524 | 0.1 | 1.9084 |
| 1205269035 DUP (603731004) | 14-DEC-2022 06:56:08 | Soil | 0.0539 | 0.1 | 1.85529 |
| 1205269037 PS (603731004) | 14-DEC-2022 06:56:08 | Soil | 0.0511 | 0.1 | 1.95695 |
| 603731005 | 14-DEC-2022 06:56:08 | Soil | 0.0315 | 0.1 | 3.1746 |
| 603731006 | 14-DEC-2022 06:56:08 | Soil | 0.0366 | 0.1 | 2.73224 |
| 603731007 | 14-DEC-2022 06:56:08 | Soil | 0.0345 | 0.1 | 2.89855 |
| 603731008 | 14-DEC-2022 06:56:08 | Soil | 0.0966 | 0.1 | 1.0352 |
| 603731009 | 14-DEC-2022 06:56:08 | Soil | 0.1117 | 0.1 | 0.89526 |

| Reagent/Solvent Lot ID | Description | Amount | Comments: |
|------------------------|-------------|--------|--|
| | | | Oven 007 Temperature (38-42C): 41 C Temperature within limits (Y/N)?: Y Thermometer ID: 947148 |

| Sample ID | Batch | Dilution | Analyst | Runtime | Dataset |
|---------------------|-------|----------|-------------|-------------|-------------|
| Wake up | 1 | RM3 | Oct 04 2022 | 12:39:00 PM | 100622a.csv |
| TOC-Std#1-0.050 mgC | 1 | RM3 | Oct 04 2022 | 12:56:00 PM | 100622a.csv |
| TOC-Std#2-0.100 mgC | 1 | RM3 | Oct 04 2022 | 01:14:00 PM | 100622a.csv |
| TOC-Std#3-0.500 mgC | 1 | RM3 | Oct 04 2022 | 01:33:00 PM | 100622a.csv |
| TOC-Std#4-1.000 mgC | 1 | RM3 | Oct 04 2022 | 01:53:00 PM | 100622a.csv |
| TOC-Std#5-2.000 mgC | 1 | RM3 | Oct 04 2022 | 02:12:00 PM | 100622a.csv |
| TOC-Std#6-4.000 mgC | 1 | RM3 | Oct 04 2022 | 02:35:00 PM | 100622a.csv |
| ICV 0.5 mgC | 1 | RM3 | Oct 04 2022 | 03:33:00 PM | 100622a.csv |
| ICB | 1 | RM3 | Oct 04 2022 | 03:43:00 PM | 100622a.csv |

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 151 Graham Rd
 College Station, TX
 77845
 USA

Sample Results

Spl #: 1 Sample ID : Wake up Type : Sample Date: 2022/10/04
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: RANGE Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 12:39 pm | - | - | - | - | 1,444 | 0.000 | 0.000 | 0.000 |
| 2 | 12:42 pm | - | - | - | - | 1,409 | 0.000 | 0.000 | 0.000 |
| 3 | 12:46 pm | - | - | - | - | 1,467 | 0.000 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 1,440 | 0.000 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 29 | | | |
| % RSD. | | | | | | 2.00 | | | |

Spl #: 2 Sample ID : TOC-Std#1-0.050 mgC Type : Std Date: 2022/10/04
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 12:56 pm | - | - | - | - | 2,923 | 0.050 | 0.000 | 0.000 |
| 2 | 12:59 pm | - | - | - | - | 3,006 | 0.050 | 0.000 | 0.000 |
| 3 | 1:02 pm | - | - | - | - | 2,929 | 0.050 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 2,953 | 0.050 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 46 | | | |
| % RSD. | | | | | | 1.56 | | | |

Spl #: 3 Sample ID : TOC-Std#2-0.100 mgC Type : Std Date: 2022/10/04
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 1:14 pm | - | - | - | - | 5,578 | 0.100 | 0.000 | 0.000 |
| 2 | 1:17 pm | - | - | - | - | 5,542 | 0.100 | 0.000 | 0.000 |
| 3 | 1:20 pm | - | - | - | - | 5,752 | 0.100 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 5,624 | 0.100 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 112 | | | |
| % RSD. | | | | | | 1.99 | | | |

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 College Station, TX
 77845
 USA

Spl #: 4 Sample ID : TOC-Std#3-0.500 mgC Type : Std Date: 2022/10/04
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 1:33 pm | - | - | - | - | 25,139 | 0.500 | 0.000 | 0.000 |
| 2 | 1:37 pm | - | - | - | - | 24,869 | 0.500 | 0.000 | 0.000 |
| 3 | 1:40 pm | - | - | - | - | 25,118 | 0.500 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 25,042 | 0.500 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 150 | | | |
| % RSD. | | | | | | 0.60 | | | |

Spl #: 5 Sample ID : TOC-Std#4-1.000 mgC Type : Std Date: 2022/10/04
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 1:53 pm | - | - | - | - | 49,432 | 1.000 | 0.000 | 0.000 |
| 2 | 1:56 pm | - | - | - | - | 50,196 | 1.000 | 0.000 | 0.000 |
| 3 | 2:00 pm | - | - | - | - | 50,006 | 1.000 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 49,878 | 1.000 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 398 | | | |
| % RSD. | | | | | | 0.80 | | | |

Spl #: 6 Sample ID : TOC-Std#5-2.000 mgC Type : Std Date: 2022/10/04
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 2:12 pm | - | - | - | - | 110,336 | 2.000 | 0.000 | 0.000 |
| 2 | 2:16 pm | - | - | - | - | 108,017 | 2.000 | 0.000 | 0.000 |
| 3 | 2:19 pm | - | - | - | - | 106,604 | 2.000 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 108,319 | 2.000 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 1,885 | | | |
| % RSD. | | | | | | 1.74 | | | |

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 USA

Spl #: 7 Sample ID : TOC-Std#6-4.000 mgC Type : Std Date: 2022/10/04
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 2:35 pm | - | - | - | - | 214,337 | 4.000 | 0.000 | 0.000 |
| 2 | 2:38 pm | - | - | - | - | 210,223 | 4.000 | 0.000 | 0.000 |
| 3 | 2:42 pm | - | - | - | - | 204,340 | 4.000 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 209,633 | 4.000 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 5,024 | | | |
| % RSD. | | | | | | 2.40 | | | |

Spl #: 8 Sample ID : ICV 0.5 mgC Type : Chk Standar Date: 2022/10/04
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 3:33 pm | - | - | - | - | 27,199 | 0.521 | n/a | n/a |
| Avg. | | - | - | - | - | 27,199 | 0.521 | n/a | n/a |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 9 Sample ID : ICB Type : Sample Date: 2022/10/04
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Pass Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 3:43 pm | - | - | - | - | 862 | 0.022 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 862 | 0.022 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

| Sample ID | Batch | Dilution | Analyst | Runtime | Dataset |
|-------------|---------|----------|---------|----------------------|----------------|
| Wake Up | | 1 | RM3 | Dec 16 2022 10:05:00 | AM 121922b.csv |
| ICV 0.5 mgC | | 1 | RM3 | Dec 16 2022 10:17:00 | AM 121922b.csv |
| ICB | | 1 | RM3 | Dec 16 2022 10:27:00 | AM 121922b.csv |
| 1205269033 | 2354990 | 1 | RM3 | Dec 16 2022 10:37:00 | AM 121922b.csv |
| 1205269034 | 2354990 | 1 | RM3 | Dec 16 2022 10:58:00 | AM 121922b.csv |
| 603563001 | 2354990 | 1 | RM3 | Dec 16 2022 11:20:00 | AM 121922b.csv |
| 603563001 | 2354990 | 1 | RM3 | Dec 16 2022 11:42:00 | AM 121922b.csv |
| 1205269036 | 2354990 | 1 | RM3 | Dec 16 2022 12:04:00 | PM 121922b.csv |
| 1205269038 | 2354990 | 1 | RM3 | Dec 16 2022 12:26:00 | PM 121922b.csv |
| 603731004 | 2354990 | 1 | RM3 | Dec 16 2022 12:48:00 | PM 121922b.csv |
| 1205269035 | 2354990 | 1 | RM3 | Dec 16 2022 01:09:00 | PM 121922b.csv |
| 1205269037 | 2354990 | 1 | RM3 | Dec 16 2022 01:31:00 | PM 121922b.csv |
| 603000001 | 2354990 | 1 | RM3 | Dec 16 2022 01:53:00 | PM 121922b.csv |
| CCV 0.5 mgC | | 1 | RM3 | Dec 16 2022 02:15:00 | PM 121922b.csv |
| CCB | | 1 | RM3 | Dec 16 2022 02:25:00 | PM 121922b.csv |
| 603904003 | 2354983 | 1 | RM3 | Dec 16 2022 02:36:00 | PM 121922b.csv |
| 603563002 | 2354990 | 1 | RM3 | Dec 16 2022 02:58:00 | PM 121922b.csv |
| CCV 0.5 mgC | | 1 | RM3 | Dec 16 2022 03:20:00 | PM 121922b.csv |
| CCB | | 1 | RM3 | Dec 16 2022 03:30:00 | PM 121922b.csv |
| CCV 0.5 mgC | | 1 | RM3 | Dec 16 2022 05:17:00 | PM 121922b.csv |
| CCB | | 1 | RM3 | Dec 16 2022 05:34:00 | PM 121922b.csv |
| 603563003 | 2354990 | 1 | RM3 | Dec 16 2022 05:53:00 | PM 121922b.csv |
| 603731001 | 2354990 | 1 | RM3 | Dec 16 2022 06:15:00 | PM 121922b.csv |
| 603731002 | 2354990 | 1 | RM3 | Dec 16 2022 06:37:00 | PM 121922b.csv |
| 603731003 | 2354990 | 1 | RM3 | Dec 16 2022 07:01:00 | PM 121922b.csv |
| 603731005 | 2354990 | 1 | RM3 | Dec 16 2022 07:23:00 | PM 121922b.csv |
| 603731006 | 2354990 | 1 | RM3 | Dec 16 2022 07:45:00 | PM 121922b.csv |
| 603563003 | 2354983 | 1 | RM3 | Dec 16 2022 08:07:00 | PM 121922b.csv |
| 603731007 | 2354990 | 1 | RM3 | Dec 16 2022 08:32:00 | PM 121922b.csv |
| 603731008 | 2354990 | 1 | RM3 | Dec 16 2022 09:04:00 | PM 121922b.csv |
| 603731009 | 2354990 | 1 | RM3 | Dec 16 2022 09:25:00 | PM 121922b.csv |
| CCV 0.5 mgC | | 1 | RM3 | Dec 16 2022 09:46:00 | PM 121922b.csv |
| CCB | | 1 | RM3 | Dec 16 2022 09:56:00 | PM 121922b.csv |

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Spl #: 25 **Sample ID :** CCV 0.5 mgC **Type :** Chk Standar **Date:** 2022/12/15
Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM **Status:** **Customer ID:** 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 9:41 pm | - | - | - | - | 29,299 | 0.561 | n/a | n/a |
| Avg. | | - | - | - | - | 29,299 | 0.561 | n/a | n/a |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 26 **Sample ID :** CCB **Type :** Sample **Date:** 2022/12/15
Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM **Status:** Pass **Customer ID:** 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 9:52 pm | - | - | - | - | 944 | 0.023 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 944 | 0.023 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 1 **Sample ID :** Wake Up **Type :** Sample **Date:** 2022/12/16
Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM **Status:** Pass **Customer ID:** 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 10:05 am | - | - | - | - | 434 | 0.013 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 434 | 0.013 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 2 **Sample ID :** ICV 0.5 mgC **Type :** Chk Standar **Date:** 2022/12/16
Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM **Status:** **Customer ID:** 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 10:17 am | - | - | - | - | 29,157 | 0.559 | n/a | n/a |
| Avg. | | - | - | - | - | 29,157 | 0.559 | n/a | n/a |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

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Spl #: 3 Sample ID : ICB Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 10:27 am | - | - | - | - | 379 | 0.012 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 379 | 0.012 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 4 Sample ID : 1205269033 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 10:37 am | - | - | - | - | 300 | 0.011 | 0.000 | 0.000 |
| 2 | 10:40 am | - | - | - | - | 337 | 0.012 | 0.000 | 0.000 |
| 3 | 10:43 am | - | - | - | - | 356 | 0.012 | 0.000 | 0.000 |
| 4 | 10:46 am | - | - | - | - | 358 | 0.012 | 0.000 | 0.000 |
| 5 | 10:49 am | - | - | - | - | 387 | 0.013 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 359 | 0.012 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 20 | | | |
| % RSD. | | | | | | 5.66 | | | |

Comments: 2354990|1|1| MB ID:TOC368

Spl #: 5 Sample ID : 1205269034 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 10:58 am | - | - | - | - | 22,791 | 0.438 | 0.000 | 0.000 |
| 2 | 11:01 am | - | - | - | - | 22,745 | 0.437 | 0.000 | 0.000 |
| 3 | 11:05 am | - | - | - | - | 22,743 | 0.437 | 0.000 | 0.000 |
| 4 | 11:09 am | - | - | - | - | 22,675 | 0.436 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 22,738 | 0.437 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 48 | | | |
| % RSD. | | | | | | 0.21 | | | |

Comments: 2354990|1|1| LCS ID:TOC368



Date Prepared: 2022/12/19 By:

TOC

Date Approved: By:

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Spl #: 6 Sample ID : 603563001 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 11:20 am | - | - | - | - | 353,105 | 6.706 | 0.000 | 0.000 |
| 2 | 11:23 am | - | - | - | - | 349,080 | 6.630 | 0.000 | 0.000 |
| 3 | 11:27 am | - | - | - | - | 348,332 | 6.616 | 0.000 | 0.000 |
| 4 | 11:31 am | - | - | - | - | 347,629 | 6.602 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 349,536 | 6.639 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 2,452 | | | |
| % RSD. | | | | | | 0.70 | | | |

Comments: 2354990|1|1| ID:TOC368

Spl #: 7 Sample ID : 603563001 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 11:42 am | - | - | - | - | 155,485 | 2.956 | 0.000 | 0.000 |
| 2 | 11:45 am | - | - | - | - | 153,697 | 2.922 | 0.000 | 0.000 |
| 3 | 11:49 am | - | - | - | - | 153,327 | 2.915 | 0.000 | 0.000 |
| 4 | 11:53 am | - | - | - | - | 152,945 | 2.908 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 153,864 | 2.925 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 1,123 | | | |
| % RSD. | | | | | | 0.73 | | | |

Comments: 2354990|1|1| ID:TOC368

Spl #: 8 Sample ID : 1205269036 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 12:04 pm | - | - | - | - | 181,153 | 3.443 | 0.000 | 0.000 |
| 2 | 12:07 pm | - | - | - | - | 179,232 | 3.407 | 0.000 | 0.000 |
| 3 | 12:11 pm | - | - | - | - | 178,869 | 3.400 | 0.000 | 0.000 |
| 4 | 12:15 pm | - | - | - | - | 178,300 | 3.389 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 179,389 | 3.410 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 1,237 | | | |
| % RSD. | | | | | | 0.69 | | | |

Comments: 2354990|1|1| DUP ID:TOC368



Date Prepared: 2022/12/19 By:

TOC

Date Approved: By:

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College Station, TX
77845
USA

Spl #: 9 Sample ID : 1205269038 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 12:26 pm | - | - | - | - | 150,874 | 2.868 | 0.000 | 0.000 |
| 2 | 12:29 pm | - | - | - | - | 149,153 | 2.836 | 0.000 | 0.000 |
| 3 | 12:33 pm | - | - | - | - | 148,871 | 2.830 | 0.000 | 0.000 |
| 4 | 12:37 pm | - | - | - | - | 148,503 | 2.823 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 149,350 | 2.840 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 1,050 | | | |
| % RSD. | | | | | | 0.70 | | | |

Comments: 2354990|1|1| PS ID:TOC368

Spl #: 10 Sample ID : 603731004 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 12:48 pm | - | - | - | - | 35,139 | 0.672 | 0.000 | 0.000 |
| 2 | 12:51 pm | - | - | - | - | 34,846 | 0.667 | 0.000 | 0.000 |
| 3 | 12:55 pm | - | - | - | - | 34,705 | 0.664 | 0.000 | 0.000 |
| 4 | 12:58 pm | - | - | - | - | 34,614 | 0.662 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 34,826 | 0.666 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 229 | | | |
| % RSD. | | | | | | 0.66 | | | |

Comments: 2354990|1|1| ID:TOC368

Spl #: 11 Sample ID : 1205269035 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 1:09 pm | - | - | - | - | 34,000 | 0.650 | 0.000 | 0.000 |
| 2 | 1:13 pm | - | - | - | - | 33,762 | 0.646 | 0.000 | 0.000 |
| 3 | 1:17 pm | - | - | - | - | 33,734 | 0.645 | 0.000 | 0.000 |
| 4 | 1:20 pm | - | - | - | - | 33,652 | 0.644 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 33,787 | 0.646 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 150 | | | |
| % RSD. | | | | | | 0.44 | | | |

Comments: 2354990|1|1| DUP ID:TOC368

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Spl #: 12 Sample ID : 1205269037 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 1:31 pm | - | - | - | - | 61,841 | 1.179 | 0.000 | 0.000 |
| 2 | 1:35 pm | - | - | - | - | 61,309 | 1.169 | 0.000 | 0.000 |
| 3 | 1:38 pm | - | - | - | - | 61,223 | 1.167 | 0.000 | 0.000 |
| 4 | 1:42 pm | - | - | - | - | 61,049 | 1.164 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 61,356 | 1.170 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 341 | | | |
| % RSD. | | | | | | 0.56 | | | |

Comments: 2354990|1|1| PS ID:TOC368

Spl #: 13 Sample ID : 603000001 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 1:53 pm | - | - | - | - | 103,967 | 1.978 | 0.000 | 0.000 |
| 2 | 1:57 pm | - | - | - | - | 102,983 | 1.960 | 0.000 | 0.000 |
| 3 | 2:00 pm | - | - | - | - | 102,633 | 1.953 | 0.000 | 0.000 |
| 4 | 2:04 pm | - | - | - | - | 102,514 | 1.951 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 103,024 | 1.960 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 659 | | | |
| % RSD. | | | | | | 0.64 | | | |

Comments: 2354990|1|1| ID:TOC368

Spl #: 14 Sample ID : CCV 0.5 mgC Type : Chk Standar Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 2:15 pm | - | - | - | - | 29,596 | 0.567 | n/a | n/a |
| Avg. | | - | - | - | - | 29,596 | 0.567 | n/a | n/a |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

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Spl #: 15 Sample ID : CCB Type : Sample Date: 2022/12/16
 Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
 04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 2:25 pm | - | - | - | - | 739 | 0.019 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 739 | 0.019 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 16 Sample ID : 603904003 Type : Sample Date: 2022/12/16
 Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
 04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 2:36 pm | - | - | - | - | 115,804 | 2.203 | 0.000 | 0.000 |
| 2 | 2:40 pm | - | - | - | - | 114,815 | 2.184 | 0.000 | 0.000 |
| 3 | 2:43 pm | - | - | - | - | 114,670 | 2.181 | 0.000 | 0.000 |
| 4 | 2:47 pm | - | - | - | - | 114,437 | 2.177 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 114,932 | 2.186 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 602 | | | |
| % RSD. | | | | | | 0.52 | | | |

Comments: 2354983|1|1| ID:TOC368

Spl #: 17 Sample ID : 603563002 Type : Sample Date: 2022/12/16
 Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
 04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 2:58 pm | - | - | - | - | 78,015 | 1.486 | 0.000 | 0.000 |
| 2 | 3:01 pm | - | - | - | - | 77,292 | 1.472 | 0.000 | 0.000 |
| 3 | 3:05 pm | - | - | - | - | 77,206 | 1.470 | 0.000 | 0.000 |
| 4 | 3:09 pm | - | - | - | - | 77,053 | 1.468 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 77,391 | 1.474 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 427 | | | |
| % RSD. | | | | | | 0.55 | | | |

Comments: 2354990|1|1| ID:TOC368

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Spl #: 18 Sample ID : CCV 0.5 mgC Type : Chk Standar Date: 2022/12/16
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 3:20 pm | - | - | - | - | 28,343 | 0.543 | n/a | n/a |
| Avg. | | - | - | - | - | 28,343 | 0.543 | n/a | n/a |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 19 Sample ID : CCB Type : Sample Date: 2022/12/16
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Pass Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 3:30 pm | - | - | - | - | 739 | 0.019 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 739 | 0.019 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 20 Sample ID : CCV 0.5 mgC Type : Chk Standar Date: 2022/12/16
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 5:17 pm | - | - | - | - | 27,172 | 0.521 | n/a | n/a |
| Avg. | | - | - | - | - | 27,172 | 0.521 | n/a | n/a |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 21 Sample ID : CCB Type : Sample Date: 2022/12/16
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Pass Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 5:34 pm | - | - | - | - | 731 | 0.019 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 731 | 0.019 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Date Prepared: 2022/12/19 By:

TOC



Date Approved: By:

OI Corporation
151 Graham Rd
College Station, TX
77845
USA

Spl #: 28 Sample ID : 603563003 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 8:07 pm | - | - | - | - | 123,939 | 2.357 | 0.000 | 0.000 |
| 2 | 8:10 pm | - | - | - | - | 122,770 | 2.335 | 0.000 | 0.000 |
| 3 | 8:14 pm | - | - | - | - | 122,827 | 2.336 | 0.000 | 0.000 |
| 4 | 8:18 pm | - | - | - | - | 122,498 | 2.330 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 123,009 | 2.340 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 637 | | | |
| % RSD. | | | | | | 0.52 | | | |

Comments: 2354983|1|1| ID:TOC368

Spl #: 29 Sample ID : 603731007 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 8:32 pm | - | - | - | - | 29,974 | 0.574 | 0.000 | 0.000 |
| 2 | 8:35 pm | - | - | - | - | 29,732 | 0.569 | 0.000 | 0.000 |
| 3 | 8:39 pm | - | - | - | - | 29,636 | 0.568 | 0.000 | 0.000 |
| 4 | 8:43 pm | - | - | - | - | 29,588 | 0.567 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 29,733 | 0.569 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 172 | | | |
| % RSD. | | | | | | 0.58 | | | |

Comments: 2354990|1|1| ID:TOC368

Spl #: 30 Sample ID : 603731008 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 9:04 pm | - | - | - | - | 4,714 | 0.095 | 0.000 | 0.000 |
| 2 | 9:07 pm | - | - | - | - | 4,702 | 0.094 | 0.000 | 0.000 |
| 3 | 9:11 pm | - | - | - | - | 4,720 | 0.095 | 0.000 | 0.000 |
| 4 | 9:14 pm | - | - | - | - | 4,721 | 0.095 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 4,714 | 0.095 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 9 | | | |
| % RSD. | | | | | | 0.19 | | | |

Comments: 2354990|1|1| ID:TOC368

OI Corporation
 151 Graham Rd
 College Station, TX
 77845
 USA

Spl #: 31 Sample ID : 603731009 Type : Sample Date: 2022/12/16
 Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
 04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 9:25 pm | - | - | - | - | 5,012 | 0.100 | 0.000 | 0.000 |
| 2 | 9:28 pm | - | - | - | - | 4,987 | 0.100 | 0.000 | 0.000 |
| 3 | 9:32 pm | - | - | - | - | 4,997 | 0.100 | 0.000 | 0.000 |
| 4 | 9:35 pm | - | - | - | - | 5,036 | 0.101 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 5,008 | 0.100 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 21 | | | |
| % RSD. | | | | | | 0.42 | | | |

Comments: 2354990|1|1| ID:TOC368

Spl #: 32 Sample ID : CCV 0.5 mgC Type : Chk Standar Date: 2022/12/16
 Method : 100422 TOC SOL CAL - Oct Status: Customer ID: 00000000
 04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 9:46 pm | - | - | - | - | 27,638 | 0.530 | n/a | n/a |
| Avg. | | - | - | - | - | 27,638 | 0.530 | n/a | n/a |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 33 Sample ID : CCB Type : Sample Date: 2022/12/16
 Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
 04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 9:56 pm | - | - | - | - | 426 | 0.013 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 426 | 0.013 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |



Analytical Laboratory Report

Revised Report

Report ID: S43319.01(02)
Generated on 01/10/2023
Replaces report S43319.01(01) generated on 12/16/2022

Report to

Attention: Saamih Bashir
WSP
45850 Magellan Drive, Suite 190
Novi, MI 48377

Phone: n/a FAX:
Email: Saamih.Bashir@wsp.com

Additional Contacts: Jared Walbert

Report produced by

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Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S43319.01-S43319.04
Project: Former JB Sims Generating Station, Harbor Island, GrandHaven
Collected Date(s): 12/07/2022 - 12/09/2022
Submitted Date/Time: 12/09/2022 16:15
Sampled by: Jared Walbert
P.O. #: C012407104

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Maya Murshak
Technical Director



General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

Report Narrative

Reported down to MDL



Laboratory Certifications

| Authority | Certification ID |
|---------------------|------------------|
| Michigan DEQ | #9956 |
| DOD ELAP/ISO 17025 | #69699 |
| WBENC | #2005110032 |
| Ohio VAP | #CL0002 |
| Indiana DOH | #C-MI-07 |
| New York NELAC | #11814 |
| North Carolina DENR | #680 |
| North Carolina DOH | #26702 |
| Alaska CSLAP | #17-001 |
| Pennsylvania DEP | #68-05884 |
| Wisconsin DNR | FID# 399147320 |

Qualifier Descriptions

| Qualifier | Description |
|-----------|---|
| ! | Result is outside of stated limit criteria |
| B | Compound also found in associated method blank |
| E | Concentration exceeds calibration range |
| F | Analysis run outside of holding time |
| G | Estimated result due to extraction run outside of holding time |
| H | Sample submitted and run outside of holding time |
| I | Matrix interference with internal standard |
| J | Estimated value less than reporting limit, but greater than MDL |
| L | Elevated reporting limit due to low sample amount |
| M | Result reported to MDL not RDL |
| O | Analysis performed by outside laboratory. See attached report. |
| R | Preliminary result |
| S | Surrogate recovery outside of control limits |
| T | No correction for total solids |
| X | Elevated reporting limit due to matrix interference |
| Y | Elevated reporting limit due to high target concentration |
| b | Value detected less than reporting limit, but greater than MDL |
| e | Reported value estimated due to interference |
| j | Analyte also found in associated method blank |
| p | Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak. |
| x | Preserved from bulk sample |

Glossary of Abbreviations

| Abbreviation | Description |
|--------------|--|
| RL/RDL | Reporting Limit |
| MDL | Method Detection Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| SW | EPA SW 846 (Soil and Wastewater) Methods |
| E | EPA Methods |
| SM | Standard Methods |
| LN | Linear |
| BR | Branched |



Method Summary

| Method | Version |
|---------------|---|
| ASTMD7979-19M | ASTM Method D7979 - 19 Modified (Isotopic Dilution) |

Parameter Summary

| Parameter | Synonym | Cas # |
|------------------|--|--------------|
| PFBA | Perfluorobutanoic Acid | 375-22-4 |
| PFPeA | Perfluoropentanoic Acid | 2706-90-3 |
| 4:2 FTSA | 4:2 Fluorotelomer Sulfonic Acid | 757124-72-4 |
| PFHxA | Perfluorohexanoic Acid | 307-24-4 |
| PFBS | Perfluorobutane sulfonic Acid | 375-73-5 |
| PFHpA | Perfluoroheptanoic Acid | 375-85-9 |
| PFPeS | Perfluoropentane Sulfonic Acid | 2706-91-4 |
| 6:2 FTSA | 6:2 Fluorotelomer Sulfonic Acid | 27619-97-2 |
| PFOA | Perfluorooctanoic Acid | 335-67-1 |
| PFHxS | Perfluorohexane Sulfonic Acid | 355-46-4 |
| PFHxS-LN | Perfluorohexane Sulfonic Acid - LN | 355-46-4-LN |
| PFHxS-BR | Perfluorohexane Sulfonic Acid - BR | 355-46-4-BR |
| PFNA | Perfluorononanoic Acid | 375-95-1 |
| 8:2 FTSA | 8:2 Fluorotelomer Sulfonic Acid | 39108-34-4 |
| PFHpS | Perfluoroheptane Sulfonic Acid | 375-92-8 |
| PFDA | Perfluorodecanoic Acid | 335-76-2 |
| N-MeFOSAA | N-methyl perfluorooctanesulfonamidoacetic acid | 2355-31-9 |
| EtFOSAA | N-Ethyl Perfluorooctane Sulfonamidoacetic Acid | 2991-50-6 |
| PFOS | Perfluorooctane Sulfonic Acid | 1763-23-1 |
| PFOS-LN | Perfluorooctane Sulfonic Acid - LN | 1763-23-1-LN |
| PFOS-BR | Perfluorooctane Sulfonic Acid - BR | 1763-23-1-BR |
| PFUnDA | Perfluoroundecanoic Acid | 2058-94-8 |
| PFNS | Perfluorononane Sulfonic Acid | 68259-12-1 |
| PFDoDA | Perfluorododecanoic Acid | 307-55-1 |
| PFDS | Perfluorodecane Sulfonic Acid | 335-77-3 |
| PFTTrDA | Perfluorotridecanoic Acid | 72629-94-8 |
| FOSA | Perfluorooctane Sulfonamide | 754-91-6 |
| PFTeDA | Perfluorotetradecanoic Acid | 376-06-7 |
| 11Cl-PF3OUdS | 11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid | 763051-92-9 |
| 9Cl-PF3ONS | 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid | 756426-58-1 |
| ADONA | 4,8-dioxa-3H-perfluorononanoic acid | 919005-14-4 |
| HFPO-DA | Hexafluoropropylene oxide dimer | 13252-13-6 |
| FHpPA (7:3 FTCA) | 3-Perfluoroheptyl propanoic acid | 812-70-4 |
| FPePA (5:3 FTCA) | 3-Perfluoropentyl propanoic acid | 914637-49-3 |
| FPrPA (3:3 FTCA) | 3-Perfluoropropyl propanoic acid | 356-02-5 |
| PFBSA | Perfluorobutanesulfonamide | 30334-69-1 |
| PFECHS | Perfluoro-4-ethylcyclohexanesulfonate | 67584-42-3 |
| PFHxSA | Perfluorohexanesulfonamide | 41997-13-1 |



Sample Summary (4 samples)

| Sample ID | Sample Tag | Matrix | Collected Date/Time |
|-----------|------------|-------------|---------------------|
| S43319.01 | VAS21-5-9 | Groundwater | 12/07/22 15:20 |
| S43319.02 | VAS23-5-9 | Groundwater | 12/08/22 11:15 |
| S43319.03 | VAS26-4-8 | Groundwater | 12/08/22 17:55 |
| S43319.04 | VAS28-3-7 | Groundwater | 12/09/22 12:50 |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43319.01

Sample Tag: VAS21-5-9

Collected Date/Time: 12/07/2022 15:20

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.01/6.50/11 | ASTMD7979-19M | 12/12/22 12:12 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/13/22 20:40, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | 420 | 10 | 10 | ng/L | 2 | 375-22-4 | |
| PFPeA* | 1,700 | 4.0 | 1.0 | ng/L | 2 | 2706-90-3 | |
| 4:2 FTSA* | 1.6 | 2.0 | 1.6 | ng/L | 2 | 757124-72-4 | J |
| PFHxA* | 890 | 2.0 | 1.4 | ng/L | 2 | 307-24-4 | |
| PFBS* | 95 | 2.0 | 1.4 | ng/L | 2 | 375-73-5 | |
| PFHpA* | 190 | 2.0 | 1.4 | ng/L | 2 | 375-85-9 | |
| PFPeS* | 47 | 2.0 | 1.8 | ng/L | 2 | 2706-91-4 | |
| 6:2 FTSA* | 280 | 2.0 | 2.0 | ng/L | 2 | 27619-97-2 | |
| PFOA* | 77 | 2.0 | 1.6 | ng/L | 2 | 335-67-1 | |
| PFHxS* | 110 | 2.0 | 1.6 | ng/L | 2 | 355-46-4 | |
| PFHxS-LN* | 78 | 2.0 | 1.6 | ng/L | 2 | 355-46-4-LN | |
| PFHxS-BR* | 30 | 2.0 | 1.6 | ng/L | 2 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 2 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 2 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 2 | 2991-50-6 | |
| PFOS* | 3.5 | 2.0 | 2.0 | ng/L | 2 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 2.0 | ng/L | 2 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 2.0 | ng/L | 2 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 2 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 2 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 2 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 2 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 2 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 2 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.0 | ng/L | 2 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 2 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 2 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 2 | 356-02-5 | |
| PFBSA* | 33 | 2.0 | 1.2 | ng/L | 2 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43319.01 (continued)

Sample Tag: VAS21-5-9

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/13/22 20:40, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|-----|-------|----------|------------|-------|
| PFECHS* | 3.2 | 2.0 | 1.2 | ng/L | 2 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 1.0 | ng/L | 2 | 41997-13-1 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43319.02

Sample Tag: VAS23-5-9

Collected Date/Time: 12/08/2022 11:15

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.76/6.58/10 | ASTMD7979-19M | 12/12/22 12:12 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/13/22 20:59, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.7 | 9.7 | ng/L | 1.93 | 375-22-4 | |
| PFPeA* | 2.2 | 3.9 | 0.97 | ng/L | 1.93 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 757124-72-4 | |
| PFHxA* | 2.2 | 1.9 | 1.4 | ng/L | 1.93 | 307-24-4 | |
| PFBS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 375-73-5 | |
| PFHpA* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 27619-97-2 | |
| PFOA* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 1.9 | ng/L | 1.93 | 2991-50-6 | |
| PFOS* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.7 | ng/L | 1.93 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.7 | 1.9 | ng/L | 1.93 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.9 | ng/L | 1.93 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.1 | ng/L | 1.93 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.93 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43319.02 (continued)

Sample Tag: VAS23-5-9

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/13/22 20:59, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 41997-13-1 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43319.03

Sample Tag: VAS26-4-8

Collected Date/Time: 12/08/2022 17:55

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.17/6.58/11 | ASTMD7979-19M | 12/12/22 12:12 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/13/22 21:19, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.9 | 9.9 | ng/L | 1.97 | 375-22-4 | |
| PFPeA* | Not detected | 3.9 | 0.99 | ng/L | 1.97 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 757124-72-4 | |
| PFHxA* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 307-24-4 | |
| PFBS* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 375-73-5 | |
| PFHpA* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 1.97 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 27619-97-2 | |
| PFOA* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.97 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.97 | 2991-50-6 | |
| PFOS* | Not detected | 2.0 | 1.9 | ng/L | 1.97 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 1.9 | ng/L | 1.97 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 1.9 | ng/L | 1.97 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.97 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.8 | ng/L | 1.97 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.97 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.9 | 2.0 | ng/L | 1.97 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 3.0 | ng/L | 1.97 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.2 | ng/L | 1.97 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.97 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 30334-69-1 | |
| PFECHS* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 67584-42-3 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43319.03 (continued)

Sample Tag: VAS26-4-8

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/13/22 21:19, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 41997-13-1 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43319.04

Sample Tag: VAS28-3-7

Collected Date/Time: 12/09/2022 12:50

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.36/6.60/11 | ASTMD7979-19M | 12/12/22 12:12 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/13/22 21:38, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 22 | 9.6 | 9.6 | ng/L | 1.91 | 375-22-4 | |
| PFPeA* | 69 | 3.8 | 0.96 | ng/L | 1.91 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 1.5 | ng/L | 1.91 | 757124-72-4 | |
| PFHxA* | 36 | 1.9 | 1.3 | ng/L | 1.91 | 307-24-4 | |
| PFBS* | 3.5 | 1.9 | 1.3 | ng/L | 1.91 | 375-73-5 | |
| PFHpA* | 11 | 1.9 | 1.3 | ng/L | 1.91 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.91 | 2706-91-4 | |
| 6:2 FTSA* | 6.9 | 1.9 | 1.9 | ng/L | 1.91 | 27619-97-2 | |
| PFOA* | 12 | 1.9 | 1.5 | ng/L | 1.91 | 335-67-1 | |
| PFHxS* | 3.2 | 1.9 | 1.5 | ng/L | 1.91 | 355-46-4 | |
| PFHxS-LN* | 2.0 | 1.9 | 1.5 | ng/L | 1.91 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.5 | ng/L | 1.91 | 355-46-4-BR | |
| PFNA* | 2.0 | 1.9 | 1.7 | ng/L | 1.91 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.96 | ng/L | 1.91 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.91 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.91 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.91 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.8 | 1.9 | ng/L | 1.91 | 2991-50-6 | |
| PFOS* | 9.2 | 1.9 | 1.9 | ng/L | 1.91 | 1763-23-1 | |
| PFOS-LN* | 4.3 | 1.9 | 1.9 | ng/L | 1.91 | 1763-23-1-LN | |
| PFOS-BR* | 4.7 | 1.9 | 1.9 | ng/L | 1.91 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.3 | ng/L | 1.91 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.3 | ng/L | 1.91 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.91 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.3 | ng/L | 1.91 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.1 | ng/L | 1.91 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.91 | 754-91-6 | |
| PFTeDA* | Not detected | 3.8 | 1.7 | ng/L | 1.91 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.91 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.3 | ng/L | 1.91 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.91 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.6 | 1.9 | ng/L | 1.91 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.8 | 2.9 | ng/L | 1.91 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.8 | 2.1 | ng/L | 1.91 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.8 | 1.1 | ng/L | 1.91 | 356-02-5 | |
| PFBSA* | 1.6 | 1.9 | 1.1 | ng/L | 1.91 | 30334-69-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43319.04 (continued)

Sample Tag: VAS28-3-7

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/13/22 21:38, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 2.0 | 1.9 | 1.1 | ng/L | 1.91 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.9 | 0.96 | ng/L | 1.91 | 41997-13-1 | |

Merit Laboratories Login Checklist

Lab Set ID:S43319

Client:WSP (WSP)

Project: Former JB Sims Generating Station, Harbor Island, GrandHaven

Submitted: 12/09/2022 16:15 Login User: BJB

Attention: Saamih Bashir

Address: WSP

45850 Magellan Drive, Suite 190

Novi, MI 48377

Phone: n/a

FAX:

Email: Saamih.Bashir@wsp.com

| Selection | Description | Note |
|--------------------------|--|--|
| Sample Receiving | | |
| 01. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 3.9 |
| 02. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun |
| 03. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped |
| 04. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box |
| 05. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |
| Chain of Custody | | |
| 06. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out |
| 07. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab |
| 08. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC |
| 09. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to: |
| Preservation | | |
| 10. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation |
| 11. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs) |
| 12. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab? |
| Bottle Conditions | | |
| 13. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact |
| 14. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used |
| 15. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used |
| 16. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received |
| 17. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration |
| 18. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time |
| 19. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace |

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

WSP USA Environment & Infrastructure Inc.
 46850 Magellan Drive, Suite 190
 Novi, Michigan 48377
 (248) 926-4008

CHAIN OF CUSTODY

SHIP TO:
 Merit Laboratories, Inc.
 2680 East Lansing Drive
 East Lansing, MI 48823
 Attn: Johanna Murray
 Lab Phone# 517-827-2755

DATE: 12/9/2022

COC #:

PAGE: 5 OF 5

| | | | |
|--|---------------------------------------|---|-----------------------------------|
| Project Name: Former JB Sims Generating Station, Harbor Island, Grand Haven | Project Contact: Zach McCurley | Bill To: WSP USA Environment & Infrastructure Inc. | Disposal Instructions: LAB |
| Project Number: 3650220203.02.02.3650 | Phone Number: 248-775-9823 | Attn: Saamih Bashir | Shipment Method: FEDEX |
| Project Manager: Saamih Bashir | Purchase Order: C012407104 | 46850 Magellan Dr., Ste 190 Novi, MI 48377 | Waybill Number: N/A |
| Sampler Name: Jared Walbert | | | Waybill Number: N/A |

MATRIX Code W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL SW=SURFACE WATER
 L=LIQUID SD=SEDIMENT SL=SLUDGE DW=DRINKING WATER O=OIL A=AIR WS=WASTE

| | | | |
|---------------------------------|--------|--|--|
| TURNAROUND TIME REQUIRED | 2 Days | <input checked="" type="checkbox"/> 5 Days | Standard (10 TAT) |
| DELIVERABLES REQUIRED | STD | Level II | Level III <input checked="" type="checkbox"/> Level IV <input checked="" type="checkbox"/> EDD <input checked="" type="checkbox"/> |

| Sample Information | | | | | | Methods for Analysis | | | | | | RUSH | | | | | | |
|--------------------|----------|-----------|-----------|-------|--------|----------------------|------------------------------|---------------------|----------------------|-----------------------------|-------------------------------|--------------------------------------|----------------------|--------|---------|---------|---------|--------|
| No. | Lab ID | Sample ID | Date | Time | Matrix | # of Bottles | PFAS ASTM D7979 Per Contract | VOCs (Per Contract) | SVOCs (Per Contract) | MI 10 Metals (per Contract) | pH/corrosivity (per Contract) | particle size (sieve and hydrometer) | Total Organic Carbon | MS/MSD | 24 Hour | 48 Hour | 72 Hour | 5 Days |
| 1 | 43319.01 | VAS21-5-9 | 12/7/2022 | 15:20 | GW | 3 | x | | | | | | | | | | | |
| 2 | .02 | VAS23-5-9 | 12/8/2022 | 11:15 | GW | 3 | x | | | | | | | | | | | |
| 3 | 03 | VAS26-4-8 | 12/8/2022 | 17:55 | GW | 3 | X | | | | | | | | | | | |
| 4 | 04 | VAS28-3-7 | 12/9/2022 | 12:50 | GW | 3 | X | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | |

| | | | | |
|---|------------------------|-------------------|---|---|
| Relinquished By/Affiliation: <i>Ruff White</i> | Date: 12/9/2022 | Time: 1615 | For Lab Use Does COC match samples: Y or N Broken Container: Y or N COC seal intact: Y or N Other problems: Y or N WSDOT contacted: Y or N Date contacted: _____ Cooler Temperature at receipt: <i>1/3</i> °C <i>3.9</i> | Comments: X 12/9/2022 NUMBER OF COOLERS SENT: 1 |
| Received By: <i>Banks Ball</i> | Date: 12/9/2022 | Time: 1615 | | |
| Relinquished By/Affiliation: | Date: | Time: | | |
| Received By: | Date: | Time: | | |
| Relinquished By/Affiliation: | Date: | Time: | | |
| Received By (LAB): | Date: | Time: | | |



Analytical Laboratory Report

Report ID: S43320.01(01)
Generated on 01/20/2023

Report to

Attention: Saamih Bashir
WSP
45850 Magellan Drive, Suite 190
Novi, MI 48377

Phone: n/a FAX:
Email: Saamih.Bashir@wsp.com

Additional Contacts: Jared Walbert

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S43320.01-S43320.19
Project: Former JB Sims Generating Station, Harbor Island, GrandHaven
Collected Date(s): 12/07/2022 - 12/09/2022
Submitted Date/Time: 12/09/2022 16:15
Sampled by: Jared Walbert
P.O. #: C012407104

Table of Contents

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- Sample Summary (Page 5)

Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Certifications

| Authority | Certification ID |
|---------------------|------------------|
| Michigan DEQ | #9956 |
| DOD ELAP/ISO 17025 | #69699 |
| WBENC | #2005110032 |
| Ohio VAP | #CL0002 |
| Indiana DOH | #C-MI-07 |
| New York NELAC | #11814 |
| North Carolina DENR | #680 |
| North Carolina DOH | #26702 |
| Alaska CSLAP | #17-001 |
| Pennsylvania DEP | #68-05884 |
| Wisconsin DNR | FID# 399147320 |

Qualifier Descriptions

| Qualifier | Description |
|-----------|---|
| ! | Result is outside of stated limit criteria |
| B | Compound also found in associated method blank |
| E | Concentration exceeds calibration range |
| F | Analysis run outside of holding time |
| G | Estimated result due to extraction run outside of holding time |
| H | Sample submitted and run outside of holding time |
| I | Matrix interference with internal standard |
| J | Estimated value less than reporting limit, but greater than MDL |
| L | Elevated reporting limit due to low sample amount |
| M | Result reported to MDL not RDL |
| O | Analysis performed by outside laboratory. See attached report. |
| R | Preliminary result |
| S | Surrogate recovery outside of control limits |
| T | No correction for total solids |
| X | Elevated reporting limit due to matrix interference |
| Y | Elevated reporting limit due to high target concentration |
| b | Value detected less than reporting limit, but greater than MDL |
| e | Reported value estimated due to interference |
| j | Analyte also found in associated method blank |
| p | Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak. |
| x | Preserved from bulk sample |

Glossary of Abbreviations

| Abbreviation | Description |
|--------------|--|
| RL/RDL | Reporting Limit |
| MDL | Method Detection Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| SW | EPA SW 846 (Soil and Wastewater) Methods |
| E | EPA Methods |
| SM | Standard Methods |
| LN | Linear |
| BR | Branched |



Analytical Laboratory Report

Method Summary

| Method | Version |
|----------------|---|
| ASTM D7968-17M | ASTM Method D7968 - 17 Modified (Isotopic Dilution) |
| ASTMD7979-19M | ASTM Method D7979 - 19 Modified (Isotopic Dilution) |
| SM2540B | Standard Method 2540 B 2015 |

Parameter Summary

| Parameter | Synonym | Cas # |
|------------------|---|--------------|
| PFBA | Perfluorobutanoic Acid | 375-22-4 |
| PFPeA | Perfluoropentanoic Acid | 2706-90-3 |
| 4:2 FTSA | 4:2 Fluorotelomer Sulfonic Acid | 757124-72-4 |
| PFHxA | Perfluorohexanoic Acid | 307-24-4 |
| PFBS | Perfluorobutane sulfonic Acid | 375-73-5 |
| PFHpA | Perfluoroheptanoic Acid | 375-85-9 |
| PFPeS | Perfluoropentane Sulfonic Acid | 2706-91-4 |
| 6:2 FTSA | 6:2 Fluorotelomer Sulfonic Acid | 27619-97-2 |
| PFOA | Perfluorooctanoic Acid | 335-67-1 |
| PFHxS | Perfluorohexane Sulfonic Acid | 355-46-4 |
| PFHxS-LN | Perfluorohexane Sulfonic Acid - LN | 355-46-4-LN |
| PFHxS-BR | Perfluorohexane Sulfonic Acid - BR | 355-46-4-BR |
| PFNA | Perfluorononanoic Acid | 375-95-1 |
| 8:2 FTSA | 8:2 Fluorotelomer Sulfonic Acid | 39108-34-4 |
| PFHpS | Perfluoroheptane Sulfonic Acid | 375-92-8 |
| PFDA | Perfluorodecanoic Acid | 335-76-2 |
| N-MeFOSAA | N-methyl perfluorooctanesulfonamidoacetic acid | 2355-31-9 |
| EtFOSAA | N-Ethyl Perfluorooctane Sulfonamidoacetic Acid | 2991-50-6 |
| PFOS | Perfluorooctane Sulfonic Acid | 1763-23-1 |
| PFOS-LN | Perfluorooctane Sulfonic Acid - LN | 1763-23-1-LN |
| PFOS-BR | Perfluorooctane Sulfonic Acid - BR | 1763-23-1-BR |
| PFUnDA | Perfluoroundecanoic Acid | 2058-94-8 |
| PFNS | Perfluorononane Sulfonic Acid | 68259-12-1 |
| PFDoDA | Perfluorododecanoic Acid | 307-55-1 |
| PFDS | Perfluorodecane Sulfonic Acid | 335-77-3 |
| PFTTrDA | Perfluorotridecanoic Acid | 72629-94-8 |
| FOSA | Perfluorooctane Sulfonamide | 754-91-6 |
| PFTeDA | Perfluorotetradecanoic Acid | 376-06-7 |
| 11Cl-PF3OUdS | 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | 763051-92-9 |
| 9Cl-PF3ONS | 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid | 756426-58-1 |
| ADONA | 4,8-dioxa-3H-perfluorononanoic acid | 919005-14-4 |
| HFPO-DA | Hexafluoropropylene oxide dimer | 13252-13-6 |
| FHpPA (7:3 FTCA) | 3-Perfluoroheptyl propanoic acid | 812-70-4 |
| FPePA (5:3 FTCA) | 3-Perfluoropentyl propanoic acid | 914637-49-3 |
| FPrPA (3:3 FTCA) | 3-Perfluoropropyl propanoic acid | 356-02-5 |
| PFBSA | Perfluorobutanesulfonamide | 30334-69-1 |
| PFECHS | Perfluoro-4-ethylcyclohexanesulfonate | 67584-42-3 |
| PFHxSA | Perfluorohexanesulfonamide | 41997-13-1 |



Analytical Laboratory Report

Sample Summary (19 samples)

| Sample ID | Sample Tag | Matrix | Collected Date/Time |
|-----------|--------------------|-------------|---------------------|
| S43320.01 | VAS20-5-9 | Groundwater | 12/07/22 13:10 |
| S43320.02 | VAS20-16-20 | Groundwater | 12/07/22 13:40 |
| S43320.03 | VAS21-16-20 | Groundwater | 12/07/22 16:05 |
| S43320.04 | VAS22-5-9 | Groundwater | 12/07/22 17:05 |
| S43320.05 | VAS22-16-20 | Groundwater | 12/07/22 17:45 |
| S43320.06 | VAS23-16-20 | Groundwater | 12/08/22 12:00 |
| S43320.07 | VAS24-5-9 | Groundwater | 12/08/22 13:20 |
| S43320.08 | VAS24-16-20 | Groundwater | 12/08/22 14:15 |
| S43320.09 | VAS25-3-7 | Groundwater | 12/08/22 16:05 |
| S43320.10 | VAS25-16-20 | Groundwater | 12/08/22 16:20 |
| S43320.11 | VAS26-16-20 | Groundwater | 12/08/22 17:55 |
| S43320.12 | VAS27-4-8 | Groundwater | 12/09/22 10:30 |
| S43320.13 | VAS27-16-20 | Groundwater | 12/09/22 11:25 |
| S43320.14 | DUP-05-09122022 | Groundwater | 12/09/22 00:01 |
| S43320.15 | Equipment Blank-03 | Groundwater | 12/09/22 14:30 |
| S43320.16 | VAS28-16-20 | Groundwater | 12/09/22 13:45 |
| S43320.17 | VAS21-SB-5-7 | Soil | 12/07/22 15:00 |
| S43320.18 | VAS23-SB-5-7 | Soil | 12/08/22 10:15 |
| S43320.19 | VAS26-SB-4-6 | Soil | 12/08/22 17:00 |



Analytical Laboratory Report

Lab Sample ID: S43320.01

Sample Tag: VAS20-5-9

Collected Date/Time: 12/07/2022 13:10

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.07/6.54/11 | ASTMD7979-19M | 12/14/22 12:00 | PTW | |

Organics

34 PFAs (Replicate 01), Method: ASTMD7979-19M, Run Date: 01/05/23 22:12, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|------|------|-------|----------|--------------|-------|
| PFBA* | 210 | 10.0 | 1.6 | ng/L | 1.99 | 375-22-4 | 1 |
| PFPeA* | 170 | 4.0 | 0.80 | ng/L | 1.99 | 2706-90-3 | |
| 4:2 FTSA* | 2.1 | 2.0 | 0.80 | ng/L | 1.99 | 757124-72-4 | I |
| PFHxA* | 180 | 2.0 | 0.40 | ng/L | 1.99 | 307-24-4 | |
| PFBS* | 19 | 2.0 | 0.80 | ng/L | 1.99 | 375-73-5 | |
| PFHpA* | 61 | 2.0 | 1.00 | ng/L | 1.99 | 375-85-9 | |
| PFPeS* | 5.9 | 2.0 | 0.80 | ng/L | 1.99 | 2706-91-4 | |
| 6:2 FTSA* | 160 | 2.0 | 1.2 | ng/L | 1.99 | 27619-97-2 | |
| PFOA* | 67 | 2.0 | 1.6 | ng/L | 1.99 | 335-67-1 | |
| PFHxS* | 19 | 2.0 | 1.2 | ng/L | 1.99 | 355-46-4 | |
| PFHxS-LN* | 14 | 2.0 | 1.2 | ng/L | 1.99 | 355-46-4-LN | |
| PFHxS-BR* | 4.2 | 2.0 | 1.2 | ng/L | 1.99 | 355-46-4-BR | |
| PFNA* | 2.5 | 2.0 | 0.80 | ng/L | 1.99 | 375-95-1 | |
| 8:2 FTSA* | 8.0 | 2.0 | 1.00 | ng/L | 1.99 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 375-92-8 | |
| PFDA* | 1.1 | 2.0 | 0.60 | ng/L | 1.99 | 335-76-2 | J |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 2355-31-9 | |
| EtFOSAA* | 3.2 | 4.0 | 2.0 | ng/L | 1.99 | 2991-50-6 | J |
| PFOS* | 11 | 2.0 | 1.2 | ng/L | 1.99 | 1763-23-1 | |
| PFOS-LN* | 6.3 | 2.0 | 1.2 | ng/L | 1.99 | 1763-23-1-LN | |
| PFOS-BR* | 4.0 | 2.0 | 1.2 | ng/L | 1.99 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.60 | ng/L | 1.99 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 72629-94-8 | |
| FOSA* | 1.3 | 2.0 | 0.80 | ng/L | 1.99 | 754-91-6 | J |
| PFTeDA* | Not detected | 4.0 | 0.40 | ng/L | 1.99 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.80 | ng/L | 1.99 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.80 | ng/L | 1.99 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10.0 | 2.0 | ng/L | 1.99 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | 2.5 | 4.0 | 2.0 | ng/L | 1.99 | 812-70-4 | J |
| FPePA (5:3 FTCA)* | 17 | 4.0 | 2.0 | ng/L | 1.99 | 914637-49-3 | |

1-results suspect due to matrix effects

I-Matrix interference with internal standard

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43320.01 (continued)

Sample Tag: VAS20-5-9

34 PFAs (Replicate 01), Method: ASTMD7979-19M, Run Date: 01/05/23 22:12, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------|-----|------|-------|----------|------------|-------|
| FPrPA (3:3 FTCA)* | 15 | 4.0 | 1.00 | ng/L | 1.99 | 356-02-5 | |
| PFBSA* | 15 | 2.0 | 1.2 | ng/L | 1.99 | 30334-69-1 | |
| PFECHS* | 4.3 | 2.0 | 1.00 | ng/L | 1.99 | 67584-42-3 | |
| PFHxSA* | 14 | 2.0 | 0.80 | ng/L | 1.99 | 41997-13-1 | |

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 21:50, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|------|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 500 | 10.0 | ng/L | 1.99 | 375-22-4 | X |
| PFPeA* | 200 | 4.0 | 1.00 | ng/L | 1.99 | 2706-90-3 | |
| 4:2 FTSA* | 2.4 | 2.0 | 1.6 | ng/L | 1.99 | 757124-72-4 | I |
| PFHxA* | 200 | 2.0 | 1.4 | ng/L | 1.99 | 307-24-4 | |
| PFBS* | 23 | 2.0 | 1.4 | ng/L | 1.99 | 375-73-5 | |
| PFHpA* | 68 | 2.0 | 1.4 | ng/L | 1.99 | 375-85-9 | |
| PFPeS* | 7.4 | 2.0 | 1.8 | ng/L | 1.99 | 2706-91-4 | |
| 6:2 FTSA* | 200 | 2.0 | 2.0 | ng/L | 1.99 | 27619-97-2 | |
| PFOA* | 80 | 2.0 | 1.6 | ng/L | 1.99 | 335-67-1 | |
| PFHxS* | 21 | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4 | |
| PFHxS-LN* | 15 | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4-LN | |
| PFHxS-BR* | 5.8 | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4-BR | |
| PFNA* | 3.1 | 2.0 | 1.8 | ng/L | 1.99 | 375-95-1 | |
| 8:2 FTSA* | 8.8 | 2.0 | 1.00 | ng/L | 1.99 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 2355-31-9 | |
| EtFOSAA* | 2.4 | 4.0 | 2.0 | ng/L | 1.99 | 2991-50-6 | J |
| PFOS* | 16 | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1 | |
| PFOS-LN* | 7.3 | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1-LN | |
| PFOS-BR* | 8.1 | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 68259-12-1 | |
| PFDoDA* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 1.99 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10.0 | 2.0 | ng/L | 1.99 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 1.99 | 812-70-4 | |
| FPePA (5:3 FTCA)* | 19 | 4.0 | 2.2 | ng/L | 1.99 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | 21 | 4.0 | 1.2 | ng/L | 1.99 | 356-02-5 | |
| PFBSA* | 17 | 2.0 | 1.2 | ng/L | 1.99 | 30334-69-1 | |
| PFECHS* | 4.3 | 2.0 | 1.2 | ng/L | 1.99 | 67584-42-3 | |
| PFHxSA* | 14 | 2.0 | 1.00 | ng/L | 1.99 | 41997-13-1 | |

X-Elevated reporting limit due to matrix interference

I-Matrix interference with internal standard

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43320.02

Sample Tag: VAS20-16-20

Collected Date/Time: 12/07/2022 13:40

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.77/6.51/10 | ASTMD7979-19M | 12/14/22 12:00 | PTW | |

Organics

34 PFAs (Replicate 01), Method: ASTMD7979-19M, Run Date: 01/05/23 22:51, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 140 | 9.5 | 1.5 | ng/L | 1.9 | 375-22-4 | |
| PFPeA* | 170 | 3.8 | 0.76 | ng/L | 1.9 | 2706-90-3 | |
| 4:2 FTSA* | 2.4 | 1.9 | 0.76 | ng/L | 1.9 | 757124-72-4 | |
| PFHxA* | 150 | 1.9 | 0.38 | ng/L | 1.9 | 307-24-4 | |
| PFBS* | 14 | 1.9 | 0.76 | ng/L | 1.9 | 375-73-5 | |
| PFHpA* | 34 | 1.9 | 0.95 | ng/L | 1.9 | 375-85-9 | |
| PFPeS* | 3.2 | 1.9 | 0.76 | ng/L | 1.9 | 2706-91-4 | |
| 6:2 FTSA* | 98 | 1.9 | 1.1 | ng/L | 1.9 | 27619-97-2 | |
| PFOA* | 34 | 1.9 | 1.5 | ng/L | 1.9 | 335-67-1 | |
| PFHxS* | 6.8 | 1.9 | 1.1 | ng/L | 1.9 | 355-46-4 | |
| PFHxS-LN* | 4.2 | 1.9 | 1.1 | ng/L | 1.9 | 355-46-4-LN | |
| PFHxS-BR* | 2.2 | 1.9 | 1.1 | ng/L | 1.9 | 355-46-4-BR | |
| PFNA* | 1.5 | 1.9 | 0.76 | ng/L | 1.9 | 375-95-1 | J |
| 8:2 FTSA* | 2.7 | 1.9 | 0.95 | ng/L | 1.9 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.1 | ng/L | 1.9 | 375-92-8 | |
| PFDA* | 0.61 | 1.9 | 0.57 | ng/L | 1.9 | 335-76-2 | J |
| N-MeFOSAA* | Not detected | 1.9 | 1.3 | ng/L | 1.9 | 2355-31-9 | |
| EtFOSAA* | 7.4 | 3.8 | 1.9 | ng/L | 1.9 | 2991-50-6 | |
| PFOS* | 3.9 | 1.9 | 1.1 | ng/L | 1.9 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.9 | 1.1 | ng/L | 1.9 | 1763-23-1-LN | |
| PFOS-BR* | 3.2 | 1.9 | 1.1 | ng/L | 1.9 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 0.57 | ng/L | 1.9 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.1 | ng/L | 1.9 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 0.76 | ng/L | 1.9 | 754-91-6 | |
| PFTeDA* | Not detected | 3.8 | 0.38 | ng/L | 1.9 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.76 | ng/L | 1.9 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.76 | ng/L | 1.9 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.5 | 1.9 | ng/L | 1.9 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | 2.1 | 3.8 | 1.9 | ng/L | 1.9 | 812-70-4 | J |
| FPePA (5:3 FTCA)* | 34 | 3.8 | 1.9 | ng/L | 1.9 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | 4.2 | 3.8 | 0.95 | ng/L | 1.9 | 356-02-5 | |
| PFBSA* | 5.8 | 1.9 | 1.1 | ng/L | 1.9 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43320.02 (continued)

Sample Tag: VAS20-16-20

34 PFAs (Replicate 01), Method: ASTMD7979-19M, Run Date: 01/05/23 22:51, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFCHS* | 1.8 | 1.9 | 0.95 | ng/L | 1.9 | 67584-42-3 | J |
| PFHxSA* | 1.4 | 1.9 | 0.76 | ng/L | 1.9 | 41997-13-1 | J |

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 22:29, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 130 | 9.5 | 9.5 | ng/L | 1.9 | 375-22-4 | |
| PFPeA* | 190 | 3.8 | 0.95 | ng/L | 1.9 | 2706-90-3 | |
| 4:2 FTSA* | 2.7 | 1.9 | 1.5 | ng/L | 1.9 | 757124-72-4 | |
| PFHxA* | 160 | 1.9 | 1.3 | ng/L | 1.9 | 307-24-4 | |
| PFBS* | 17 | 1.9 | 1.3 | ng/L | 1.9 | 375-73-5 | |
| PFHpA* | 40 | 1.9 | 1.3 | ng/L | 1.9 | 375-85-9 | |
| PFPeS* | 2.9 | 1.9 | 1.7 | ng/L | 1.9 | 2706-91-4 | |
| 6:2 FTSA* | 98 | 1.9 | 1.9 | ng/L | 1.9 | 27619-97-2 | |
| PFOA* | 40 | 1.9 | 1.5 | ng/L | 1.9 | 335-67-1 | |
| PFHxS* | 8.1 | 1.9 | 1.5 | ng/L | 1.9 | 355-46-4 | |
| PFHxS-LN* | 4.8 | 1.9 | 1.5 | ng/L | 1.9 | 355-46-4-LN | |
| PFHxS-BR* | 3.1 | 1.9 | 1.5 | ng/L | 1.9 | 355-46-4-BR | |
| PFNA* | 1.8 | 1.9 | 1.7 | ng/L | 1.9 | 375-95-1 | J |
| 8:2 FTSA* | 2.0 | 1.9 | 0.95 | ng/L | 1.9 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.9 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.9 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.9 | 2355-31-9 | |
| EtFOSAA* | 9.3 | 3.8 | 1.9 | ng/L | 1.9 | 2991-50-6 | |
| PFOS* | 4.9 | 1.9 | 1.9 | ng/L | 1.9 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.9 | 1.9 | ng/L | 1.9 | 1763-23-1-LN | |
| PFOS-BR* | 3.8 | 1.9 | 1.9 | ng/L | 1.9 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.3 | ng/L | 1.9 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.3 | ng/L | 1.9 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.9 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.3 | ng/L | 1.9 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.1 | ng/L | 1.9 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.9 | 754-91-6 | |
| PFTeDA* | Not detected | 3.8 | 1.7 | ng/L | 1.9 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.9 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.3 | ng/L | 1.9 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.9 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.5 | 1.9 | ng/L | 1.9 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.8 | 2.9 | ng/L | 1.9 | 812-70-4 | |
| FPePA (5:3 FTCA)* | 42 | 3.8 | 2.1 | ng/L | 1.9 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | 4.8 | 3.8 | 1.1 | ng/L | 1.9 | 356-02-5 | |
| PFBSA* | 6.4 | 1.9 | 1.1 | ng/L | 1.9 | 30334-69-1 | |
| PFCHS* | 1.7 | 1.9 | 1.1 | ng/L | 1.9 | 67584-42-3 | J |
| PFHxSA* | 1.2 | 1.9 | 0.95 | ng/L | 1.9 | 41997-13-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43320.03

Sample Tag: VAS21-16-20

Collected Date/Time: 12/07/2022 16:05

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.04/6.49/11 | ASTMD7979-19M | 12/14/22 12:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 23:08, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 75 | 9.9 | 9.9 | ng/L | 1.98 | 375-22-4 | |
| PFPeA* | 260 | 4.0 | 0.99 | ng/L | 1.98 | 2706-90-3 | |
| 4:2 FTSA* | 2.4 | 2.0 | 1.6 | ng/L | 1.98 | 757124-72-4 | |
| PFHxA* | 110 | 2.0 | 1.4 | ng/L | 1.98 | 307-24-4 | |
| PFBS* | 5.0 | 2.0 | 1.4 | ng/L | 1.98 | 375-73-5 | |
| PFHpA* | 8.1 | 2.0 | 1.4 | ng/L | 1.98 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 1.98 | 2706-91-4 | |
| 6:2 FTSA* | 47 | 2.0 | 2.0 | ng/L | 1.98 | 27619-97-2 | |
| PFOA* | 2.4 | 2.0 | 1.6 | ng/L | 1.98 | 335-67-1 | |
| PFHxS* | 3.6 | 2.0 | 1.6 | ng/L | 1.98 | 355-46-4 | |
| PFHxS-LN* | 2.4 | 2.0 | 1.6 | ng/L | 1.98 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 1.98 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.98 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.99 | ng/L | 1.98 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 1.98 | 2991-50-6 | |
| PFOS* | Not detected | 2.0 | 1.9 | ng/L | 1.98 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 1.9 | ng/L | 1.98 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 1.9 | ng/L | 1.98 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.98 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.98 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.98 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 1.98 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.98 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.9 | 2.0 | ng/L | 1.98 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 1.98 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 1.98 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 1.98 | 356-02-5 | |
| PFBSA* | 2.9 | 2.0 | 1.2 | ng/L | 1.98 | 30334-69-1 | |
| PFECHS* | Not detected | 2.0 | 1.2 | ng/L | 1.98 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S43320.03 (continued)

Sample Tag: VAS21-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 23:08, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 2.0 | 0.99 | ng/L | 1.98 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43320.04

Sample Tag: VAS22-5-9

Collected Date/Time: 12/07/2022 17:05

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.61/6.50/10 | ASTMD7979-19M | 12/14/22 12:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 23:27, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 74 | 9.8 | 9.8 | ng/L | 1.96 | 375-22-4 | |
| PFPeA* | 220 | 3.9 | 0.98 | ng/L | 1.96 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.96 | 757124-72-4 | |
| PFHxA* | 160 | 2.0 | 1.4 | ng/L | 1.96 | 307-24-4 | |
| PFBS* | 14 | 2.0 | 1.4 | ng/L | 1.96 | 375-73-5 | |
| PFHpA* | 48 | 2.0 | 1.4 | ng/L | 1.96 | 375-85-9 | |
| PFPeS* | 6.2 | 2.0 | 1.8 | ng/L | 1.96 | 2706-91-4 | |
| 6:2 FTSA* | 63 | 2.0 | 2.0 | ng/L | 1.96 | 27619-97-2 | |
| PFOA* | 76 | 2.0 | 1.6 | ng/L | 1.96 | 335-67-1 | |
| PFHxS* | 20 | 2.0 | 1.6 | ng/L | 1.96 | 355-46-4 | |
| PFHxS-LN* | 14 | 2.0 | 1.6 | ng/L | 1.96 | 355-46-4-LN | |
| PFHxS-BR* | 6.0 | 2.0 | 1.6 | ng/L | 1.96 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.96 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 2991-50-6 | |
| PFOS* | 12 | 2.0 | 1.9 | ng/L | 1.96 | 1763-23-1 | |
| PFOS-LN* | 3.7 | 2.0 | 1.9 | ng/L | 1.96 | 1763-23-1-LN | |
| PFOS-BR* | 8.3 | 2.0 | 1.9 | ng/L | 1.96 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.96 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.96 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.8 | ng/L | 1.96 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.96 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.8 | 2.0 | ng/L | 1.96 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.9 | ng/L | 1.96 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.2 | ng/L | 1.96 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.96 | 356-02-5 | |
| PFBSA* | 9.6 | 2.0 | 1.2 | ng/L | 1.96 | 30334-69-1 | |
| PFECHS* | 8.8 | 2.0 | 1.2 | ng/L | 1.96 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S43320.04 (continued)

Sample Tag: VAS22-5-9

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 23:27, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFHxSA* | 2.9 | 2.0 | 0.98 | ng/L | 1.96 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43320.05

Sample Tag: VAS22-16-20

Collected Date/Time: 12/07/2022 17:45

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.65/6.59/10 | ASTMD7979-19M | 12/14/22 12:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 23:47, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 61 | 9.9 | 9.9 | ng/L | 1.98 | 375-22-4 | |
| PFPeA* | 220 | 4.0 | 0.99 | ng/L | 1.98 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.98 | 757124-72-4 | |
| PFHxA* | 120 | 2.0 | 1.4 | ng/L | 1.98 | 307-24-4 | |
| PFBS* | 7.8 | 2.0 | 1.4 | ng/L | 1.98 | 375-73-5 | |
| PFHpA* | 23 | 2.0 | 1.4 | ng/L | 1.98 | 375-85-9 | |
| PFPeS* | 3.5 | 2.0 | 1.8 | ng/L | 1.98 | 2706-91-4 | |
| 6:2 FTSA* | 49 | 2.0 | 2.0 | ng/L | 1.98 | 27619-97-2 | |
| PFOA* | 24 | 2.0 | 1.6 | ng/L | 1.98 | 335-67-1 | |
| PFHxS* | 6.5 | 2.0 | 1.6 | ng/L | 1.98 | 355-46-4 | |
| PFHxS-LN* | 3.2 | 2.0 | 1.6 | ng/L | 1.98 | 355-46-4-LN | |
| PFHxS-BR* | 3.3 | 2.0 | 1.6 | ng/L | 1.98 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.98 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.99 | ng/L | 1.98 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 1.98 | 2991-50-6 | |
| PFOS* | 2.9 | 2.0 | 1.9 | ng/L | 1.98 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 1.9 | ng/L | 1.98 | 1763-23-1-LN | |
| PFOS-BR* | 2.7 | 2.0 | 1.9 | ng/L | 1.98 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.98 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.98 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.98 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 1.98 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.98 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.9 | 2.0 | ng/L | 1.98 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 1.98 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 1.98 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 1.98 | 356-02-5 | |
| PFBSA* | 9.1 | 2.0 | 1.2 | ng/L | 1.98 | 30334-69-1 | |
| PFCHS* | 2.4 | 2.0 | 1.2 | ng/L | 1.98 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S43320.05 (continued)

Sample Tag: VAS22-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/14/22 23:47, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFHxSA* | 2.7 | 2.0 | 0.99 | ng/L | 1.98 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43320.06

Sample Tag: VAS23-16-20

Collected Date/Time: 12/08/2022 12:00

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.02/6.48/11 | ASTMD7979-19M | 12/14/22 12:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/15/22 00:06, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|------|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 10.0 | 10.0 | ng/L | 1.99 | 375-22-4 | |
| PFPeA* | 2.2 | 4.0 | 1.00 | ng/L | 1.99 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 757124-72-4 | |
| PFHxA* | 3.4 | 2.0 | 1.4 | ng/L | 1.99 | 307-24-4 | |
| PFBS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 375-73-5 | |
| PFHpA* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 2706-91-4 | |
| 6:2 FTSA* | 4.7 | 2.0 | 2.0 | ng/L | 1.99 | 27619-97-2 | |
| PFOA* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 1.99 | 2991-50-6 | |
| PFOS* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 1.99 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10.0 | 2.0 | ng/L | 1.99 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 1.99 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 1.99 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 1.99 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43320.06 (continued)

Sample Tag: VAS23-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/15/22 00:06, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43320.07

Sample Tag: VAS24-5-9

Collected Date/Time: 12/08/2022 13:20

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.13/6.50/11 | ASTMD7979-19M | 12/14/22 12:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/15/22 00:26, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.8 | 9.8 | ng/L | 1.95 | 375-22-4 | |
| PFPeA* | Not detected | 3.9 | 0.98 | ng/L | 1.95 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.95 | 757124-72-4 | |
| PFHxA* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 307-24-4 | |
| PFBS* | 3.8 | 2.0 | 1.4 | ng/L | 1.95 | 375-73-5 | |
| PFHpA* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 1.95 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 1.95 | 27619-97-2 | |
| PFOA* | Not detected | 2.0 | 1.6 | ng/L | 1.95 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.6 | ng/L | 1.95 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.6 | ng/L | 1.95 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 1.95 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.95 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.98 | ng/L | 1.95 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.95 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.95 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.95 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.95 | 2991-50-6 | |
| PFOS* | Not detected | 2.0 | 1.9 | ng/L | 1.95 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 1.9 | ng/L | 1.95 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 1.9 | ng/L | 1.95 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.95 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.95 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.8 | ng/L | 1.95 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.95 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.95 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.8 | 2.0 | ng/L | 1.95 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.9 | ng/L | 1.95 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.1 | ng/L | 1.95 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.95 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 30334-69-1 | |
| PFCHS* | 1.5 | 2.0 | 1.2 | ng/L | 1.95 | 67584-42-3 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43320.07 (continued)

Sample Tag: VAS24-5-9

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/15/22 00:26, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 2.0 | 0.98 | ng/L | 1.95 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43320.08

Sample Tag: VAS24-16-20

Collected Date/Time: 12/08/2022 14:15

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.62/6.50/10 | ASTMD7979-19M | 12/14/22 12:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/15/22 00:45, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.8 | 9.8 | ng/L | 1.95 | 375-22-4 | |
| PFPeA* | 4.9 | 3.9 | 0.98 | ng/L | 1.95 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.95 | 757124-72-4 | |
| PFHxA* | 5.1 | 2.0 | 1.4 | ng/L | 1.95 | 307-24-4 | |
| PFBS* | 1.4 | 2.0 | 1.4 | ng/L | 1.95 | 375-73-5 | J |
| PFHpA* | 2.7 | 2.0 | 1.4 | ng/L | 1.95 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 1.95 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 1.95 | 27619-97-2 | |
| PFOA* | Not detected | 2.0 | 1.6 | ng/L | 1.95 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.6 | ng/L | 1.95 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.6 | ng/L | 1.95 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 1.95 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.95 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.98 | ng/L | 1.95 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.95 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.95 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.95 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.95 | 2991-50-6 | |
| PFOS* | Not detected | 2.0 | 1.9 | ng/L | 1.95 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 1.9 | ng/L | 1.95 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 1.9 | ng/L | 1.95 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.95 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.95 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.8 | ng/L | 1.95 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.95 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.95 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.8 | 2.0 | ng/L | 1.95 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.9 | ng/L | 1.95 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.1 | ng/L | 1.95 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.95 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43320.08 (continued)

Sample Tag: VAS24-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/15/22 00:45, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.98 | ng/L | 1.95 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43320.09

Sample Tag: VAS25-3-7

Collected Date/Time: 12/08/2022 16:05

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.85/6.48/10 | ASTMD7979-19M | 12/14/22 12:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/15/22 01:05, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.3 | 9.3 | ng/L | 1.86 | 375-22-4 | |
| PFPeA* | 13 | 3.7 | 0.93 | ng/L | 1.86 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 1.5 | ng/L | 1.86 | 757124-72-4 | |
| PFHxA* | 7.0 | 1.9 | 1.3 | ng/L | 1.86 | 307-24-4 | |
| PFBS* | 3.0 | 1.9 | 1.3 | ng/L | 1.86 | 375-73-5 | |
| PFHpA* | 3.0 | 1.9 | 1.3 | ng/L | 1.86 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.86 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.9 | ng/L | 1.86 | 27619-97-2 | |
| PFOA* | 3.6 | 1.9 | 1.5 | ng/L | 1.86 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.5 | ng/L | 1.86 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.5 | ng/L | 1.86 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.5 | ng/L | 1.86 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 1.7 | ng/L | 1.86 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.93 | ng/L | 1.86 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.86 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.86 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.86 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.7 | 1.9 | ng/L | 1.86 | 2991-50-6 | |
| PFOS* | 2.2 | 1.9 | 1.8 | ng/L | 1.86 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.9 | 1.8 | ng/L | 1.86 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.9 | 1.8 | ng/L | 1.86 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.3 | ng/L | 1.86 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.3 | ng/L | 1.86 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.86 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.3 | ng/L | 1.86 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.1 | ng/L | 1.86 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.86 | 754-91-6 | |
| PFTeDA* | Not detected | 3.7 | 1.7 | ng/L | 1.86 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.86 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.3 | ng/L | 1.86 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.86 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.3 | 1.9 | ng/L | 1.86 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.7 | 2.8 | ng/L | 1.86 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.7 | 2.0 | ng/L | 1.86 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.7 | 1.1 | ng/L | 1.86 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.1 | ng/L | 1.86 | 30334-69-1 | |
| PFECHS* | 1.3 | 1.9 | 1.1 | ng/L | 1.86 | 67584-42-3 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43320.09 (continued)

Sample Tag: VAS25-3-7

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/15/22 01:05, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 1.9 | 0.93 | ng/L | 1.86 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43320.10

Sample Tag: VAS25-16-20

Collected Date/Time: 12/08/2022 16:20

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.19/6.49/11 | ASTMD7979-19M | 12/14/22 12:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/15/22 01:24, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.7 | 9.7 | ng/L | 1.93 | 375-22-4 | |
| PFPeA* | Not detected | 3.9 | 0.97 | ng/L | 1.93 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 757124-72-4 | |
| PFHxA* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 307-24-4 | |
| PFBS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 375-73-5 | |
| PFHpA* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 27619-97-2 | |
| PFOA* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 1.9 | ng/L | 1.93 | 2991-50-6 | |
| PFOS* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.7 | ng/L | 1.93 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.7 | 1.9 | ng/L | 1.93 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.9 | ng/L | 1.93 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.1 | ng/L | 1.93 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.93 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 30334-69-1 | |
| PFECHS* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S43320.10 (continued)

Sample Tag: VAS25-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/15/22 01:24, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43320.11

Sample Tag: VAS26-16-20

Collected Date/Time: 12/08/2022 17:55

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.96/6.54/11 | ASTMD7979-19M | 12/14/22 12:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/15/22 01:44, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | Not detected | 10 | 10 | ng/L | 2.03 | 375-22-4 | |
| PFPeA* | Not detected | 4.1 | 1.0 | ng/L | 2.03 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 2.03 | 757124-72-4 | |
| PFHxA* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 307-24-4 | |
| PFBS* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 375-73-5 | |
| PFHpA* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 2.03 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 27619-97-2 | |
| PFOA* | Not detected | 2.0 | 1.6 | ng/L | 2.03 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.6 | ng/L | 2.03 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.6 | ng/L | 2.03 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 2.03 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 2.03 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2.03 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.1 | 2.0 | ng/L | 2.03 | 2991-50-6 | |
| PFOS* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 2.03 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 2.03 | 754-91-6 | |
| PFTeDA* | Not detected | 4.1 | 1.8 | ng/L | 2.03 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 2.03 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.0 | ng/L | 2.03 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.1 | 3.0 | ng/L | 2.03 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.1 | 2.2 | ng/L | 2.03 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.1 | 1.2 | ng/L | 2.03 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 30334-69-1 | |
| PFECHS* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S43320.11 (continued)

Sample Tag: VAS26-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/15/22 01:44, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|-----|-------|----------|------------|-------|
| PFHxSA* | Not detected | 2.0 | 1.0 | ng/L | 2.03 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43320.12

Sample Tag: VAS27-4-8

Collected Date/Time: 12/09/2022 10:30

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.51/6.48/10 | ASTMD7979-19M | 12/14/22 12:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/15/22 02:03, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|------|------|-------|----------|--------------|-------|
| PFBA* | 35 | 10.0 | 10.0 | ng/L | 1.99 | 375-22-4 | |
| PFPeA* | 96 | 4.0 | 1.00 | ng/L | 1.99 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 757124-72-4 | |
| PFHxA* | 62 | 2.0 | 1.4 | ng/L | 1.99 | 307-24-4 | |
| PFBS* | 3.5 | 2.0 | 1.4 | ng/L | 1.99 | 375-73-5 | |
| PFHpA* | 8.4 | 2.0 | 1.4 | ng/L | 1.99 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 2706-91-4 | |
| 6:2 FTSA* | 39 | 2.0 | 2.0 | ng/L | 1.99 | 27619-97-2 | |
| PFOA* | 5.0 | 2.0 | 1.6 | ng/L | 1.99 | 335-67-1 | |
| PFHxS* | 4.3 | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4 | |
| PFHxS-LN* | 2.5 | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4-LN | |
| PFHxS-BR* | 1.7 | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4-BR | J |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 1.99 | 2991-50-6 | |
| PFOS* | 4.9 | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1-LN | |
| PFOS-BR* | 3.3 | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 1.99 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10.0 | 2.0 | ng/L | 1.99 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 1.99 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 1.99 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 1.99 | 356-02-5 | |
| PFBSA* | 2.1 | 2.0 | 1.2 | ng/L | 1.99 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43320.12 (continued)

Sample Tag: VAS27-4-8

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/15/22 02:03, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFECHS* | 3.3 | 2.0 | 1.2 | ng/L | 1.99 | 67584-42-3 | |
| PFHxSA* | 1.4 | 2.0 | 1.00 | ng/L | 1.99 | 41997-13-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43320.13

Sample Tag: VAS27-16-20

Collected Date/Time: 12/09/2022 11:25

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.81/6.49/10 | ASTMD7979-19M | 12/14/22 12:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/15/22 02:23, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.4 | 9.4 | ng/L | 1.88 | 375-22-4 | |
| PFPeA* | 6.4 | 3.8 | 0.94 | ng/L | 1.88 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 1.5 | ng/L | 1.88 | 757124-72-4 | |
| PFHxA* | 3.5 | 1.9 | 1.3 | ng/L | 1.88 | 307-24-4 | |
| PFBS* | Not detected | 1.9 | 1.3 | ng/L | 1.88 | 375-73-5 | |
| PFHpA* | Not detected | 1.9 | 1.3 | ng/L | 1.88 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.88 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.9 | ng/L | 1.88 | 27619-97-2 | |
| PFOA* | Not detected | 1.9 | 1.5 | ng/L | 1.88 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.5 | ng/L | 1.88 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.5 | ng/L | 1.88 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.5 | ng/L | 1.88 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 1.7 | ng/L | 1.88 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.94 | ng/L | 1.88 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.88 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.88 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.88 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.8 | 1.9 | ng/L | 1.88 | 2991-50-6 | |
| PFOS* | Not detected | 1.9 | 1.8 | ng/L | 1.88 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.9 | 1.8 | ng/L | 1.88 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.9 | 1.8 | ng/L | 1.88 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.3 | ng/L | 1.88 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.3 | ng/L | 1.88 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.88 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.3 | ng/L | 1.88 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.1 | ng/L | 1.88 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.88 | 754-91-6 | |
| PFTeDA* | Not detected | 3.8 | 1.7 | ng/L | 1.88 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.88 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.3 | ng/L | 1.88 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.88 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.4 | 1.9 | ng/L | 1.88 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.8 | 2.8 | ng/L | 1.88 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.8 | 2.1 | ng/L | 1.88 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.8 | 1.1 | ng/L | 1.88 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.1 | ng/L | 1.88 | 30334-69-1 | |
| PFECHS* | Not detected | 1.9 | 1.1 | ng/L | 1.88 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S43320.13 (continued)

Sample Tag: VAS27-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/15/22 02:23, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 1.9 | 0.94 | ng/L | 1.88 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43320.14

Sample Tag: DUP-05-09122022

Collected Date/Time: 12/09/2022 00:01

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.16/6.52/11 | ASTMD7979-19M | 12/14/22 12:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/15/22 02:42, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 39 | 9.8 | 9.8 | ng/L | 1.95 | 375-22-4 | |
| PFPeA* | 100 | 3.9 | 0.98 | ng/L | 1.95 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.95 | 757124-72-4 | |
| PFHxA* | 63 | 2.0 | 1.4 | ng/L | 1.95 | 307-24-4 | |
| PFBS* | 3.2 | 2.0 | 1.4 | ng/L | 1.95 | 375-73-5 | |
| PFHpA* | 8.4 | 2.0 | 1.4 | ng/L | 1.95 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 1.95 | 2706-91-4 | |
| 6:2 FTSA* | 34 | 2.0 | 2.0 | ng/L | 1.95 | 27619-97-2 | |
| PFOA* | 4.9 | 2.0 | 1.6 | ng/L | 1.95 | 335-67-1 | |
| PFHxS* | 4.4 | 2.0 | 1.6 | ng/L | 1.95 | 355-46-4 | |
| PFHxS-LN* | 2.5 | 2.0 | 1.6 | ng/L | 1.95 | 355-46-4-LN | |
| PFHxS-BR* | 1.8 | 2.0 | 1.6 | ng/L | 1.95 | 355-46-4-BR | J |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.95 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.98 | ng/L | 1.95 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.95 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.95 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.95 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.95 | 2991-50-6 | |
| PFOS* | 4.6 | 2.0 | 1.9 | ng/L | 1.95 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 1.9 | ng/L | 1.95 | 1763-23-1-LN | |
| PFOS-BR* | 3.1 | 2.0 | 1.9 | ng/L | 1.95 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.95 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.95 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.8 | ng/L | 1.95 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.95 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.95 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.8 | 2.0 | ng/L | 1.95 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.9 | ng/L | 1.95 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.1 | ng/L | 1.95 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.95 | 356-02-5 | |
| PFBSA* | 2.5 | 2.0 | 1.2 | ng/L | 1.95 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43320.14 (continued)

Sample Tag: DUP-05-09122022

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/15/22 02:42, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFECHS* | 3.9 | 2.0 | 1.2 | ng/L | 1.95 | 67584-42-3 | |
| PFHxSA* | 1.2 | 2.0 | 0.98 | ng/L | 1.95 | 41997-13-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43320.15

Sample Tag: Equipment Blank-03

Collected Date/Time: 12/09/2022 14:30

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.89/6.52/10 | ASTMD7979-19M | 12/14/22 12:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/15/22 03:02, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.3 | 9.3 | ng/L | 1.86 | 375-22-4 | |
| PFPeA* | Not detected | 3.7 | 0.93 | ng/L | 1.86 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 1.5 | ng/L | 1.86 | 757124-72-4 | |
| PFHxA* | Not detected | 1.9 | 1.3 | ng/L | 1.86 | 307-24-4 | |
| PFBS* | Not detected | 1.9 | 1.3 | ng/L | 1.86 | 375-73-5 | |
| PFHpA* | Not detected | 1.9 | 1.3 | ng/L | 1.86 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.86 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.9 | ng/L | 1.86 | 27619-97-2 | |
| PFOA* | Not detected | 1.9 | 1.5 | ng/L | 1.86 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.5 | ng/L | 1.86 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.5 | ng/L | 1.86 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.5 | ng/L | 1.86 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 1.7 | ng/L | 1.86 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.93 | ng/L | 1.86 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.86 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.86 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.86 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.7 | 1.9 | ng/L | 1.86 | 2991-50-6 | |
| PFOS* | Not detected | 1.9 | 1.8 | ng/L | 1.86 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.9 | 1.8 | ng/L | 1.86 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.9 | 1.8 | ng/L | 1.86 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.3 | ng/L | 1.86 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.3 | ng/L | 1.86 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.86 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.3 | ng/L | 1.86 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.1 | ng/L | 1.86 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.86 | 754-91-6 | |
| PFTeDA* | Not detected | 3.7 | 1.7 | ng/L | 1.86 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.86 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.3 | ng/L | 1.86 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.86 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.3 | 1.9 | ng/L | 1.86 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.7 | 2.8 | ng/L | 1.86 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.7 | 2.0 | ng/L | 1.86 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.7 | 1.1 | ng/L | 1.86 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.1 | ng/L | 1.86 | 30334-69-1 | |
| PFCHS* | Not detected | 1.9 | 1.1 | ng/L | 1.86 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S43320.15 (continued)

Sample Tag: Equipment Blank-03

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/15/22 03:02, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 1.9 | 0.93 | ng/L | 1.86 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43320.16

Sample Tag: VAS28-16-20

Collected Date/Time: 12/09/2022 13:45

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.60/6.56/10 | ASTMD7979-19M | 12/14/22 12:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/15/22 03:21, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.9 | 9.9 | ng/L | 1.98 | 375-22-4 | |
| PFPeA* | 3.5 | 4.0 | 0.99 | ng/L | 1.98 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.98 | 757124-72-4 | |
| PFHxA* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 307-24-4 | |
| PFBS* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 375-73-5 | |
| PFHpA* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 1.98 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 27619-97-2 | |
| PFOA* | Not detected | 2.0 | 1.6 | ng/L | 1.98 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.6 | ng/L | 1.98 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.6 | ng/L | 1.98 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 1.98 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.98 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.99 | ng/L | 1.98 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 1.98 | 2991-50-6 | |
| PFOS* | Not detected | 2.0 | 1.9 | ng/L | 1.98 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 1.9 | ng/L | 1.98 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 1.9 | ng/L | 1.98 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.98 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.98 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.98 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 1.98 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.98 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.9 | 2.0 | ng/L | 1.98 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 1.98 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 1.98 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 1.98 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.98 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43320.16 (continued)

Sample Tag: VAS28-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/15/22 03:21, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 2.0 | 1.2 | ng/L | 1.98 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.99 | ng/L | 1.98 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43320.17

Sample Tag: VAS21-SB-5-7

Collected Date/Time: 12/07/2022 15:00

Matrix: Soil

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.9 | IR |
| 1 | 250ml Plastic | None | Yes | 3.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|----------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 8.64/6.49/10 | ASTM D7968-17M | 12/19/22 10:00 | KCV | |

Inorganics

Method: SM2540B, Run Date: 12/09/22 17:03, Analyst: MAM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------|--------|----|-----|-------|----------|------|-------|
| Total Solids* | 84 | 1 | 1 | % | 1 | | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/20/22 01:32, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 18 | 110 | 8.9 | ng/kg | 5.54 | 375-22-4 | J |
| PFPeA* | 89 | 55 | 4.4 | ng/kg | 5.54 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 55 | 8.9 | ng/kg | 5.54 | 757124-72-4 | |
| PFHxA* | 93 | 55 | 6.1 | ng/kg | 5.54 | 307-24-4 | |
| PFBS* | 13 | 55 | 7.8 | ng/kg | 5.54 | 375-73-5 | J |
| PFHpA* | 27 | 55 | 11 | ng/kg | 5.54 | 375-85-9 | J |
| PFPeS* | Not detected | 55 | 9.4 | ng/kg | 5.54 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 55 | 14 | ng/kg | 5.54 | 27619-97-2 | |
| PFOA* | 45 | 55 | 11 | ng/kg | 5.54 | 335-67-1 | J |
| PFHxS* | 41 | 55 | 10.0 | ng/kg | 5.54 | 355-46-4 | J |
| PFHxS-LN* | 31 | 55 | 10.0 | ng/kg | 5.54 | 355-46-4-LN | J |
| PFHxS-BR* | Not detected | 55 | 10.0 | ng/kg | 5.54 | 355-46-4-BR | |
| PFNA* | Not detected | 55 | 7.8 | ng/kg | 5.54 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 55 | 16 | ng/kg | 5.54 | 39108-34-4 | |
| PFHpS* | Not detected | 55 | 7.2 | ng/kg | 5.54 | 375-92-8 | |
| PFDA* | Not detected | 55 | 8.9 | ng/kg | 5.54 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 55 | 17 | ng/kg | 5.54 | 2355-31-9 | |
| EtFOSAA* | Not detected | 55 | 6.6 | ng/kg | 5.54 | 2991-50-6 | |
| PFOS* | 31 | 55 | 7.8 | ng/kg | 5.54 | 1763-23-1 | J |
| PFOS-LN* | 20 | 55 | 7.8 | ng/kg | 5.54 | 1763-23-1-LN | J |
| PFOS-BR* | 10 | 55 | 7.8 | ng/kg | 5.54 | 1763-23-1-BR | J |
| PFUnDA* | Not detected | 55 | 11 | ng/kg | 5.54 | 2058-94-8 | |
| PFNS* | Not detected | 55 | 12 | ng/kg | 5.54 | 68259-12-1 | |
| PFDODA* | Not detected | 55 | 6.1 | ng/kg | 5.54 | 307-55-1 | |
| PFDS* | Not detected | 55 | 7.8 | ng/kg | 5.54 | 335-77-3 | |
| PFTTrDA* | Not detected | 55 | 11 | ng/kg | 5.54 | 72629-94-8 | |
| FOSA* | Not detected | 55 | 6.6 | ng/kg | 5.54 | 754-91-6 | |
| PFTeDA* | Not detected | 55 | 9.4 | ng/kg | 5.54 | 376-06-7 | |
| 11CI-PF3OUdS* | Not detected | 55 | 6.6 | ng/kg | 5.54 | 763051-92-9 | |
| 9CI-PF3ONS* | Not detected | 55 | 11 | ng/kg | 5.54 | 756426-58-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43320.17 (continued)

Sample Tag: VAS21-SB-5-7

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/20/22 01:32, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|----|-----|-------|----------|-------------|-------|
| ADONA* | Not detected | 55 | 7.8 | ng/kg | 5.54 | 919005-14-4 | |
| HFPO-DA* | Not detected | 55 | 14 | ng/kg | 5.54 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 55 | 8.3 | ng/kg | 5.54 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 55 | 13 | ng/kg | 5.54 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 55 | 13 | ng/kg | 5.54 | 356-02-5 | |
| PFBSA* | 9.3 | 55 | 8.9 | ng/kg | 5.54 | 30334-69-1 | J |
| PFECHS* | Not detected | 55 | 8.3 | ng/kg | 5.54 | 67584-42-3 | |
| PFHxSA* | Not detected | 55 | 11 | ng/kg | 5.54 | 41997-13-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43320.18

Sample Tag: VAS23-SB-5-7

Collected Date/Time: 12/08/2022 10:15

Matrix: Soil

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.9 | IR |
| 1 | 250ml Plastic | None | Yes | 3.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|----------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 8.59/6.54/10 | ASTM D7968-17M | 12/19/22 10:00 | KCV | |

Inorganics

Method: SM2540B, Run Date: 12/09/22 17:03, Analyst: MAM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------|--------|----|-----|-------|----------|------|-------|
| Total Solids* | 80 | 1 | 1 | % | 1 | | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/20/22 01:51, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | Not detected | 120 | 9.8 | ng/kg | 6.1 | 375-22-4 | |
| PFPeA* | Not detected | 61 | 4.9 | ng/kg | 6.1 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 61 | 9.8 | ng/kg | 6.1 | 757124-72-4 | |
| PFHxA* | Not detected | 61 | 6.7 | ng/kg | 6.1 | 307-24-4 | |
| PFBS* | Not detected | 61 | 8.5 | ng/kg | 6.1 | 375-73-5 | |
| PFHpA* | Not detected | 61 | 12 | ng/kg | 6.1 | 375-85-9 | |
| PFPeS* | Not detected | 61 | 10 | ng/kg | 6.1 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 61 | 15 | ng/kg | 6.1 | 27619-97-2 | |
| PFOA* | Not detected | 61 | 12 | ng/kg | 6.1 | 335-67-1 | |
| PFHxS* | Not detected | 61 | 11 | ng/kg | 6.1 | 355-46-4 | |
| PFHxS-LN* | Not detected | 61 | 11 | ng/kg | 6.1 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 61 | 11 | ng/kg | 6.1 | 355-46-4-BR | |
| PFNA* | Not detected | 61 | 8.5 | ng/kg | 6.1 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 61 | 18 | ng/kg | 6.1 | 39108-34-4 | |
| PFHpS* | Not detected | 61 | 7.9 | ng/kg | 6.1 | 375-92-8 | |
| PFDA* | Not detected | 61 | 9.8 | ng/kg | 6.1 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 61 | 19 | ng/kg | 6.1 | 2355-31-9 | |
| EtFOSAA* | Not detected | 61 | 7.3 | ng/kg | 6.1 | 2991-50-6 | |
| PFOS* | 11 | 61 | 8.5 | ng/kg | 6.1 | 1763-23-1 | J |
| PFOS-LN* | Not detected | 61 | 8.5 | ng/kg | 6.1 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 61 | 8.5 | ng/kg | 6.1 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 61 | 12 | ng/kg | 6.1 | 2058-94-8 | |
| PFNS* | Not detected | 61 | 13 | ng/kg | 6.1 | 68259-12-1 | |
| PFDODA* | Not detected | 61 | 6.7 | ng/kg | 6.1 | 307-55-1 | |
| PFDS* | Not detected | 61 | 8.5 | ng/kg | 6.1 | 335-77-3 | |
| PFTTrDA* | Not detected | 61 | 12 | ng/kg | 6.1 | 72629-94-8 | |
| FOSA* | Not detected | 61 | 7.3 | ng/kg | 6.1 | 754-91-6 | |
| PFTeDA* | Not detected | 61 | 10 | ng/kg | 6.1 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 61 | 7.3 | ng/kg | 6.1 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 61 | 12 | ng/kg | 6.1 | 756426-58-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43320.18 (continued)

Sample Tag: VAS23-SB-5-7

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/20/22 01:51, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|----|-----|-------|----------|-------------|-------|
| ADONA* | Not detected | 61 | 8.5 | ng/kg | 6.1 | 919005-14-4 | |
| HFPO-DA* | Not detected | 61 | 16 | ng/kg | 6.1 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 61 | 9.2 | ng/kg | 6.1 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 61 | 15 | ng/kg | 6.1 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 61 | 15 | ng/kg | 6.1 | 356-02-5 | |
| PFBSA* | Not detected | 61 | 9.8 | ng/kg | 6.1 | 30334-69-1 | |
| PFECHS* | Not detected | 61 | 9.2 | ng/kg | 6.1 | 67584-42-3 | |
| PFHxSA* | Not detected | 61 | 12 | ng/kg | 6.1 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43320.19

Sample Tag: VAS26-SB-4-6

Collected Date/Time: 12/08/2022 17:00

Matrix: Soil

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.9 | IR |
| 1 | 250ml Plastic | None | Yes | 3.9 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|----------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 7.45/6.52/10 | ASTM D7968-17M | 12/19/22 10:00 | KCV | |

Inorganics

Method: SM2540B, Run Date: 12/09/22 17:03, Analyst: MAM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------|--------|----|-----|-------|----------|------|-------|
| Total Solids* | 62 | 1 | 1 | % | 1 | | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/20/22 10:05, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | Not detected | 350 | 28 | ng/kg | 17.3 | 375-22-4 | |
| PFPeA* | Not detected | 170 | 14 | ng/kg | 17.3 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 170 | 28 | ng/kg | 17.3 | 757124-72-4 | |
| PFHxA* | Not detected | 170 | 19 | ng/kg | 17.3 | 307-24-4 | |
| PFBS* | Not detected | 170 | 24 | ng/kg | 17.3 | 375-73-5 | |
| PFHpA* | Not detected | 170 | 35 | ng/kg | 17.3 | 375-85-9 | |
| PFPeS* | Not detected | 170 | 29 | ng/kg | 17.3 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 170 | 43 | ng/kg | 17.3 | 27619-97-2 | |
| PFOA* | Not detected | 170 | 33 | ng/kg | 17.3 | 335-67-1 | |
| PFHxS* | Not detected | 170 | 31 | ng/kg | 17.3 | 355-46-4 | |
| PFHxS-LN* | Not detected | 170 | 31 | ng/kg | 17.3 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 170 | 31 | ng/kg | 17.3 | 355-46-4-BR | |
| PFNA* | Not detected | 170 | 24 | ng/kg | 17.3 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 170 | 50 | ng/kg | 17.3 | 39108-34-4 | |
| PFHpS* | Not detected | 170 | 22 | ng/kg | 17.3 | 375-92-8 | |
| PFDA* | Not detected | 170 | 28 | ng/kg | 17.3 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 170 | 54 | ng/kg | 17.3 | 2355-31-9 | |
| EtFOSAA* | Not detected | 170 | 21 | ng/kg | 17.3 | 2991-50-6 | |
| PFOS* | 75 | 170 | 24 | ng/kg | 17.3 | 1763-23-1 | J |
| PFOS-LN* | Not detected | 170 | 24 | ng/kg | 17.3 | 1763-23-1-LN | |
| PFOS-BR* | 52 | 170 | 24 | ng/kg | 17.3 | 1763-23-1-BR | J |
| PFUnDA* | Not detected | 170 | 33 | ng/kg | 17.3 | 2058-94-8 | |
| PFNS* | Not detected | 170 | 38 | ng/kg | 17.3 | 68259-12-1 | |
| PFDODA* | Not detected | 170 | 19 | ng/kg | 17.3 | 307-55-1 | |
| PFDS* | Not detected | 170 | 24 | ng/kg | 17.3 | 335-77-3 | |
| PFTTrDA* | Not detected | 170 | 35 | ng/kg | 17.3 | 72629-94-8 | |
| FOSA* | Not detected | 170 | 21 | ng/kg | 17.3 | 754-91-6 | |
| PFTeDA* | Not detected | 170 | 29 | ng/kg | 17.3 | 376-06-7 | |
| 11CI-PF3OUdS* | Not detected | 170 | 21 | ng/kg | 17.3 | 763051-92-9 | |
| 9CI-PF3ONS* | Not detected | 170 | 33 | ng/kg | 17.3 | 756426-58-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43320.19 (continued)

Sample Tag: VAS26-SB-4-6

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/20/22 10:05, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|-------------|-------|
| ADONA* | Not detected | 170 | 24 | ng/kg | 17.3 | 919005-14-4 | |
| HFPO-DA* | Not detected | 170 | 45 | ng/kg | 17.3 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 170 | 26 | ng/kg | 17.3 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 170 | 42 | ng/kg | 17.3 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 170 | 42 | ng/kg | 17.3 | 356-02-5 | |
| PFBSA* | Not detected | 170 | 28 | ng/kg | 17.3 | 30334-69-1 | |
| PFECHS* | Not detected | 170 | 26 | ng/kg | 17.3 | 67584-42-3 | |
| PFHxSA* | Not detected | 170 | 33 | ng/kg | 17.3 | 41997-13-1 | |

Merit Laboratories Login Checklist

Lab Set ID:S43320

Client:WSP (WSP)

Project: Former JB Sims Generating Station, Harbor Island, GrandHaven

Submitted: 12/09/2022 16:15 Login User: BJB

Attention: Saamih Bashir

Address: WSP

45850 Magellan Drive, Suite 190

Novi, MI 48377

Phone: n/a

FAX:

Email: Saamih.Bashir@wsp.com

| Selection | Description | Note |
|-----------|-------------|------|
|-----------|-------------|------|

Sample Receiving

- | | | |
|-----|--|--|
| 01. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 3.9 |
| 02. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun |
| 03. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped |
| 04. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box |
| 05. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |

Chain of Custody

- | | | |
|-----|--|--|
| 06. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out |
| 07. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab |
| 08. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC |
| 09. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to: |

Preservation

- | | | |
|-----|--|---|
| 10. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation |
| 11. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs) |
| 12. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab? |

Bottle Conditions

- | | | |
|-----|--|---|
| 13. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact |
| 14. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used |
| 15. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used |
| 16. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received |
| 17. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration |
| 18. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time |
| 19. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace |

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

WSP USA Environment & Infrastructure Inc.
 46850 Magellan Drive, Suite 190
 Novi, Michigan 48377
 (248) 926-4008

CHAIN OF CUSTODY

SHIP TO:
 Merit Laboratories, Inc.
 2680 East Lansing Drive
 East Lansing, MI 48823
 Atten: Johanna Murray
 Lab Phone# 517-827-2755

DATE: 12/9/2022

COC #:

PAGE: 4 OF 5

| | | | |
|--|---------------------------------------|---|-----------------------------------|
| Project Name: Former JB Sims Generating Station, Harbor Island, Grand Haven | Project Contact: Zach McCurley | Bill To: WSP USA Environment & Infrastructure Inc. | Disposal Instructions: LAB |
| Project Number: 3850220203.02.02.3650 | Phone Number: 248-775-9823 | Attr: Saamih Bashir | Shipment Method: FEDEX |
| Project Manager: Saamih Bashir | Purchase Order: C012407104 | 46850 Magellan Dr., Ste 190 Novi, MI 48377 | Waybill Number: N/A |
| Sampler Name: Jared Walbert | | | Waybill Number: N/A |

MATRIX Code W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL SW=SURFACE WATER
 L=LIQUID SD=SEDIMENT SL=SLUDGE DW=DRINKING WATER O=OIL A=AIR WS=WASTE

TURNAROUND TIME REQUIRED: 2 Days 5 Days Standard (10 TAT)

DELIVERABLES REQUIRED: STD Level II Level III Level IV EDD

| Sample Information | | | | | | Methods for Analysis | | | | | | | RUSH | | | | | | | |
|--------------------|----------|--------------|-----------|-------|--------|----------------------|------------------------------|---------------------|----------------------|-----------------------------|-------------------------------|--------------------------------------|----------------------|------------------------------|--------|---------|---------|---------|--------|--|
| No. | Lab ID | Sample ID | Date | Time | Matrix | # of Bottles | PFAS ASTM D7979 Per Contract | VOCs (Per Contract) | SVOCs (Per Contract) | MI 10 Metals (per Contract) | pH/corrosivity (per Contract) | particle size (sieve and hydrometer) | Total Organic Carbon | PFAS ASTM D7968 Per Contract | MS/MSD | 24 Hour | 48 Hour | 72 Hour | 5 Days | |
| 1 | 43320.17 | VAS21-SB-5-7 | 12/7/2022 | 15:00 | S | 4 | | | | | | | | | | | | | | |
| 2 | .18 | VAS23-SB-5-7 | 12/8/2022 | 10:15 | S | 4 | | | | | | | | | | | | | | |
| 3 | .19 | VAS26-SB-4-6 | 12/8/2022 | 17:00 | S | 4 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | |

| | | | |
|---|----------------------|-------------------|---|
| Relinquished By/Affiliation: <i>Kate White</i> | Date: 12/9/22 | Time: 1615 | For Lab Use Does COC match samples: Y or N Broken Container: Y or N COC seal intact: Y or N Other problems: Y or N WSDOT contacted: Y or N Date contacted: _____ Cooler Temperature at receipt: 3.9 °C NUMBER OF COOLERS SENT: 1 |
| Received By: <i>Johanna Murray</i> | Date: 12/9/22 | Time: 1615 | |
| Relinquished By/Affiliation: | Date: | Time: | |
| Received By: | Date: | Time: | |
| Relinquished By/Affiliation: | Date: | Time: | |
| Received By (LAB): | Date: | Time: | |



Analytical Laboratory Report

Report ID: S43321.01(01)
Generated on 01/11/2023

Report to

Attention: Saamih Bashir
WSP
45850 Magellan Drive, Suite 190
Novi, MI 48377

Phone: n/a FAX:
Email: Saamih.Bashir@wsp.com

Additional Contacts: Jared Walbert

Report produced by

Merit Laboratories, Inc.
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Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S43321.01-S43321.08
Project: Former JB Sims Generating Station, Harbor Island, GrandHaven
Collected Date(s): 12/07/2022 - 12/09/2022
Submitted Date/Time: 12/09/2022 16:15
Sampled by: Jared Walbert
P.O. #: C012407104

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Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Certifications

| Authority | Certification ID |
|---------------------|------------------|
| Michigan DEQ | #9956 |
| DOD ELAP/ISO 17025 | #69699 |
| WBENC | #2005110032 |
| Ohio VAP | #CL0002 |
| Indiana DOH | #C-MI-07 |
| New York NELAC | #11814 |
| North Carolina DENR | #680 |
| North Carolina DOH | #26702 |
| Alaska CSLAP | #17-001 |
| Pennsylvania DEP | #68-05884 |
| Wisconsin DNR | FID# 399147320 |

Qualifier Descriptions

| Qualifier | Description |
|-----------|---|
| ! | Result is outside of stated limit criteria |
| B | Compound also found in associated method blank |
| E | Concentration exceeds calibration range |
| F | Analysis run outside of holding time |
| G | Estimated result due to extraction run outside of holding time |
| H | Sample submitted and run outside of holding time |
| I | Matrix interference with internal standard |
| J | Estimated value less than reporting limit, but greater than MDL |
| L | Elevated reporting limit due to low sample amount |
| M | Result reported to MDL not RDL |
| O | Analysis performed by outside laboratory. See attached report. |
| R | Preliminary result |
| S | Surrogate recovery outside of control limits |
| T | No correction for total solids |
| X | Elevated reporting limit due to matrix interference |
| Y | Elevated reporting limit due to high target concentration |
| b | Value detected less than reporting limit, but greater than MDL |
| e | Reported value estimated due to interference |
| j | Analyte also found in associated method blank |
| p | Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak. |
| x | Preserved from bulk sample |

Glossary of Abbreviations

| Abbreviation | Description |
|--------------|--|
| RL/RDL | Reporting Limit |
| MDL | Method Detection Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| SW | EPA SW 846 (Soil and Wastewater) Methods |
| E | EPA Methods |
| SM | Standard Methods |
| LN | Linear |
| BR | Branched |



Analytical Laboratory Report

Method Summary

| Method | Version |
|---------------|--|
| E200.8 | EPA Method 200.8 Revision 5.4 |
| E245.1 | EPA Method 245.1 Revision 3.0 |
| N/A | Not Applicable |
| SW3015A | SW 846 Method 3015A Revision 1 February 2007 |
| SW3510C | SW 846 Method 3510C Revision 3 December 1996 |
| SW5030C/8260C | SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003 |
| SW8270D | SW 846 Method 8270D Revision 4 February 2007 |
| SW9045D | SW 846 Method 9045D Revision 4 November 2004 |



Analytical Laboratory Report

Sample Summary (8 samples)

| Sample ID | Sample Tag | Matrix | Collected Date/Time |
|-----------|---------------|-------------|---------------------|
| S43321.01 | VAS21-5-9 | Groundwater | 12/07/22 15:20 |
| S43321.02 | VAS23-5-9 | Groundwater | 12/08/22 11:15 |
| S43321.03 | VAS26-4-8 | Groundwater | 12/08/22 17:55 |
| S43321.04 | VAS28-3-7 | Groundwater | 12/09/22 12:50 |
| S43321.05 | Trip Blank-03 | Groundwater | 12/09/22 07:45 |
| S43321.06 | VAS-21-SB-5-7 | Soil | 12/07/22 15:00 |
| S43321.07 | VAS-23-SB-5-7 | Soil | 12/08/22 10:15 |
| S43321.08 | VAS-26-SB-4-6 | Soil | 12/08/22 17:00 |



Analytical Laboratory Report

Lab Sample ID: S43321.01

Sample Tag: VAS21-5-9

Collected Date/Time: 12/07/2022 15:20

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 1L Amber | None | Yes | 4.3 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 4.3 | IR |
| 3 | 40ml Glass | HCL | Yes | 4.3 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1 | 12/15/22 22:16 | CTV | |
| pH check for VOCs* | <2 | N/A | 12/14/22 11:30 | BDO | |
| Metal Digestion | Completed | SW3015A | 12/12/22 11:30 | CCM | |
| BNA Extraction | Completed | SW3510C | 12/12/22 11:00 | JWR | |

Metals

Method: E200.8, Run Date: 12/12/22 14:37, Analyst: CCM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|---------|-------|---------|-------|----------|-----------|-------|
| Selenium | 0.00456 | 0.005 | 0.00209 | mg/L | 5 | 7782-49-2 | b |

Method: E200.8, Run Date: 12/12/22 12:56, Analyst: CCM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|-----------|-------|----------|-----------|-------|
| Arsenic | 0.008 | 0.002 | 0.000255 | mg/L | 5 | 7440-38-2 | |
| Barium | 0.217 | 0.005 | 0.000162 | mg/L | 5 | 7440-39-3 | |
| Cadmium | Not detected | 0.0005 | 0.000190 | mg/L | 5 | 7440-43-9 | |
| Chromium | 0.000639 | 0.005 | 0.0000965 | mg/L | 5 | 7440-47-3 | b |
| Copper | 0.00401 | 0.005 | 0.000377 | mg/L | 5 | 7440-50-8 | b |
| Lead | 0.00178 | 0.003 | 0.000190 | mg/L | 5 | 7439-92-1 | b |
| Silver | 0.000136 | 0.0005 | 0.0000675 | mg/L | 5 | 7440-22-4 | b |
| Zinc | 0.042 | 0.005 | 0.000730 | mg/L | 5 | 7440-66-6 | |

Method: E245.1, Run Date: 12/15/22 20:52, Analyst: CTV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|----------|-------|----------|-----------|-------|
| Mercury | Not detected | 0.0002 | 0.000016 | mg/L | 1 | 7439-97-6 | |

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 03:27, Analyst: PL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------------|--------------|----|------|-------|----------|----------|-------|
| Acenaphthene | Not detected | 5 | 0.58 | ug/L | 2 | 83-32-9 | |
| Acenaphthylene | Not detected | 5 | 0.69 | ug/L | 2 | 208-96-8 | |
| Anthracene | Not detected | 5 | 0.71 | ug/L | 2 | 120-12-7 | |
| Benzo(a)anthracene | Not detected | 1 | 0.80 | ug/L | 2 | 56-55-3 | |
| Benzo(b)fluoranthene | Not detected | 1 | 0.77 | ug/L | 2 | 205-99-2 | |
| Benzo(k)fluoranthene | Not detected | 1 | 0.81 | ug/L | 2 | 207-08-9 | |
| Benzo(ghi)perylene | Not detected | 1 | 0.97 | ug/L | 2 | 191-24-2 | |
| Benzo(a)pyrene | Not detected | 1 | 0.99 | ug/L | 2 | 50-32-8 | |
| bis(2-Chloroethoxy)methane | Not detected | 5 | 0.60 | ug/L | 2 | 111-91-1 | |
| bis(2-Chloroethyl)ether | Not detected | 5 | 0.57 | ug/L | 2 | 111-44-4 | |
| bis(2-Chloroisopropyl)ether* | Not detected | 5 | 0.67 | ug/L | 2 | 108-60-1 | |

b-Value detected less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43321.01 (continued)

Sample Tag: VAS21-5-9

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 03:27, Analyst: PL (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------------------------|--------------|----|------|-------|----------|------------|-------|
| bis(2-Ethylhexyl)phthalate | Not detected | 5 | 1.3 | ug/L | 2 | 117-81-7 | |
| 4-Bromophenyl phenyl ether | Not detected | 5 | 0.55 | ug/L | 2 | 101-55-3 | |
| Butyl benzyl phthalate | Not detected | 5 | 1.0 | ug/L | 2 | 85-68-7 | |
| 4-Chloroaniline | Not detected | 10 | 0.57 | ug/L | 2 | 106-47-8 | |
| 2-Chloronaphthalene | Not detected | 5 | 0.55 | ug/L | 2 | 91-58-7 | |
| 4-Chloro-3-methylphenol | Not detected | 5 | 0.60 | ug/L | 2 | 59-50-7 | |
| 2-Chlorophenol | Not detected | 10 | 0.53 | ug/L | 2 | 95-57-8 | |
| 4-Chlorophenyl phenyl ether | Not detected | 5 | 0.51 | ug/L | 2 | 7005-72-3 | |
| Chrysene | Not detected | 1 | 0.60 | ug/L | 2 | 218-01-9 | |
| 3-, 4-Methylphenol (p,m-Cresol) | Not detected | 20 | 1.1 | ug/L | 2 | 3/4-CRESOL | |
| 2-Methylphenol (o-Cresol) | Not detected | 10 | 0.57 | ug/L | 2 | 95-48-7 | |
| Dibenzo(ah)anthracene | Not detected | 2 | 0.90 | ug/L | 2 | 53-70-3 | |
| Dibenzofuran | Not detected | 4 | 0.54 | ug/L | 2 | 132-64-9 | |
| di-n-Butyl phthalate | Not detected | 5 | 0.64 | ug/L | 2 | 84-74-2 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.50 | ug/L | 2 | 95-50-1 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.54 | ug/L | 2 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.51 | ug/L | 2 | 106-46-7 | |
| 3,3'-Dichlorobenzidine | Not detected | 5 | 1.6 | ug/L | 2 | 91-94-1 | |
| 2,4-Dichlorophenol | Not detected | 10 | 0.61 | ug/L | 2 | 120-83-2 | |
| Diethyl phthalate | Not detected | 5 | 0.72 | ug/L | 2 | 84-66-2 | |
| 2,4-Dimethylphenol | Not detected | 5 | 0.71 | ug/L | 2 | 105-67-9 | |
| Dimethyl phthalate | Not detected | 5 | 0.63 | ug/L | 2 | 131-11-3 | |
| 4,6-Dinitro-2-methylphenol | Not detected | 20 | 0.26 | ug/L | 2 | 534-52-1 | |
| 2,4-Dinitrophenol | Not detected | 25 | 0.18 | ug/L | 2 | 51-28-5 | |
| 2,4-Dinitrotoluene | Not detected | 5 | 0.56 | ug/L | 2 | 121-14-2 | |
| 2,6-Dinitrotoluene | Not detected | 5 | 0.61 | ug/L | 2 | 606-20-2 | |
| 1,2-Diphenylhydrazine* | Not detected | 5 | 0.63 | ug/L | 2 | 122-66-7 | |
| di-n-Octyl phthalate | Not detected | 5 | 1.4 | ug/L | 2 | 117-84-0 | |
| Fluoranthene | Not detected | 1 | 0.68 | ug/L | 2 | 206-44-0 | |
| Fluorene | Not detected | 5 | 0.64 | ug/L | 2 | 86-73-7 | |
| Hexachlorobenzene | Not detected | 5 | 0.65 | ug/L | 2 | 118-74-1 | |
| Hexachlorobutadiene | Not detected | 10 | 0.59 | ug/L | 2 | 87-68-3 | |
| Hexachlorocyclopentadiene* | Not detected | 5 | 0.30 | ug/L | 2 | 77-47-4 | |
| Hexachloroethane | Not detected | 5 | 0.54 | ug/L | 2 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | Not detected | 2 | 0.90 | ug/L | 2 | 193-39-5 | |
| Isophorone | Not detected | 5 | 0.62 | ug/L | 2 | 78-59-1 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.50 | ug/L | 2 | 91-57-6 | |
| Naphthalene | Not detected | 5 | 0.63 | ug/L | 2 | 91-20-3 | |
| 2-Nitroaniline | Not detected | 25 | 0.50 | ug/L | 2 | 88-74-4 | |
| 3-Nitroaniline | Not detected | 25 | 0.48 | ug/L | 2 | 99-09-2 | |
| 4-Nitroaniline | Not detected | 25 | 0.47 | ug/L | 2 | 100-01-6 | |
| Nitrobenzene | Not detected | 5 | 0.81 | ug/L | 2 | 98-95-3 | |
| 2-Nitrophenol | Not detected | 5 | 0.46 | ug/L | 2 | 88-75-5 | |
| 4-Nitrophenol | Not detected | 25 | 0.64 | ug/L | 2 | 100-02-7 | |
| N-Nitrosodiphenylamine | Not detected | 5 | 0.72 | ug/L | 2 | 86-30-6 | |
| N-Nitrosodi-n-propylamine | Not detected | 5 | 0.74 | ug/L | 2 | 621-64-7 | |
| Pentachlorophenol | Not detected | 5 | 0.42 | ug/L | 2 | 87-86-5 | |
| Phenanthrene | Not detected | 2 | 0.72 | ug/L | 2 | 85-01-8 | |
| Phenol | Not detected | 5 | 0.60 | ug/L | 2 | 108-95-2 | |
| Pyrene | Not detected | 5 | 0.84 | ug/L | 2 | 129-00-0 | |



Analytical Laboratory Report

Lab Sample ID: S43321.01 (continued)

Sample Tag: VAS21-5-9

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 03:27, Analyst: PL (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------|--------------|----|------|-------|----------|----------|-------|
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.65 | ug/L | 2 | 120-82-1 | |
| 2,4,5-Trichlorophenol | Not detected | 5 | 0.66 | ug/L | 2 | 95-95-4 | |
| 2,4,6-Trichlorophenol | Not detected | 4 | 0.55 | ug/L | 2 | 88-06-2 | |

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/13/22 16:35, Analyst: KAG

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|--------------------------------|--------------|----|------|-------|----------|------------|-------|
| Diethyl ether | Not detected | 10 | 0.27 | ug/L | 1 | 60-29-7 | |
| Acetone | Not detected | 50 | 4.0 | ug/L | 1 | 67-64-1 | |
| Methyl iodide | Not detected | 1 | 0.24 | ug/L | 1 | 74-88-4 | |
| Carbon disulfide | Not detected | 5 | 0.13 | ug/L | 1 | 75-15-0 | |
| tert-Methyl butyl ether (MTBE) | Not detected | 5 | 0.25 | ug/L | 1 | 1634-04-4 | |
| Acrylonitrile | Not detected | 2 | 0.38 | ug/L | 1 | 107-13-1 | |
| 2-Butanone (MEK) | Not detected | 25 | 3.3 | ug/L | 1 | 78-93-3 | |
| Dichlorodifluoromethane | Not detected | 5 | 0.57 | ug/L | 1 | 75-71-8 | |
| Chloromethane | Not detected | 5 | 0.20 | ug/L | 1 | 74-87-3 | |
| Vinyl chloride | Not detected | 1 | 0.24 | ug/L | 1 | 75-01-4 | |
| Bromomethane | Not detected | 5 | 0.18 | ug/L | 1 | 74-83-9 | |
| Chloroethane | Not detected | 5 | 0.21 | ug/L | 1 | 75-00-3 | |
| Trichlorofluoromethane | Not detected | 1 | 0.28 | ug/L | 1 | 75-69-4 | |
| 1,1-Dichloroethene | Not detected | 1 | 0.27 | ug/L | 1 | 75-35-4 | |
| Methylene chloride | Not detected | 5 | 0.16 | ug/L | 1 | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | 1 | 0.14 | ug/L | 1 | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | 1 | 0.15 | ug/L | 1 | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | 1 | 0.21 | ug/L | 1 | 156-59-2 | |
| Tetrahydrofuran* | Not detected | 90 | 1.2 | ug/L | 1 | 109-99-9 | |
| Chloroform | Not detected | 1 | 0.15 | ug/L | 1 | 67-66-3 | |
| Bromochloromethane | Not detected | 1 | 0.36 | ug/L | 1 | 74-97-5 | |
| 1,1,1-Trichloroethane | Not detected | 1 | 0.27 | ug/L | 1 | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | 50 | 0.35 | ug/L | 1 | 108-10-1 | |
| 2-Hexanone | Not detected | 50 | 0.19 | ug/L | 1 | 591-78-6 | |
| Carbon tetrachloride | Not detected | 1 | 0.19 | ug/L | 1 | 56-23-5 | |
| Benzene | Not detected | 1 | 0.11 | ug/L | 1 | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | 1 | 0.17 | ug/L | 1 | 107-06-2 | |
| Trichloroethene | Not detected | 1 | 0.29 | ug/L | 1 | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | 1 | 0.18 | ug/L | 1 | 78-87-5 | |
| Bromodichloromethane | Not detected | 1 | 0.19 | ug/L | 1 | 75-27-4 | |
| Dibromomethane | Not detected | 5 | 0.45 | ug/L | 1 | 74-95-3 | |
| cis-1,3-Dichloropropene | Not detected | 1 | 0.17 | ug/L | 1 | 10061-01-5 | |
| Toluene | Not detected | 1 | 0.17 | ug/L | 1 | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | 1 | 0.20 | ug/L | 1 | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | 1 | 0.34 | ug/L | 1 | 79-00-5 | |
| Tetrachloroethene | Not detected | 1 | 0.13 | ug/L | 1 | 127-18-4 | |
| trans-1,4-Dichloro-2-butene | Not detected | 1 | 0.26 | ug/L | 1 | 110-57-6 | |
| Dibromochloromethane | Not detected | 5 | 0.20 | ug/L | 1 | 124-48-1 | |
| 1,2-Dibromoethane | Not detected | 1 | 0.12 | ug/L | 1 | 106-93-4 | |
| Chlorobenzene | Not detected | 1 | 0.16 | ug/L | 1 | 108-90-7 | |
| 1,1,1,2-Tetrachloroethane | Not detected | 1 | 0.22 | ug/L | 1 | 630-20-6 | |
| Ethylbenzene | Not detected | 1 | 0.10 | ug/L | 1 | 100-41-4 | |
| p,m-Xylene* | Not detected | 2 | 0.42 | ug/L | 1 | | |



Analytical Laboratory Report

Lab Sample ID: S43321.01 (continued)

Sample Tag: VAS21-5-9

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/13/22 16:35, Analyst: KAG (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------------------|--------------|----|------|-------|----------|----------|-------|
| o-Xylene | Not detected | 1 | 0.16 | ug/L | 1 | 95-47-6 | |
| Styrene | Not detected | 1 | 0.13 | ug/L | 1 | 100-42-5 | |
| Isopropylbenzene | Not detected | 5 | 0.12 | ug/L | 1 | 98-82-8 | |
| Bromoform | Not detected | 1 | 0.35 | ug/L | 1 | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | 1 | 0.27 | ug/L | 1 | 79-34-5 | |
| 1,2,3-Trichloropropane | Not detected | 1 | 0.54 | ug/L | 1 | 96-18-4 | |
| n-Propylbenzene | Not detected | 1 | 0.12 | ug/L | 1 | 103-65-1 | |
| Bromobenzene | Not detected | 1 | 0.15 | ug/L | 1 | 108-86-1 | |
| 1,3,5-Trimethylbenzene | Not detected | 1 | 0.18 | ug/L | 1 | 108-67-8 | |
| tert-Butylbenzene | Not detected | 1 | 0.14 | ug/L | 1 | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | 1 | 0.16 | ug/L | 1 | 95-63-6 | |
| sec-Butylbenzene | Not detected | 1 | 0.16 | ug/L | 1 | 135-98-8 | |
| p-Isopropyltoluene | Not detected | 5 | 0.19 | ug/L | 1 | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.20 | ug/L | 1 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.18 | ug/L | 1 | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.13 | ug/L | 1 | 95-50-1 | |
| 1,2,3-Trimethylbenzene | Not detected | 1 | 0.14 | ug/L | 1 | 526-73-8 | |
| n-Butylbenzene | Not detected | 1 | 0.17 | ug/L | 1 | 104-51-8 | |
| Hexachloroethane | Not detected | 5 | 0.35 | ug/L | 1 | 67-72-1 | |
| 1,2-Dibromo-3-chloropropane | Not detected | 5 | 0.48 | ug/L | 1 | 96-12-8 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.24 | ug/L | 1 | 120-82-1 | |
| 1,2,3-Trichlorobenzene | Not detected | 5 | 0.25 | ug/L | 1 | 87-61-6 | |
| Naphthalene | Not detected | 5 | 0.18 | ug/L | 1 | 91-20-3 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.21 | ug/L | 1 | 91-57-6 | |



Analytical Laboratory Report

Lab Sample ID: S43321.02

Sample Tag: VAS23-5-9

Collected Date/Time: 12/08/2022 11:15

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 1L Amber | None | Yes | 4.3 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 4.3 | IR |
| 3 | 40ml Glass | HCL | Yes | 4.3 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1 | 12/15/22 22:16 | CTV | |
| pH check for VOCs* | <2 | N/A | 12/14/22 11:30 | BDO | |
| Metal Digestion | Completed | SW3015A | 12/12/22 11:30 | CCM | |
| BNA Extraction | Completed | SW3510C | 12/12/22 11:00 | JWR | |

Metals

Method: E200.8, Run Date: 12/12/22 14:39, Analyst: CCM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|---------|-------|---------|-------|----------|-----------|-------|
| Selenium | 0.00238 | 0.005 | 0.00209 | mg/L | 5 | 7782-49-2 | b |

Method: E200.8, Run Date: 12/12/22 13:01, Analyst: CCM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|-----------|-------|----------|-----------|-------|
| Arsenic | 0.004 | 0.002 | 0.000255 | mg/L | 5 | 7440-38-2 | |
| Barium | 0.034 | 0.005 | 0.000162 | mg/L | 5 | 7440-39-3 | |
| Cadmium | Not detected | 0.0005 | 0.000190 | mg/L | 5 | 7440-43-9 | |
| Chromium | 0.00208 | 0.005 | 0.0000965 | mg/L | 5 | 7440-47-3 | b |
| Copper | 0.006 | 0.005 | 0.000377 | mg/L | 5 | 7440-50-8 | |
| Lead | 0.00239 | 0.003 | 0.000190 | mg/L | 5 | 7439-92-1 | b |
| Silver | Not detected | 0.0005 | 0.0000675 | mg/L | 5 | 7440-22-4 | |
| Zinc | 0.013 | 0.005 | 0.000730 | mg/L | 5 | 7440-66-6 | |

Method: E245.1, Run Date: 12/15/22 21:03, Analyst: CTV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|----------|-------|----------|-----------|-------|
| Mercury | Not detected | 0.0002 | 0.000016 | mg/L | 1 | 7439-97-6 | |

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 03:58, Analyst: PL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------------|--------------|----|------|-------|----------|----------|-------|
| Acenaphthene | Not detected | 5 | 0.58 | ug/L | 2 | 83-32-9 | |
| Acenaphthylene | Not detected | 5 | 0.69 | ug/L | 2 | 208-96-8 | |
| Anthracene | Not detected | 5 | 0.71 | ug/L | 2 | 120-12-7 | |
| Benzo(a)anthracene | Not detected | 1 | 0.80 | ug/L | 2 | 56-55-3 | |
| Benzo(b)fluoranthene | Not detected | 1 | 0.77 | ug/L | 2 | 205-99-2 | |
| Benzo(k)fluoranthene | Not detected | 1 | 0.81 | ug/L | 2 | 207-08-9 | |
| Benzo(ghi)perylene | Not detected | 1 | 0.97 | ug/L | 2 | 191-24-2 | |
| Benzo(a)pyrene | Not detected | 1 | 0.99 | ug/L | 2 | 50-32-8 | |
| bis(2-Chloroethoxy)methane | Not detected | 5 | 0.60 | ug/L | 2 | 111-91-1 | |
| bis(2-Chloroethyl)ether | Not detected | 5 | 0.57 | ug/L | 2 | 111-44-4 | |
| bis(2-Chloroisopropyl)ether* | Not detected | 5 | 0.67 | ug/L | 2 | 108-60-1 | |

b-Value detected less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43321.02 (continued)

Sample Tag: VAS23-5-9

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 03:58, Analyst: PL (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------------------------|--------------|----|------|-------|----------|------------|-------|
| bis(2-Ethylhexyl)phthalate | Not detected | 5 | 1.3 | ug/L | 2 | 117-81-7 | |
| 4-Bromophenyl phenyl ether | Not detected | 5 | 0.55 | ug/L | 2 | 101-55-3 | |
| Butyl benzyl phthalate | Not detected | 5 | 1.0 | ug/L | 2 | 85-68-7 | |
| 4-Chloroaniline | Not detected | 10 | 0.57 | ug/L | 2 | 106-47-8 | |
| 2-Chloronaphthalene | Not detected | 5 | 0.55 | ug/L | 2 | 91-58-7 | |
| 4-Chloro-3-methylphenol | Not detected | 5 | 0.60 | ug/L | 2 | 59-50-7 | |
| 2-Chlorophenol | Not detected | 10 | 0.53 | ug/L | 2 | 95-57-8 | |
| 4-Chlorophenyl phenyl ether | Not detected | 5 | 0.51 | ug/L | 2 | 7005-72-3 | |
| Chrysene | Not detected | 1 | 0.60 | ug/L | 2 | 218-01-9 | |
| 3-, 4-Methylphenol (p,m-Cresol) | Not detected | 20 | 1.1 | ug/L | 2 | 3/4-CRESOL | |
| 2-Methylphenol (o-Cresol) | Not detected | 10 | 0.57 | ug/L | 2 | 95-48-7 | |
| Dibenzo(ah)anthracene | Not detected | 2 | 0.90 | ug/L | 2 | 53-70-3 | |
| Dibenzofuran | Not detected | 4 | 0.54 | ug/L | 2 | 132-64-9 | |
| di-n-Butyl phthalate | Not detected | 5 | 0.64 | ug/L | 2 | 84-74-2 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.50 | ug/L | 2 | 95-50-1 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.54 | ug/L | 2 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.51 | ug/L | 2 | 106-46-7 | |
| 3,3'-Dichlorobenzidine | Not detected | 5 | 1.6 | ug/L | 2 | 91-94-1 | |
| 2,4-Dichlorophenol | Not detected | 10 | 0.61 | ug/L | 2 | 120-83-2 | |
| Diethyl phthalate | Not detected | 5 | 0.72 | ug/L | 2 | 84-66-2 | |
| 2,4-Dimethylphenol | Not detected | 5 | 0.71 | ug/L | 2 | 105-67-9 | |
| Dimethyl phthalate | Not detected | 5 | 0.63 | ug/L | 2 | 131-11-3 | |
| 4,6-Dinitro-2-methylphenol | Not detected | 20 | 0.26 | ug/L | 2 | 534-52-1 | |
| 2,4-Dinitrophenol | Not detected | 25 | 0.18 | ug/L | 2 | 51-28-5 | |
| 2,4-Dinitrotoluene | Not detected | 5 | 0.56 | ug/L | 2 | 121-14-2 | |
| 2,6-Dinitrotoluene | Not detected | 5 | 0.61 | ug/L | 2 | 606-20-2 | |
| 1,2-Diphenylhydrazine* | Not detected | 5 | 0.63 | ug/L | 2 | 122-66-7 | |
| di-n-Octyl phthalate | Not detected | 5 | 1.4 | ug/L | 2 | 117-84-0 | |
| Fluoranthene | Not detected | 1 | 0.68 | ug/L | 2 | 206-44-0 | |
| Fluorene | Not detected | 5 | 0.64 | ug/L | 2 | 86-73-7 | |
| Hexachlorobenzene | Not detected | 5 | 0.65 | ug/L | 2 | 118-74-1 | |
| Hexachlorobutadiene | Not detected | 10 | 0.59 | ug/L | 2 | 87-68-3 | |
| Hexachlorocyclopentadiene* | Not detected | 5 | 0.30 | ug/L | 2 | 77-47-4 | |
| Hexachloroethane | Not detected | 5 | 0.54 | ug/L | 2 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | Not detected | 2 | 0.90 | ug/L | 2 | 193-39-5 | |
| Isophorone | Not detected | 5 | 0.62 | ug/L | 2 | 78-59-1 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.50 | ug/L | 2 | 91-57-6 | |
| Naphthalene | Not detected | 5 | 0.63 | ug/L | 2 | 91-20-3 | |
| 2-Nitroaniline | Not detected | 25 | 0.50 | ug/L | 2 | 88-74-4 | |
| 3-Nitroaniline | Not detected | 25 | 0.48 | ug/L | 2 | 99-09-2 | |
| 4-Nitroaniline | Not detected | 25 | 0.47 | ug/L | 2 | 100-01-6 | |
| Nitrobenzene | Not detected | 5 | 0.81 | ug/L | 2 | 98-95-3 | |
| 2-Nitrophenol | Not detected | 5 | 0.46 | ug/L | 2 | 88-75-5 | |
| 4-Nitrophenol | Not detected | 25 | 0.64 | ug/L | 2 | 100-02-7 | |
| N-Nitrosodiphenylamine | Not detected | 5 | 0.72 | ug/L | 2 | 86-30-6 | |
| N-Nitrosodi-n-propylamine | Not detected | 5 | 0.74 | ug/L | 2 | 621-64-7 | |
| Pentachlorophenol | Not detected | 5 | 0.42 | ug/L | 2 | 87-86-5 | |
| Phenanthrene | Not detected | 2 | 0.72 | ug/L | 2 | 85-01-8 | |
| Phenol | Not detected | 5 | 0.60 | ug/L | 2 | 108-95-2 | |
| Pyrene | Not detected | 5 | 0.84 | ug/L | 2 | 129-00-0 | |



Analytical Laboratory Report

Lab Sample ID: S43321.02 (continued)

Sample Tag: VAS23-5-9

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 03:58, Analyst: PL (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------|--------------|----|------|-------|----------|----------|-------|
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.65 | ug/L | 2 | 120-82-1 | |
| 2,4,5-Trichlorophenol | Not detected | 5 | 0.66 | ug/L | 2 | 95-95-4 | |
| 2,4,6-Trichlorophenol | Not detected | 4 | 0.55 | ug/L | 2 | 88-06-2 | |

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/13/22 16:58, Analyst: KAG

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|--------------------------------|--------------|----|------|-------|----------|------------|-------|
| Diethyl ether | Not detected | 10 | 0.27 | ug/L | 1 | 60-29-7 | |
| Acetone | Not detected | 50 | 4.0 | ug/L | 1 | 67-64-1 | |
| Methyl iodide | Not detected | 1 | 0.24 | ug/L | 1 | 74-88-4 | |
| Carbon disulfide | Not detected | 5 | 0.13 | ug/L | 1 | 75-15-0 | |
| tert-Methyl butyl ether (MTBE) | Not detected | 5 | 0.25 | ug/L | 1 | 1634-04-4 | |
| Acrylonitrile | Not detected | 2 | 0.38 | ug/L | 1 | 107-13-1 | |
| 2-Butanone (MEK) | Not detected | 25 | 3.3 | ug/L | 1 | 78-93-3 | |
| Dichlorodifluoromethane | Not detected | 5 | 0.57 | ug/L | 1 | 75-71-8 | |
| Chloromethane | Not detected | 5 | 0.20 | ug/L | 1 | 74-87-3 | |
| Vinyl chloride | Not detected | 1 | 0.24 | ug/L | 1 | 75-01-4 | |
| Bromomethane | Not detected | 5 | 0.18 | ug/L | 1 | 74-83-9 | |
| Chloroethane | Not detected | 5 | 0.21 | ug/L | 1 | 75-00-3 | |
| Trichlorofluoromethane | Not detected | 1 | 0.28 | ug/L | 1 | 75-69-4 | |
| 1,1-Dichloroethene | Not detected | 1 | 0.27 | ug/L | 1 | 75-35-4 | |
| Methylene chloride | Not detected | 5 | 0.16 | ug/L | 1 | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | 1 | 0.14 | ug/L | 1 | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | 1 | 0.15 | ug/L | 1 | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | 1 | 0.21 | ug/L | 1 | 156-59-2 | |
| Tetrahydrofuran* | Not detected | 90 | 1.2 | ug/L | 1 | 109-99-9 | |
| Chloroform | Not detected | 1 | 0.15 | ug/L | 1 | 67-66-3 | |
| Bromochloromethane | Not detected | 1 | 0.36 | ug/L | 1 | 74-97-5 | |
| 1,1,1-Trichloroethane | Not detected | 1 | 0.27 | ug/L | 1 | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | 50 | 0.35 | ug/L | 1 | 108-10-1 | |
| 2-Hexanone | Not detected | 50 | 0.19 | ug/L | 1 | 591-78-6 | |
| Carbon tetrachloride | Not detected | 1 | 0.19 | ug/L | 1 | 56-23-5 | |
| Benzene | Not detected | 1 | 0.11 | ug/L | 1 | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | 1 | 0.17 | ug/L | 1 | 107-06-2 | |
| Trichloroethene | Not detected | 1 | 0.29 | ug/L | 1 | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | 1 | 0.18 | ug/L | 1 | 78-87-5 | |
| Bromodichloromethane | Not detected | 1 | 0.19 | ug/L | 1 | 75-27-4 | |
| Dibromomethane | Not detected | 5 | 0.45 | ug/L | 1 | 74-95-3 | |
| cis-1,3-Dichloropropene | Not detected | 1 | 0.17 | ug/L | 1 | 10061-01-5 | |
| Toluene | Not detected | 1 | 0.17 | ug/L | 1 | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | 1 | 0.20 | ug/L | 1 | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | 1 | 0.34 | ug/L | 1 | 79-00-5 | |
| Tetrachloroethene | Not detected | 1 | 0.13 | ug/L | 1 | 127-18-4 | |
| trans-1,4-Dichloro-2-butene | Not detected | 1 | 0.26 | ug/L | 1 | 110-57-6 | |
| Dibromochloromethane | Not detected | 5 | 0.20 | ug/L | 1 | 124-48-1 | |
| 1,2-Dibromoethane | Not detected | 1 | 0.12 | ug/L | 1 | 106-93-4 | |
| Chlorobenzene | Not detected | 1 | 0.16 | ug/L | 1 | 108-90-7 | |
| 1,1,1,2-Tetrachloroethane | Not detected | 1 | 0.22 | ug/L | 1 | 630-20-6 | |
| Ethylbenzene | Not detected | 1 | 0.10 | ug/L | 1 | 100-41-4 | |
| p,m-Xylene* | Not detected | 2 | 0.42 | ug/L | 1 | | |



Analytical Laboratory Report

Lab Sample ID: S43321.02 (continued)

Sample Tag: VAS23-5-9

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/13/22 16:58, Analyst: KAG (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------------------|--------------|----|------|-------|----------|----------|-------|
| o-Xylene | Not detected | 1 | 0.16 | ug/L | 1 | 95-47-6 | |
| Styrene | Not detected | 1 | 0.13 | ug/L | 1 | 100-42-5 | |
| Isopropylbenzene | Not detected | 5 | 0.12 | ug/L | 1 | 98-82-8 | |
| Bromoform | Not detected | 1 | 0.35 | ug/L | 1 | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | 1 | 0.27 | ug/L | 1 | 79-34-5 | |
| 1,2,3-Trichloropropane | Not detected | 1 | 0.54 | ug/L | 1 | 96-18-4 | |
| n-Propylbenzene | Not detected | 1 | 0.12 | ug/L | 1 | 103-65-1 | |
| Bromobenzene | Not detected | 1 | 0.15 | ug/L | 1 | 108-86-1 | |
| 1,3,5-Trimethylbenzene | Not detected | 1 | 0.18 | ug/L | 1 | 108-67-8 | |
| tert-Butylbenzene | Not detected | 1 | 0.14 | ug/L | 1 | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | 1 | 0.16 | ug/L | 1 | 95-63-6 | |
| sec-Butylbenzene | Not detected | 1 | 0.16 | ug/L | 1 | 135-98-8 | |
| p-Isopropyltoluene | Not detected | 5 | 0.19 | ug/L | 1 | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.20 | ug/L | 1 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.18 | ug/L | 1 | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.13 | ug/L | 1 | 95-50-1 | |
| 1,2,3-Trimethylbenzene | Not detected | 1 | 0.14 | ug/L | 1 | 526-73-8 | |
| n-Butylbenzene | Not detected | 1 | 0.17 | ug/L | 1 | 104-51-8 | |
| Hexachloroethane | Not detected | 5 | 0.35 | ug/L | 1 | 67-72-1 | |
| 1,2-Dibromo-3-chloropropane | Not detected | 5 | 0.48 | ug/L | 1 | 96-12-8 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.24 | ug/L | 1 | 120-82-1 | |
| 1,2,3-Trichlorobenzene | Not detected | 5 | 0.25 | ug/L | 1 | 87-61-6 | |
| Naphthalene | Not detected | 5 | 0.18 | ug/L | 1 | 91-20-3 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.21 | ug/L | 1 | 91-57-6 | |



Analytical Laboratory Report

Lab Sample ID: S43321.03

Sample Tag: VAS26-4-8

Collected Date/Time: 12/08/2022 17:55

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 1L Amber | None | Yes | 4.3 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 4.3 | IR |
| 3 | 40ml Glass | HCL | Yes | 4.3 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1 | 12/15/22 22:16 | CTV | |
| pH check for VOCs* | <2 | N/A | 12/14/22 11:30 | BDO | |
| Metal Digestion | Completed | SW3015A | 12/12/22 11:30 | CCM | |
| BNA Extraction | Completed | SW3510C | 12/12/22 11:00 | JWR | |

Metals

Method: E200.8, Run Date: 12/12/22 14:40, Analyst: CCM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|---------|-------|---------|-------|----------|-----------|-------|
| Selenium | 0.00274 | 0.005 | 0.00209 | mg/L | 5 | 7782-49-2 | b |

Method: E200.8, Run Date: 12/12/22 13:02, Analyst: CCM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|-----------|-------|----------|-----------|-------|
| Arsenic | 0.00140 | 0.002 | 0.000255 | mg/L | 5 | 7440-38-2 | b |
| Barium | 0.259 | 0.005 | 0.000162 | mg/L | 5 | 7440-39-3 | |
| Cadmium | Not detected | 0.0005 | 0.000190 | mg/L | 5 | 7440-43-9 | |
| Chromium | 0.00164 | 0.005 | 0.0000965 | mg/L | 5 | 7440-47-3 | b |
| Copper | 0.00202 | 0.005 | 0.000377 | mg/L | 5 | 7440-50-8 | b |
| Lead | 0.00137 | 0.003 | 0.000190 | mg/L | 5 | 7439-92-1 | b |
| Silver | Not detected | 0.0005 | 0.0000675 | mg/L | 5 | 7440-22-4 | |
| Zinc | 0.017 | 0.005 | 0.000730 | mg/L | 5 | 7440-66-6 | |

Method: E245.1, Run Date: 12/15/22 21:07, Analyst: CTV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|----------|-------|----------|-----------|-------|
| Mercury | Not detected | 0.0002 | 0.000016 | mg/L | 1 | 7439-97-6 | |

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 04:28, Analyst: PL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------------|--------------|----|------|-------|----------|----------|-------|
| Acenaphthene | Not detected | 5 | 0.58 | ug/L | 2 | 83-32-9 | |
| Acenaphthylene | Not detected | 5 | 0.68 | ug/L | 2 | 208-96-8 | |
| Anthracene | Not detected | 5 | 0.70 | ug/L | 2 | 120-12-7 | |
| Benzo(a)anthracene | Not detected | 1 | 0.79 | ug/L | 2 | 56-55-3 | |
| Benzo(b)fluoranthene | Not detected | 1 | 0.77 | ug/L | 2 | 205-99-2 | |
| Benzo(k)fluoranthene | Not detected | 1 | 0.81 | ug/L | 2 | 207-08-9 | |
| Benzo(ghi)perylene | Not detected | 1 | 0.96 | ug/L | 2 | 191-24-2 | |
| Benzo(a)pyrene | Not detected | 1 | 0.98 | ug/L | 2 | 50-32-8 | |
| bis(2-Chloroethoxy)methane | Not detected | 5 | 0.60 | ug/L | 2 | 111-91-1 | |
| bis(2-Chloroethyl)ether | Not detected | 5 | 0.56 | ug/L | 2 | 111-44-4 | |
| bis(2-Chloroisopropyl)ether* | Not detected | 5 | 0.66 | ug/L | 2 | 108-60-1 | |

b-Value detected less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43321.03 (continued)

Sample Tag: VAS26-4-8

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 04:28, Analyst: PL (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------------------------|--------------|----|------|-------|----------|------------|-------|
| bis(2-Ethylhexyl)phthalate | Not detected | 5 | 1.3 | ug/L | 2 | 117-81-7 | |
| 4-Bromophenyl phenyl ether | Not detected | 5 | 0.54 | ug/L | 2 | 101-55-3 | |
| Butyl benzyl phthalate | Not detected | 5 | 1.0 | ug/L | 2 | 85-68-7 | |
| 4-Chloroaniline | Not detected | 10 | 0.57 | ug/L | 2 | 106-47-8 | |
| 2-Chloronaphthalene | Not detected | 5 | 0.55 | ug/L | 2 | 91-58-7 | |
| 4-Chloro-3-methylphenol | Not detected | 5 | 0.59 | ug/L | 2 | 59-50-7 | |
| 2-Chlorophenol | Not detected | 10 | 0.53 | ug/L | 2 | 95-57-8 | |
| 4-Chlorophenyl phenyl ether | Not detected | 5 | 0.51 | ug/L | 2 | 7005-72-3 | |
| Chrysene | Not detected | 1 | 0.60 | ug/L | 2 | 218-01-9 | |
| 3-, 4-Methylphenol (p,m-Cresol) | Not detected | 20 | 1.1 | ug/L | 2 | 3/4-CRESOL | |
| 2-Methylphenol (o-Cresol) | Not detected | 10 | 0.56 | ug/L | 2 | 95-48-7 | |
| Dibenzo(ah)anthracene | Not detected | 2 | 0.89 | ug/L | 2 | 53-70-3 | |
| Dibenzofuran | Not detected | 4 | 0.53 | ug/L | 2 | 132-64-9 | |
| di-n-Butyl phthalate | Not detected | 5 | 0.63 | ug/L | 2 | 84-74-2 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.49 | ug/L | 2 | 95-50-1 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.53 | ug/L | 2 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.50 | ug/L | 2 | 106-46-7 | |
| 3,3'-Dichlorobenzidine | Not detected | 5 | 1.6 | ug/L | 2 | 91-94-1 | |
| 2,4-Dichlorophenol | Not detected | 10 | 0.61 | ug/L | 2 | 120-83-2 | |
| Diethyl phthalate | Not detected | 5 | 0.71 | ug/L | 2 | 84-66-2 | |
| 2,4-Dimethylphenol | Not detected | 5 | 0.71 | ug/L | 2 | 105-67-9 | |
| Dimethyl phthalate | Not detected | 5 | 0.63 | ug/L | 2 | 131-11-3 | |
| 4,6-Dinitro-2-methylphenol | Not detected | 20 | 0.26 | ug/L | 2 | 534-52-1 | |
| 2,4-Dinitrophenol | Not detected | 25 | 0.17 | ug/L | 2 | 51-28-5 | |
| 2,4-Dinitrotoluene | Not detected | 5 | 0.55 | ug/L | 2 | 121-14-2 | |
| 2,6-Dinitrotoluene | Not detected | 5 | 0.61 | ug/L | 2 | 606-20-2 | |
| 1,2-Diphenylhydrazine* | Not detected | 5 | 0.62 | ug/L | 2 | 122-66-7 | |
| di-n-Octyl phthalate | Not detected | 5 | 1.4 | ug/L | 2 | 117-84-0 | |
| Fluoranthene | Not detected | 1 | 0.68 | ug/L | 2 | 206-44-0 | |
| Fluorene | Not detected | 5 | 0.63 | ug/L | 2 | 86-73-7 | |
| Hexachlorobenzene | Not detected | 5 | 0.64 | ug/L | 2 | 118-74-1 | |
| Hexachlorobutadiene | Not detected | 10 | 0.59 | ug/L | 2 | 87-68-3 | |
| Hexachlorocyclopentadiene* | Not detected | 5 | 0.30 | ug/L | 2 | 77-47-4 | |
| Hexachloroethane | Not detected | 5 | 0.53 | ug/L | 2 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | Not detected | 2 | 0.89 | ug/L | 2 | 193-39-5 | |
| Isophorone | Not detected | 5 | 0.61 | ug/L | 2 | 78-59-1 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.49 | ug/L | 2 | 91-57-6 | |
| Naphthalene | Not detected | 5 | 0.63 | ug/L | 2 | 91-20-3 | |
| 2-Nitroaniline | Not detected | 25 | 0.49 | ug/L | 2 | 88-74-4 | |
| 3-Nitroaniline | Not detected | 25 | 0.47 | ug/L | 2 | 99-09-2 | |
| 4-Nitroaniline | Not detected | 25 | 0.47 | ug/L | 2 | 100-01-6 | |
| Nitrobenzene | Not detected | 5 | 0.80 | ug/L | 2 | 98-95-3 | |
| 2-Nitrophenol | Not detected | 5 | 0.45 | ug/L | 2 | 88-75-5 | |
| 4-Nitrophenol | Not detected | 25 | 0.63 | ug/L | 2 | 100-02-7 | |
| N-Nitrosodiphenylamine | Not detected | 5 | 0.71 | ug/L | 2 | 86-30-6 | |
| N-Nitrosodi-n-propylamine | Not detected | 5 | 0.73 | ug/L | 2 | 621-64-7 | |
| Pentachlorophenol | Not detected | 5 | 0.42 | ug/L | 2 | 87-86-5 | |
| Phenanthrene | Not detected | 2 | 0.71 | ug/L | 2 | 85-01-8 | |
| Phenol | Not detected | 5 | 0.60 | ug/L | 2 | 108-95-2 | |
| Pyrene | Not detected | 5 | 0.83 | ug/L | 2 | 129-00-0 | |



Analytical Laboratory Report

Lab Sample ID: S43321.03 (continued)

Sample Tag: VAS26-4-8

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 04:28, Analyst: PL (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------|--------------|----|------|-------|----------|----------|-------|
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.64 | ug/L | 2 | 120-82-1 | |
| 2,4,5-Trichlorophenol | Not detected | 5 | 0.65 | ug/L | 2 | 95-95-4 | |
| 2,4,6-Trichlorophenol | Not detected | 4 | 0.55 | ug/L | 2 | 88-06-2 | |

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/13/22 17:22, Analyst: KAG

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|--------------------------------|--------------|----|------|-------|----------|------------|-------|
| Diethyl ether | Not detected | 10 | 0.27 | ug/L | 1 | 60-29-7 | |
| Acetone | Not detected | 50 | 4.0 | ug/L | 1 | 67-64-1 | |
| Methyl iodide | Not detected | 1 | 0.24 | ug/L | 1 | 74-88-4 | |
| Carbon disulfide | Not detected | 5 | 0.13 | ug/L | 1 | 75-15-0 | |
| tert-Methyl butyl ether (MTBE) | Not detected | 5 | 0.25 | ug/L | 1 | 1634-04-4 | |
| Acrylonitrile | Not detected | 2 | 0.38 | ug/L | 1 | 107-13-1 | |
| 2-Butanone (MEK) | Not detected | 25 | 3.3 | ug/L | 1 | 78-93-3 | |
| Dichlorodifluoromethane | Not detected | 5 | 0.57 | ug/L | 1 | 75-71-8 | |
| Chloromethane | Not detected | 5 | 0.20 | ug/L | 1 | 74-87-3 | |
| Vinyl chloride | Not detected | 1 | 0.24 | ug/L | 1 | 75-01-4 | |
| Bromomethane | Not detected | 5 | 0.18 | ug/L | 1 | 74-83-9 | |
| Chloroethane | Not detected | 5 | 0.21 | ug/L | 1 | 75-00-3 | |
| Trichlorofluoromethane | Not detected | 1 | 0.28 | ug/L | 1 | 75-69-4 | |
| 1,1-Dichloroethene | Not detected | 1 | 0.27 | ug/L | 1 | 75-35-4 | |
| Methylene chloride | Not detected | 5 | 0.16 | ug/L | 1 | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | 1 | 0.14 | ug/L | 1 | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | 1 | 0.15 | ug/L | 1 | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | 1 | 0.21 | ug/L | 1 | 156-59-2 | |
| Tetrahydrofuran* | Not detected | 90 | 1.2 | ug/L | 1 | 109-99-9 | |
| Chloroform | Not detected | 1 | 0.15 | ug/L | 1 | 67-66-3 | |
| Bromochloromethane | Not detected | 1 | 0.36 | ug/L | 1 | 74-97-5 | |
| 1,1,1-Trichloroethane | Not detected | 1 | 0.27 | ug/L | 1 | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | 50 | 0.35 | ug/L | 1 | 108-10-1 | |
| 2-Hexanone | Not detected | 50 | 0.19 | ug/L | 1 | 591-78-6 | |
| Carbon tetrachloride | Not detected | 1 | 0.19 | ug/L | 1 | 56-23-5 | |
| Benzene | Not detected | 1 | 0.11 | ug/L | 1 | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | 1 | 0.17 | ug/L | 1 | 107-06-2 | |
| Trichloroethene | Not detected | 1 | 0.29 | ug/L | 1 | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | 1 | 0.18 | ug/L | 1 | 78-87-5 | |
| Bromodichloromethane | Not detected | 1 | 0.19 | ug/L | 1 | 75-27-4 | |
| Dibromomethane | Not detected | 5 | 0.45 | ug/L | 1 | 74-95-3 | |
| cis-1,3-Dichloropropene | Not detected | 1 | 0.17 | ug/L | 1 | 10061-01-5 | |
| Toluene | Not detected | 1 | 0.17 | ug/L | 1 | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | 1 | 0.20 | ug/L | 1 | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | 1 | 0.34 | ug/L | 1 | 79-00-5 | |
| Tetrachloroethene | Not detected | 1 | 0.13 | ug/L | 1 | 127-18-4 | |
| trans-1,4-Dichloro-2-butene | Not detected | 1 | 0.26 | ug/L | 1 | 110-57-6 | |
| Dibromochloromethane | Not detected | 5 | 0.20 | ug/L | 1 | 124-48-1 | |
| 1,2-Dibromoethane | Not detected | 1 | 0.12 | ug/L | 1 | 106-93-4 | |
| Chlorobenzene | Not detected | 1 | 0.16 | ug/L | 1 | 108-90-7 | |
| 1,1,1,2-Tetrachloroethane | Not detected | 1 | 0.22 | ug/L | 1 | 630-20-6 | |
| Ethylbenzene | Not detected | 1 | 0.10 | ug/L | 1 | 100-41-4 | |
| p,m-Xylene* | Not detected | 2 | 0.42 | ug/L | 1 | | |



Analytical Laboratory Report

Lab Sample ID: S43321.03 (continued)

Sample Tag: VAS26-4-8

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/13/22 17:22, Analyst: KAG (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------------------|--------------|----|------|-------|----------|----------|-------|
| o-Xylene | Not detected | 1 | 0.16 | ug/L | 1 | 95-47-6 | |
| Styrene | Not detected | 1 | 0.13 | ug/L | 1 | 100-42-5 | |
| Isopropylbenzene | Not detected | 5 | 0.12 | ug/L | 1 | 98-82-8 | |
| Bromoform | Not detected | 1 | 0.35 | ug/L | 1 | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | 1 | 0.27 | ug/L | 1 | 79-34-5 | |
| 1,2,3-Trichloropropane | Not detected | 1 | 0.54 | ug/L | 1 | 96-18-4 | |
| n-Propylbenzene | Not detected | 1 | 0.12 | ug/L | 1 | 103-65-1 | |
| Bromobenzene | Not detected | 1 | 0.15 | ug/L | 1 | 108-86-1 | |
| 1,3,5-Trimethylbenzene | Not detected | 1 | 0.18 | ug/L | 1 | 108-67-8 | |
| tert-Butylbenzene | Not detected | 1 | 0.14 | ug/L | 1 | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | 1 | 0.16 | ug/L | 1 | 95-63-6 | |
| sec-Butylbenzene | Not detected | 1 | 0.16 | ug/L | 1 | 135-98-8 | |
| p-Isopropyltoluene | Not detected | 5 | 0.19 | ug/L | 1 | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.20 | ug/L | 1 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.18 | ug/L | 1 | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.13 | ug/L | 1 | 95-50-1 | |
| 1,2,3-Trimethylbenzene | Not detected | 1 | 0.14 | ug/L | 1 | 526-73-8 | |
| n-Butylbenzene | Not detected | 1 | 0.17 | ug/L | 1 | 104-51-8 | |
| Hexachloroethane | Not detected | 5 | 0.35 | ug/L | 1 | 67-72-1 | |
| 1,2-Dibromo-3-chloropropane | Not detected | 5 | 0.48 | ug/L | 1 | 96-12-8 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.24 | ug/L | 1 | 120-82-1 | |
| 1,2,3-Trichlorobenzene | Not detected | 5 | 0.25 | ug/L | 1 | 87-61-6 | |
| Naphthalene | Not detected | 5 | 0.18 | ug/L | 1 | 91-20-3 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.21 | ug/L | 1 | 91-57-6 | |



Analytical Laboratory Report

Lab Sample ID: S43321.04

Sample Tag: VAS28-3-7

Collected Date/Time: 12/09/2022 12:50

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 1L Amber | None | Yes | 4.3 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 4.3 | IR |
| 3 | 40ml Glass | HCL | Yes | 4.3 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1 | 12/15/22 22:16 | CTV | |
| pH check for VOCs* | <2 | N/A | 12/14/22 11:30 | BDO | |
| Metal Digestion | Completed | SW3015A | 12/12/22 11:30 | CCM | |
| BNA Extraction | Completed | SW3510C | 12/16/22 10:30 | JWR | |

Metals

Method: E200.8, Run Date: 12/12/22 14:41, Analyst: CCM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|---------|-------|---------|-------|----------|-----------|-------|
| Selenium | 0.00377 | 0.005 | 0.00209 | mg/L | 5 | 7782-49-2 | b |

Method: E200.8, Run Date: 12/12/22 13:03, Analyst: CCM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|-----------|-------|----------|-----------|-------|
| Arsenic | 0.004 | 0.002 | 0.000255 | mg/L | 5 | 7440-38-2 | |
| Barium | 0.038 | 0.005 | 0.000162 | mg/L | 5 | 7440-39-3 | |
| Cadmium | Not detected | 0.0005 | 0.000190 | mg/L | 5 | 7440-43-9 | |
| Chromium | 0.000834 | 0.005 | 0.0000965 | mg/L | 5 | 7440-47-3 | b |
| Copper | 0.00274 | 0.005 | 0.000377 | mg/L | 5 | 7440-50-8 | b |
| Lead | 0.004 | 0.003 | 0.000190 | mg/L | 5 | 7439-92-1 | |
| Silver | Not detected | 0.0005 | 0.0000675 | mg/L | 5 | 7440-22-4 | |
| Zinc | 0.021 | 0.005 | 0.000730 | mg/L | 5 | 7440-66-6 | |

Method: E245.1, Run Date: 12/15/22 21:11, Analyst: CTV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|----------|-------|----------|-----------|-------|
| Mercury | Not detected | 0.0002 | 0.000016 | mg/L | 1 | 7439-97-6 | |

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/21/22 20:53, Analyst: PL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------------|--------------|----|------|-------|----------|----------|-------|
| Acenaphthene | Not detected | 5 | 0.58 | ug/L | 2 | 83-32-9 | |
| Acenaphthylene | Not detected | 5 | 0.69 | ug/L | 2 | 208-96-8 | |
| Anthracene | Not detected | 5 | 0.71 | ug/L | 2 | 120-12-7 | |
| Benzo(a)anthracene | Not detected | 1 | 0.80 | ug/L | 2 | 56-55-3 | |
| Benzo(b)fluoranthene | Not detected | 1 | 0.77 | ug/L | 2 | 205-99-2 | |
| Benzo(k)fluoranthene | Not detected | 1 | 0.81 | ug/L | 2 | 207-08-9 | |
| Benzo(ghi)perylene | Not detected | 1 | 0.97 | ug/L | 2 | 191-24-2 | |
| Benzo(a)pyrene | Not detected | 1 | 0.99 | ug/L | 2 | 50-32-8 | |
| bis(2-Chloroethoxy)methane | Not detected | 5 | 0.60 | ug/L | 2 | 111-91-1 | |
| bis(2-Chloroethyl)ether | Not detected | 5 | 0.57 | ug/L | 2 | 111-44-4 | |
| bis(2-Chloroisopropyl)ether* | Not detected | 5 | 0.67 | ug/L | 2 | 108-60-1 | |

b-Value detected less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43321.04 (continued)

Sample Tag: VAS28-3-7

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/21/22 20:53, Analyst: PL (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------------------------|--------------|----|------|-------|----------|------------|-------|
| bis(2-Ethylhexyl)phthalate | Not detected | 5 | 1.3 | ug/L | 2 | 117-81-7 | |
| 4-Bromophenyl phenyl ether | Not detected | 5 | 0.55 | ug/L | 2 | 101-55-3 | |
| Butyl benzyl phthalate | Not detected | 5 | 1.0 | ug/L | 2 | 85-68-7 | |
| 4-Chloroaniline | Not detected | 10 | 0.57 | ug/L | 2 | 106-47-8 | |
| 2-Chloronaphthalene | Not detected | 5 | 0.55 | ug/L | 2 | 91-58-7 | |
| 4-Chloro-3-methylphenol | Not detected | 5 | 0.60 | ug/L | 2 | 59-50-7 | |
| 2-Chlorophenol | Not detected | 10 | 0.53 | ug/L | 2 | 95-57-8 | |
| 4-Chlorophenyl phenyl ether | Not detected | 5 | 0.51 | ug/L | 2 | 7005-72-3 | |
| Chrysene | Not detected | 1 | 0.60 | ug/L | 2 | 218-01-9 | |
| 3-, 4-Methylphenol (p,m-Cresol) | Not detected | 20 | 1.1 | ug/L | 2 | 3/4-CRESOL | |
| 2-Methylphenol (o-Cresol) | Not detected | 10 | 0.57 | ug/L | 2 | 95-48-7 | |
| Dibenzo(ah)anthracene | Not detected | 2 | 0.90 | ug/L | 2 | 53-70-3 | |
| Dibenzofuran | Not detected | 4 | 0.54 | ug/L | 2 | 132-64-9 | |
| di-n-Butyl phthalate | Not detected | 5 | 0.64 | ug/L | 2 | 84-74-2 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.50 | ug/L | 2 | 95-50-1 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.54 | ug/L | 2 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.51 | ug/L | 2 | 106-46-7 | |
| 3,3'-Dichlorobenzidine | Not detected | 5 | 1.6 | ug/L | 2 | 91-94-1 | |
| 2,4-Dichlorophenol | Not detected | 10 | 0.61 | ug/L | 2 | 120-83-2 | |
| Diethyl phthalate | Not detected | 5 | 0.72 | ug/L | 2 | 84-66-2 | |
| 2,4-Dimethylphenol | Not detected | 5 | 0.71 | ug/L | 2 | 105-67-9 | |
| Dimethyl phthalate | Not detected | 5 | 0.63 | ug/L | 2 | 131-11-3 | |
| 4,6-Dinitro-2-methylphenol | Not detected | 20 | 0.26 | ug/L | 2 | 534-52-1 | |
| 2,4-Dinitrophenol | Not detected | 25 | 0.18 | ug/L | 2 | 51-28-5 | |
| 2,4-Dinitrotoluene | Not detected | 5 | 0.56 | ug/L | 2 | 121-14-2 | |
| 2,6-Dinitrotoluene | Not detected | 5 | 0.61 | ug/L | 2 | 606-20-2 | |
| 1,2-Diphenylhydrazine* | Not detected | 5 | 0.63 | ug/L | 2 | 122-66-7 | |
| di-n-Octyl phthalate | Not detected | 5 | 1.4 | ug/L | 2 | 117-84-0 | |
| Fluoranthene | Not detected | 1 | 0.68 | ug/L | 2 | 206-44-0 | |
| Fluorene | Not detected | 5 | 0.64 | ug/L | 2 | 86-73-7 | |
| Hexachlorobenzene | Not detected | 5 | 0.65 | ug/L | 2 | 118-74-1 | |
| Hexachlorobutadiene | Not detected | 10 | 0.59 | ug/L | 2 | 87-68-3 | |
| Hexachlorocyclopentadiene* | Not detected | 5 | 0.30 | ug/L | 2 | 77-47-4 | |
| Hexachloroethane | Not detected | 5 | 0.54 | ug/L | 2 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | Not detected | 2 | 0.90 | ug/L | 2 | 193-39-5 | |
| Isophorone | Not detected | 5 | 0.62 | ug/L | 2 | 78-59-1 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.50 | ug/L | 2 | 91-57-6 | |
| Naphthalene | Not detected | 5 | 0.63 | ug/L | 2 | 91-20-3 | |
| 2-Nitroaniline | Not detected | 25 | 0.50 | ug/L | 2 | 88-74-4 | |
| 3-Nitroaniline | Not detected | 25 | 0.48 | ug/L | 2 | 99-09-2 | |
| 4-Nitroaniline | Not detected | 25 | 0.47 | ug/L | 2 | 100-01-6 | |
| Nitrobenzene | Not detected | 5 | 0.81 | ug/L | 2 | 98-95-3 | |
| 2-Nitrophenol | Not detected | 5 | 0.46 | ug/L | 2 | 88-75-5 | |
| 4-Nitrophenol | Not detected | 25 | 0.64 | ug/L | 2 | 100-02-7 | |
| N-Nitrosodiphenylamine | Not detected | 5 | 0.72 | ug/L | 2 | 86-30-6 | |
| N-Nitrosodi-n-propylamine | Not detected | 5 | 0.74 | ug/L | 2 | 621-64-7 | |
| Pentachlorophenol | Not detected | 5 | 0.42 | ug/L | 2 | 87-86-5 | |
| Phenanthrene | Not detected | 2 | 0.72 | ug/L | 2 | 85-01-8 | |
| Phenol | Not detected | 5 | 0.60 | ug/L | 2 | 108-95-2 | |
| Pyrene | Not detected | 5 | 0.84 | ug/L | 2 | 129-00-0 | |



Analytical Laboratory Report

Lab Sample ID: S43321.04 (continued)

Sample Tag: VAS28-3-7

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/21/22 20:53, Analyst: PL (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------|--------------|----|------|-------|----------|----------|-------|
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.65 | ug/L | 2 | 120-82-1 | |
| 2,4,5-Trichlorophenol | Not detected | 5 | 0.66 | ug/L | 2 | 95-95-4 | |
| 2,4,6-Trichlorophenol | Not detected | 4 | 0.55 | ug/L | 2 | 88-06-2 | |

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/13/22 17:46, Analyst: KAG

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|--------------------------------|--------------|----|------|-------|----------|------------|-------|
| Diethyl ether | Not detected | 10 | 0.27 | ug/L | 1 | 60-29-7 | |
| Acetone | Not detected | 50 | 4.0 | ug/L | 1 | 67-64-1 | |
| Methyl iodide | Not detected | 1 | 0.24 | ug/L | 1 | 74-88-4 | |
| Carbon disulfide | Not detected | 5 | 0.13 | ug/L | 1 | 75-15-0 | |
| tert-Methyl butyl ether (MTBE) | Not detected | 5 | 0.25 | ug/L | 1 | 1634-04-4 | |
| Acrylonitrile | Not detected | 2 | 0.38 | ug/L | 1 | 107-13-1 | |
| 2-Butanone (MEK) | Not detected | 25 | 3.3 | ug/L | 1 | 78-93-3 | |
| Dichlorodifluoromethane | Not detected | 5 | 0.57 | ug/L | 1 | 75-71-8 | |
| Chloromethane | Not detected | 5 | 0.20 | ug/L | 1 | 74-87-3 | |
| Vinyl chloride | Not detected | 1 | 0.24 | ug/L | 1 | 75-01-4 | |
| Bromomethane | Not detected | 5 | 0.18 | ug/L | 1 | 74-83-9 | |
| Chloroethane | Not detected | 5 | 0.21 | ug/L | 1 | 75-00-3 | |
| Trichlorofluoromethane | Not detected | 1 | 0.28 | ug/L | 1 | 75-69-4 | |
| 1,1-Dichloroethene | Not detected | 1 | 0.27 | ug/L | 1 | 75-35-4 | |
| Methylene chloride | Not detected | 5 | 0.16 | ug/L | 1 | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | 1 | 0.14 | ug/L | 1 | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | 1 | 0.15 | ug/L | 1 | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | 1 | 0.21 | ug/L | 1 | 156-59-2 | |
| Tetrahydrofuran* | Not detected | 90 | 1.2 | ug/L | 1 | 109-99-9 | |
| Chloroform | Not detected | 1 | 0.15 | ug/L | 1 | 67-66-3 | |
| Bromochloromethane | Not detected | 1 | 0.36 | ug/L | 1 | 74-97-5 | |
| 1,1,1-Trichloroethane | Not detected | 1 | 0.27 | ug/L | 1 | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | 50 | 0.35 | ug/L | 1 | 108-10-1 | |
| 2-Hexanone | Not detected | 50 | 0.19 | ug/L | 1 | 591-78-6 | |
| Carbon tetrachloride | Not detected | 1 | 0.19 | ug/L | 1 | 56-23-5 | |
| Benzene | Not detected | 1 | 0.11 | ug/L | 1 | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | 1 | 0.17 | ug/L | 1 | 107-06-2 | |
| Trichloroethene | Not detected | 1 | 0.29 | ug/L | 1 | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | 1 | 0.18 | ug/L | 1 | 78-87-5 | |
| Bromodichloromethane | Not detected | 1 | 0.19 | ug/L | 1 | 75-27-4 | |
| Dibromomethane | Not detected | 5 | 0.45 | ug/L | 1 | 74-95-3 | |
| cis-1,3-Dichloropropene | Not detected | 1 | 0.17 | ug/L | 1 | 10061-01-5 | |
| Toluene | Not detected | 1 | 0.17 | ug/L | 1 | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | 1 | 0.20 | ug/L | 1 | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | 1 | 0.34 | ug/L | 1 | 79-00-5 | |
| Tetrachloroethene | Not detected | 1 | 0.13 | ug/L | 1 | 127-18-4 | |
| trans-1,4-Dichloro-2-butene | Not detected | 1 | 0.26 | ug/L | 1 | 110-57-6 | |
| Dibromochloromethane | Not detected | 5 | 0.20 | ug/L | 1 | 124-48-1 | |
| 1,2-Dibromoethane | Not detected | 1 | 0.12 | ug/L | 1 | 106-93-4 | |
| Chlorobenzene | Not detected | 1 | 0.16 | ug/L | 1 | 108-90-7 | |
| 1,1,1,2-Tetrachloroethane | Not detected | 1 | 0.22 | ug/L | 1 | 630-20-6 | |
| Ethylbenzene | Not detected | 1 | 0.10 | ug/L | 1 | 100-41-4 | |
| p,m-Xylene* | Not detected | 2 | 0.42 | ug/L | 1 | | |



Analytical Laboratory Report

Lab Sample ID: S43321.04 (continued)

Sample Tag: VAS28-3-7

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/13/22 17:46, Analyst: KAG (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------------------|--------------|----|------|-------|----------|----------|-------|
| o-Xylene | Not detected | 1 | 0.16 | ug/L | 1 | 95-47-6 | |
| Styrene | Not detected | 1 | 0.13 | ug/L | 1 | 100-42-5 | |
| Isopropylbenzene | Not detected | 5 | 0.12 | ug/L | 1 | 98-82-8 | |
| Bromoform | Not detected | 1 | 0.35 | ug/L | 1 | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | 1 | 0.27 | ug/L | 1 | 79-34-5 | |
| 1,2,3-Trichloropropane | Not detected | 1 | 0.54 | ug/L | 1 | 96-18-4 | |
| n-Propylbenzene | Not detected | 1 | 0.12 | ug/L | 1 | 103-65-1 | |
| Bromobenzene | Not detected | 1 | 0.15 | ug/L | 1 | 108-86-1 | |
| 1,3,5-Trimethylbenzene | Not detected | 1 | 0.18 | ug/L | 1 | 108-67-8 | |
| tert-Butylbenzene | Not detected | 1 | 0.14 | ug/L | 1 | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | 1 | 0.16 | ug/L | 1 | 95-63-6 | |
| sec-Butylbenzene | Not detected | 1 | 0.16 | ug/L | 1 | 135-98-8 | |
| p-Isopropyltoluene | Not detected | 5 | 0.19 | ug/L | 1 | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.20 | ug/L | 1 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.18 | ug/L | 1 | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.13 | ug/L | 1 | 95-50-1 | |
| 1,2,3-Trimethylbenzene | Not detected | 1 | 0.14 | ug/L | 1 | 526-73-8 | |
| n-Butylbenzene | Not detected | 1 | 0.17 | ug/L | 1 | 104-51-8 | |
| Hexachloroethane | Not detected | 5 | 0.35 | ug/L | 1 | 67-72-1 | |
| 1,2-Dibromo-3-chloropropane | Not detected | 5 | 0.48 | ug/L | 1 | 96-12-8 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.24 | ug/L | 1 | 120-82-1 | |
| 1,2,3-Trichlorobenzene | Not detected | 5 | 0.25 | ug/L | 1 | 87-61-6 | |
| Naphthalene | Not detected | 5 | 0.18 | ug/L | 1 | 91-20-3 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.21 | ug/L | 1 | 91-57-6 | |



Analytical Laboratory Report

Lab Sample ID: S43321.05

Sample Tag: Trip Blank-03

Collected Date/Time: 12/09/2022 07:45

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|------------|-----------------|---------------|-------------------|---------------|
| 1 | 40ml Glass | HCL | Yes | 4.3 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--------------------|--------|--------|----------------|---------|-------|
| pH check for VOCs* | <2 | N/A | 12/14/22 11:30 | BDO | |

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/13/22 15:48, Analyst: KAG

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|--------------------------------|--------------|----|------|-------|----------|------------|-------|
| Diethyl ether | Not detected | 10 | 0.27 | ug/L | 1 | 60-29-7 | |
| Acetone | 7.2 | 50 | 4.0 | ug/L | 1 | 67-64-1 | J |
| Methyl iodide | Not detected | 1 | 0.24 | ug/L | 1 | 74-88-4 | |
| Carbon disulfide | 0.18 | 5 | 0.13 | ug/L | 1 | 75-15-0 | JB |
| tert-Methyl butyl ether (MTBE) | Not detected | 5 | 0.25 | ug/L | 1 | 1634-04-4 | |
| Acrylonitrile | Not detected | 2 | 0.38 | ug/L | 1 | 107-13-1 | |
| 2-Butanone (MEK) | Not detected | 25 | 3.3 | ug/L | 1 | 78-93-3 | |
| Dichlorodifluoromethane | Not detected | 5 | 0.57 | ug/L | 1 | 75-71-8 | |
| Chloromethane | Not detected | 5 | 0.20 | ug/L | 1 | 74-87-3 | |
| Vinyl chloride | Not detected | 1 | 0.24 | ug/L | 1 | 75-01-4 | |
| Bromomethane | Not detected | 5 | 0.18 | ug/L | 1 | 74-83-9 | |
| Chloroethane | Not detected | 5 | 0.21 | ug/L | 1 | 75-00-3 | |
| Trichlorofluoromethane | Not detected | 1 | 0.28 | ug/L | 1 | 75-69-4 | |
| 1,1-Dichloroethene | Not detected | 1 | 0.27 | ug/L | 1 | 75-35-4 | |
| Methylene chloride | 0.33 | 5 | 0.16 | ug/L | 1 | 75-09-2 | J |
| trans-1,2-Dichloroethene | Not detected | 1 | 0.14 | ug/L | 1 | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | 1 | 0.15 | ug/L | 1 | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | 1 | 0.21 | ug/L | 1 | 156-59-2 | |
| Tetrahydrofuran* | 1.3 | 90 | 1.2 | ug/L | 1 | 109-99-9 | J |
| Chloroform | Not detected | 1 | 0.15 | ug/L | 1 | 67-66-3 | |
| Bromochloromethane | Not detected | 1 | 0.36 | ug/L | 1 | 74-97-5 | |
| 1,1,1-Trichloroethane | Not detected | 1 | 0.27 | ug/L | 1 | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | 50 | 0.35 | ug/L | 1 | 108-10-1 | |
| 2-Hexanone | Not detected | 50 | 0.19 | ug/L | 1 | 591-78-6 | |
| Carbon tetrachloride | Not detected | 1 | 0.19 | ug/L | 1 | 56-23-5 | |
| Benzene | Not detected | 1 | 0.11 | ug/L | 1 | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | 1 | 0.17 | ug/L | 1 | 107-06-2 | |
| Trichloroethene | Not detected | 1 | 0.29 | ug/L | 1 | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | 1 | 0.18 | ug/L | 1 | 78-87-5 | |
| Bromodichloromethane | Not detected | 1 | 0.19 | ug/L | 1 | 75-27-4 | |
| Dibromomethane | Not detected | 5 | 0.45 | ug/L | 1 | 74-95-3 | |
| cis-1,3-Dichloropropene | Not detected | 1 | 0.17 | ug/L | 1 | 10061-01-5 | |
| Toluene | Not detected | 1 | 0.17 | ug/L | 1 | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | 1 | 0.20 | ug/L | 1 | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | 1 | 0.34 | ug/L | 1 | 79-00-5 | |

J-Estimated value less than reporting limit, but greater than MDL

B-Compound also found in associated method blank



Analytical Laboratory Report

Lab Sample ID: S43321.05 (continued)

Sample Tag: Trip Blank-03

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/13/22 15:48, Analyst: KAG (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------------------|--------------|----|------|-------|----------|----------|-------|
| Tetrachloroethene | Not detected | 1 | 0.13 | ug/L | 1 | 127-18-4 | |
| trans-1,4-Dichloro-2-butene | Not detected | 1 | 0.26 | ug/L | 1 | 110-57-6 | |
| Dibromochloromethane | Not detected | 5 | 0.20 | ug/L | 1 | 124-48-1 | |
| 1,2-Dibromoethane | Not detected | 1 | 0.12 | ug/L | 1 | 106-93-4 | |
| Chlorobenzene | Not detected | 1 | 0.16 | ug/L | 1 | 108-90-7 | |
| 1,1,1,2-Tetrachloroethane | Not detected | 1 | 0.22 | ug/L | 1 | 630-20-6 | |
| Ethylbenzene | Not detected | 1 | 0.10 | ug/L | 1 | 100-41-4 | |
| p,m-Xylene* | Not detected | 2 | 0.42 | ug/L | 1 | | |
| o-Xylene | Not detected | 1 | 0.16 | ug/L | 1 | 95-47-6 | |
| Styrene | Not detected | 1 | 0.13 | ug/L | 1 | 100-42-5 | |
| Isopropylbenzene | Not detected | 5 | 0.12 | ug/L | 1 | 98-82-8 | |
| Bromoform | Not detected | 1 | 0.35 | ug/L | 1 | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | 1 | 0.27 | ug/L | 1 | 79-34-5 | |
| 1,2,3-Trichloropropane | Not detected | 1 | 0.54 | ug/L | 1 | 96-18-4 | |
| n-Propylbenzene | Not detected | 1 | 0.12 | ug/L | 1 | 103-65-1 | |
| Bromobenzene | Not detected | 1 | 0.15 | ug/L | 1 | 108-86-1 | |
| 1,3,5-Trimethylbenzene | Not detected | 1 | 0.18 | ug/L | 1 | 108-67-8 | |
| tert-Butylbenzene | Not detected | 1 | 0.14 | ug/L | 1 | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | 1 | 0.16 | ug/L | 1 | 95-63-6 | |
| sec-Butylbenzene | Not detected | 1 | 0.16 | ug/L | 1 | 135-98-8 | |
| p-Isopropyltoluene | Not detected | 5 | 0.19 | ug/L | 1 | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.20 | ug/L | 1 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.18 | ug/L | 1 | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.13 | ug/L | 1 | 95-50-1 | |
| 1,2,3-Trimethylbenzene | Not detected | 1 | 0.14 | ug/L | 1 | 526-73-8 | |
| n-Butylbenzene | Not detected | 1 | 0.17 | ug/L | 1 | 104-51-8 | |
| Hexachloroethane | Not detected | 5 | 0.35 | ug/L | 1 | 67-72-1 | |
| 1,2-Dibromo-3-chloropropane | Not detected | 5 | 0.48 | ug/L | 1 | 96-12-8 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.24 | ug/L | 1 | 120-82-1 | |
| 1,2,3-Trichlorobenzene | Not detected | 5 | 0.25 | ug/L | 1 | 87-61-6 | |
| Naphthalene | Not detected | 5 | 0.18 | ug/L | 1 | 91-20-3 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.21 | ug/L | 1 | 91-57-6 | |



Analytical Laboratory Report

Lab Sample ID: S43321.06

Sample Tag: VAS-21-SB-5-7

Collected Date/Time: 12/07/2022 15:00

Matrix: Soil

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|------------|-----------------|---------------|-------------------|---------------|
| 1 | 32oz Glass | None | Yes | 5.1 | IR |
| 2 | 4oz Glass | None | Yes | 5.1 | IR |

Inorganics

Method: , Run Date: 12/15/22 20:34, Analyst: GEL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|-----------|----|-----|-------|----------|------|-------|
| TOC* | Completed | | | | 1 | | O |

Method: SW9045D, Run Date: 12/16/22 15:42, Analyst: SSM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------|--------|------|------|-----------|----------|------|-------|
| pH/ Corrosivity | 7.86 | 0.01 | 0.01 | STD Units | 1 | | |

Other / Misc.

Method: , Run Date: 12/29/22 12:00, Analyst: GTS

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------|-----------|----|-----|-------|----------|------|-------|
| Misc. Special Project* | Completed | | | | 1 | | O |

O-Analysis performed by outside laboratory. See attached report.



Analytical Laboratory Report

Lab Sample ID: S43321.07

Sample Tag: VAS-23-SB-5-7

Collected Date/Time: 12/08/2022 10:15

Matrix: Soil

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|------------|-----------------|---------------|-------------------|---------------|
| 1 | 32oz Glass | None | Yes | 5.1 | IR |
| 2 | 4oz Glass | None | Yes | 5.1 | IR |

Inorganics

Method: , Run Date: 12/15/22 20:56, Analyst: GEL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|-----------|----|-----|-------|----------|------|-------|
| TOC* | Completed | | | | 1 | | O |

Method: SW9045D, Run Date: 12/16/22 15:53, Analyst: SSM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------|--------|------|------|-----------|----------|------|-------|
| pH/ Corrosivity | 7.74 | 0.01 | 0.01 | STD Units | 1 | | |

Other / Misc.

Method: , Run Date: 12/29/22 12:00, Analyst: GTS

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------|-----------|----|-----|-------|----------|------|-------|
| Misc. Special Project* | Completed | | | | 1 | | O |

O-Analysis performed by outside laboratory. See attached report.



Analytical Laboratory Report

Lab Sample ID: S43321.08

Sample Tag: VAS-26-SB-4-6

Collected Date/Time: 12/08/2022 17:00

Matrix: Soil

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|------------|-----------------|---------------|-------------------|---------------|
| 1 | 32oz Glass | None | Yes | 5.1 | IR |
| 2 | 4oz Glass | None | Yes | 5.1 | IR |

Inorganics

Method: , Run Date: 12/16/22 14:36, Analyst: GEL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|-----------|----|-----|-------|----------|------|-------|
| TOC* | Completed | | | | 1 | | O |

Method: SW9045D, Run Date: 12/16/22 16:04, Analyst: SSM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------|--------|------|------|-----------|----------|------|-------|
| pH/ Corrosivity | 7.45 | 0.01 | 0.01 | STD Units | 1 | | |

Other / Misc.

Method: , Run Date: 12/29/22 12:00, Analyst: GTS

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------|-----------|----|-----|-------|----------|------|-------|
| Misc. Special Project* | Completed | | | | 1 | | O |

O-Analysis performed by outside laboratory. See attached report.

Merit Laboratories Login Checklist

Lab Set ID:S43321

Client:WSP (WSP)

Project: Former JB Sims Generating Station, Harbor Island, GrandHaven

Submitted: 12/09/2022 16:15 Login User: BJB

Attention: Saamih Bashir

Address: WSP

45850 Magellan Drive, Suite 190

Novi, MI 48377

Phone: n/a

FAX:

Email: Saamih.Bashir@wsp.com

| Selection | Description | Note |
|--------------------------|--|---|
| Sample Receiving | | |
| 01. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 4.3 |
| 02. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun |
| 03. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped |
| 04. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box |
| 05. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |
| Chain of Custody | | |
| 06. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out |
| 07. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab |
| 08. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC |
| 09. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to: GEL & GeoTechnical Testing |
| Preservation | | |
| 10. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation |
| 11. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs) |
| 12. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab? |
| Bottle Conditions | | |
| 13. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact |
| 14. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used |
| 15. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used |
| 16. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received |
| 17. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration |
| 18. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time |
| 19. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace |

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S43321 Submitted: 12/09/2022 16:15

Client: WSP (WSP)

Project: Former JB Sims Generating Station, Harbor Island, GrandHaven

Attention: Saamih Bashir

Address: WSP

45850 Magellan Drive, Suite 190
Novi, MI 48377

Initial Preservation Check: 12/09/2022 16:44 BJB

Phone: n/a

FAX:

Preservation Recheck (E200.8): 12/12/2022 09:46 MMC

Email: Saamih.Bashir@wsp.com

| Sample ID | Bottle / Preservation | pH (Orig) | Add ml | pH (New) | Notes |
|-----------|-----------------------|-----------|--------|----------|-------------------|
| S43321.01 | 125ml Plastic HNO3 | <2 | | | |
| S43321.02 | 125ml Plastic HNO3 | <2 | | | |
| S43321.03 | 125ml Plastic HNO3 | 4 | +0.5 | <2 | Lot # 20220422108 |
| S43321.04 | 125ml Plastic HNO3 | <2 | | | |

WSP USA Environment & Infrastructure Inc.
 46850 Magellan Drive, Suite 190
 Novi, Michigan 48377
 (248) 926-4008

CHAIN OF CUSTODY

SHIP TO:
 Merit Laboratories, Inc.
 2680 East Lansing Drive
 East Lansing, MI 48823
 Atten: Johanna Murray
 Lab Phone# 517-827-2755

DATE: 12/9/2022

COC #:

PAGE: 2 OF 45

| | | | |
|--|---------------------------------------|---|-----------------------------------|
| Project Name: Former JB Sims Generating Station, Harbor Island, Grand Haven | Project Contact: Zach McCurley | Bill To: WSP-USA Environment & Infrastructure Inc. | Disposal Instructions: LAB |
| Project Number: 3650220203.02.02.3650 | Phone Number: 248-775-9823 | Attn: Saamih Bashir | Shipment Method: FEDEX |
| Project Manager: Saamih Bashir | Purchase Order: C012407104 | 46850 Magellan Dr., Ste 190 Novi, MI 48377 | Waybill Number: N/A |
| Sampler Name: Jared Walbert | | | Waybill Number: N/A |

MATRIX Code W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL SW=SURFACE WATER
 L=LIQUID SD=SEDIMENT SL=SLUDGE DW=DRINKING WATER O=OIL A=AIR WS=WASTE

| | | | |
|---------------------------------|--------|----------|--|
| TURNAROUND TIME REQUIRED | 2 Days | 5 Days | <input checked="" type="checkbox"/> Standard (10 TAT) |
| DELIVERABLES REQUIRED | STD | Level II | Level III <input checked="" type="checkbox"/> Level IV <input checked="" type="checkbox"/> EDD |

| Sample Information | | | | | | Methods for Analysis | | | | | | RUSH | | | | | | |
|--------------------|----------|---------------|-----------|-------|--------|----------------------|------------------------------|---------------------|----------------------|-----------------------------|-------------------------------|--------------------------------------|----------------------|--------|---------|---------|---------|--------|
| No. | Lab ID | Sample ID | Date | Time | Matrix | # of Bottles | PFAS ASTM D 979 Per Contract | VOCs (Per Contract) | SVOCs (Per Contract) | MI 10 Metals (per Contract) | pH/corrosivity (per Contract) | particle size (sieve and hydrometer) | Total Organic Carbon | MS/MSD | 24 Hour | 48 Hour | 72 Hour | 5 Days |
| 13 | 43321.01 | VAS21-5-9 | 12/7/2022 | 15:20 | GW | 6 | X | X | X | | | | | | | | | |
| 14 | .02 | VAS23-5-9 | 12/8/2022 | 11:15 | GW | 6 | X | X | X | | | | | | | | | |
| 15 | .03 | VAS26-4-8 | 12/8/2022 | 17:55 | GW | 6 | X | X | X | | | | | | | | | |
| 16 | .04 | VAS28-3-7 | 12/9/2022 | 12:50 | GW | 6 | X | X | X | | | | | | | | | |
| 17 | .05 | Teip Blank-03 | 12/9/2022 | 7:45 | GW | 1 | X | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | | | | | |

| | | | |
|--|----------------------|-------------------|---|
| Relinquished By/Affiliation: <i>Blake White</i> | Date: 12/9/22 | Time: 1615 | For Lab Use Does COC match samples: Y or N Broken Container: Y or N COC seal intact: Y or N Other problems: Y or N WSDOT contacted: Y or N Date contacted: _____ Cooler Temperature at receipt: 4.3 °C NUMBER OF COOLERS SENT: 1 |
| Received By: <i>Johanna Murray</i> | Date: 12/9/22 | Time: 1615 | |
| Relinquished By/Affiliation: | Date: | Time: | |
| Received By: | Date: | Time: | |
| Relinquished By/Affiliation: | Date: | Time: | |
| Received By (LAB): | Date: | Time: | |

WSP USA Environment & Infrastructure Inc.
 46850 Magellan Drive, Suite 190
 Novi, Michigan 48377
 (248) 926-4008

CHAIN OF CUSTODY

SHIP TO:
 Merit Laboratories, Inc.
 2680 East Lansing Drive
 East Lansing, MI 48823
 Atten: Johanna Murray
 Lab Phone# 517-827-2755

DATE: 12/9/2022

COC #: _____

PAGE: 3 OF 4

| | | | |
|--|---------------------------------------|---|-----------------------------------|
| Project Name: Former JB Sims Generating Station, Harbor Island, Grand Haven | Project Contact: Zach McCurley | Bill To: WSP USA Environment & Infrastructure Inc. | Disposal Instructions: LAB |
| Project Number: 3650220203.02.02.3650 | Phone Number: 248-775-9823 | Attr: Saamih Bashir | Shipment Method: FEDEX |
| Project Manager: Saamih Bashir | Purchase Order: C012407104 | 46850 Magellan Dr., Ste 190 Novi, MI 48377 | Waybill Number: N/A |
| Sampler Name: Jared Walbert | | | Waybill Number: N/A |

MATRIX Code W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL SW=SURFACE WATER
 L=LIQUID SD=SEDIMENT SL=SLUDGE DW=DRINKING WATER O=OIL A=AIR WS=WASTE

| | | | |
|---------------------------------|--------|----------|--|
| TURNAROUND TIME REQUIRED | 2 Days | 5 Days | <input checked="" type="checkbox"/> Standard (10 TAT) |
| DELIVERABLES REQUIRED | STD | Level II | Level III <input checked="" type="checkbox"/> Level IV <input checked="" type="checkbox"/> EDD |

| Sample Information | | | | | | Methods for Analysis | | | | | | RUSH | | | | | | | |
|--------------------|----------|--------------|-----------|-------|--------|----------------------|------------------------------|---------------------|----------------------|-----------------------------|-------------------------------|--------------------------------------|----------------------|------------------------------|--------|---------|---------|---------|--------|
| No. | Lab ID | Sample ID | Date | Time | Matrix | # of Bottles | PFAS ASTM D7979 Per Contract | VOCs (Per Contract) | SVOCs (Per Contract) | MI 10 Metals (per Contract) | pH/corrosivity (per Contract) | particle size (sieve and hydrometer) | Total Organic Carbon | PFAS ASTM D7968 Per Contract | MS/MSD | 24 Hour | 48 Hour | 72 Hour | 5 Days |
| 1 | 43321.06 | VAS21-SB-5-7 | 12/7/2022 | 15:00 | S | 2 | | | | | x | x | x | | | | | | |
| 2 | .07 | VAS23-SB-5-7 | 12/8/2022 | 10:15 | S | 2 | | | | | x | x | x | | | | | | |
| 3 | .08 | VAS26-SB-4-6 | 12/8/2022 | 17:00 | S | 2 | | | | | x | x | x | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | |

| | | | | |
|---|----------------------|-------------------|--|-----------------------|
| Relinquished By/Affiliation: <i>Kurt White</i> | Date: 12/9/22 | Time: 1615 | For Lab Use Does COC match samples: Y or N Broken Container: Y or N COC seal intact: Y or N Other problems: Y or N WSDOT contacted: Y or N Date contacted: _____ Cooler Temperature at receipt: 5.1 °C NUMBER OF COOLERS SENT: 1 | Comments: X |
| Received By: <i>Johanna Murray</i> | Date: 12/9/22 | Time: 1615 | | |
| Relinquished By/Affiliation: | Date: | Time: | | |
| Received By: | Date: | Time: | | |
| Relinquished By/Affiliation: | Date: | Time: | | |
| Received By (LAB): | Date: | Time: | | |

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Merit Laboratories, Inc
 Client Project S43321
 Project No. 45368

Boring NA
 Depth NA
 Sample S43321.06
 Lab Sample 45368001

Sample Color: **GRAY**
 USCS Group Name: **POORLY GRADED SAND WITH SILT**
 USCS Group Symbol: **sp-sm** USDA: **SAND**

Dry Prep: R58-11(2018)¹

| MECHANICAL SIEVE | | | | | | | |
|-------------------------------|--------------|------------|---------------------|------------|------------------|--------------------|------------------------|
| Total Sample | | Sieve Size | Nominal Opening, mm | Dry Wt, gm | Split % Retained | Normalized % Finer | Project Specifications |
| Tare No. | Q59 | 3" | 75 | 0 | 0.0% | 100.0% | |
| Tare + WS., gm | 1167.99 | 2-1/2" | 63 | 0 | 0.0% | 100.0% | |
| Tare + DS., gm | 1019.93 | 2" | 50 | 0 | 0.0% | 100.0% | |
| Tare, gm | 191.12 | 1-1/2" | 37.5 | 0 | 0.0% | 100.0% | |
| Total sample WC | 17.9% | 1" | 25 | 0 | 0.0% | 100.0% | |
| Total Sample Dry Wt, gm (-3") | 829 | 3/4" | 19 | 0 | 0.0% | 100.0% | |
| Hygroscopic WC (-#10) | | 1/2" | 12.5 | 12.75 | 1.5% | 98.5% | |
| Tare No. | 310 | 3/8" | 9.5 | 33.05 | 4.0% | 94.5% | |
| Tare + WS., gm | 31.79 | No. 4 | 4.75 | 35.07 | 4.2% | 90.2% | |
| Tare + DS., gm | 31.79 | No. 10 | 2 | 39.45 | 4.8% | 85.5% | |
| Tare, gm | 11.29 | No. 20 | 0.85 | 2.05 | 1.7% | 83.8% | |
| Hygroscopic WC | 0.00% | No. 40 | 0.425 | 8.6 | 7.0% | 76.8% | |
| -#10 Hydro/Sieve air dry wt. | 105.29 | No. 60 | 0.25 | 46.82 | 38.0% | 38.8% | |
| Wt. of +#200 Sample, gm | 98.15 | No. 140 | 0.106 | 38.52 | 31.3% | 7.6% | |
| | | No. 200 | 0.075 | 2.16 | 1.8% | 5.8% | |

| HYDROMETER (-#10) | | | |
|--------------------------|--------|--|------------------------|
| Split Air Dry Wt | 105.29 | Specific Gravity | 2.7 |
| Hygroscopic WC | 0.00% | | Assumed |
| Corrected Dry wt | 105.3 | <i>-#10 Dispersed 1min in Hamilton Beach Mixer</i> | <i>a Factor 0.9889</i> |

| Elapsed Time (min.) | R Measured | Temp °C | Composite Correction | R Corrected | K Factor | Percent Finer (%) | Particle Diameter (mm) | Adjusted % Finer (%) |
|---------------------|------------|---------|----------------------|-------------|----------|-------------------|------------------------|----------------------|
| 2 | 9 | 24 | 4.9 | 4.1 | 0.0128 | 3.9 | 0.0349 | 3.3% |
| 5 | 8.5 | 24.1 | 4.9 | 3.6 | 0.0128 | 3.4 | 0.0221 | 2.9% |
| 15 | 8 | 24.2 | 4.9 | 3.1 | 0.0128 | 2.9 | 0.0128 | 2.5% |
| 30 | 7 | 24.4 | 4.8 | 2.2 | 0.0128 | 2.1 | 0.0091 | 1.8% |
| 60 | 6 | 24.7 | 4.8 | 1.2 | 0.0127 | 1.1 | 0.0064 | 1.0% |
| 250 | 6 | 24.3 | 4.9 | 1.1 | 0.0128 | 1.0 | 0.0032 | 0.9% |
| 1440 | 6 | 24.1 | 4.9 | 1.1 | 0.0128 | 1.0 | 0.0013 | 0.9% |

| USCS SOIL CLASSIFICATION | | | | USDA CLASSIFICATION | | | | | | | | | | |
|--|-------------|-----------------------------------|-------------|----------------------------|-------------------|--|-----|--|--------|------|------|------|-------|-----|
| <i>Corrected For 100% Passing a 3" Sieve</i> | | | | Particle Size (mm) | Percent Finer (%) | Percent of Each Component (Material) (%) | | Corrected Percent of -2.0 mm Material for USDA | | | | | | |
| % Gravel (-3" & +#4) | 9.8 | Silt=4.9% Clay=0.9% | | | | 100 | 100 | | Gravel | 14.5 | | | | |
| <i>Coarse=0; Fine=9.8</i> | | D60, mm | 0.34 | | | | | | 2 | 85.5 | Sand | 81.0 | | |
| % Sand (-#4 & +#200) | 84.4 | D30, mm | 0.20 | | | | | | | | 0.05 | 4.5 | Silt | 3.6 |
| <i>Coarse=4.8; Medium=8.6; Fine=71</i> | | D10, mm | 0.11 | | | | | | | | | | 0.002 | 0.9 |
| % Fines (-#200) | 5.8 | Cc 1.01 | | USDA Classification | | SAND | | | | | | | | |
| % Plus #200 (-3") | 94.2 | Cu 2.96 | | | | | | | | | | | | |
| USCS Description | | | | | | | | | | | | | | |
| POORLY GRADED SAND WITH SILT | | | | | | | | | | | | | | |
| USCS Group Symbol | | Atterberg Limits Group Symbol | | | | | | | | | | | | |
| sp-sm | | np - Non-Plastic (assumed) | | | | | | | | | | | | |
| Auxiliary Information | | Wt Ret, gm | % Retained | % Finer | | | | | | | | | | |
| 12" Sieve - 300 mm | | 0 | 0.0 | 100.0 | | | | | | | | | | |
| 6" Sieve - 150 mm | | 0 | 0.0 | 100.0 | | | | | | | | | | |
| 3" Sieve - 75 mm | | 0 | 0.0 | 100.0 | | | | | | | | | | |

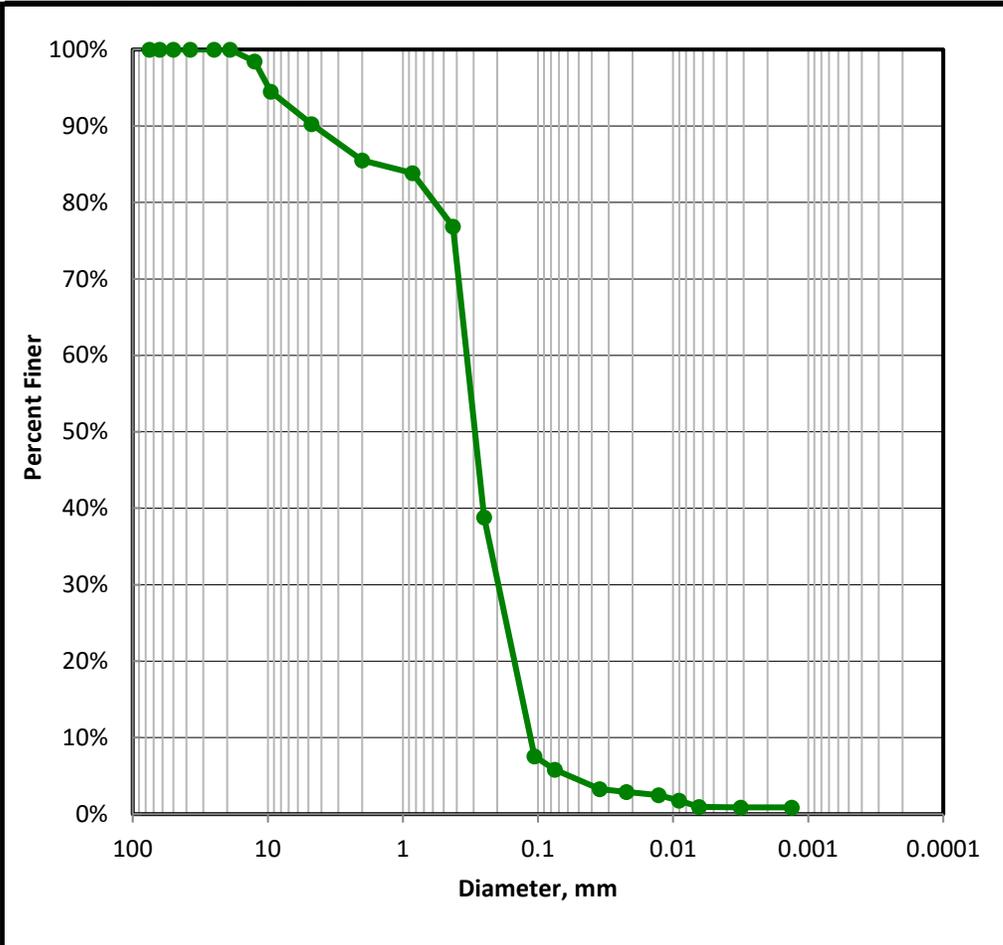
Input Validation RS Reviewed By: JK Date Tested 12/29/2022

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Merit Laboratories, Inc
 Client Project S43321
 Project No. 45368

Boring NA
 Depth NA
 Sample S43321.06
 Lab Sample 45368001

Sample Color: **GRAY**
 USCS Group Name: **POORLY GRADED SAND WITH SILT**
 USCS Group Symbol: **sp-sm** USDA: **SAND**



| US Std. Sieve Size | Particle Diameter (mm) | Percent Finer |
|--------------------|------------------------|---------------|
| 3" | 75 | 100.0% |
| 2-1/2" | 63 | 100.0% |
| 2" | 50 | 100.0% |
| 1-1/2" | 37.5 | 100.0% |
| 1" | 25 | 100.0% |
| 3/4" | 19 | 100.0% |
| 1/2" | 12.5 | 98.5% |
| 3/8" | 9.5 | 94.5% |
| No. 4 | 4.75 | 90.2% |
| No. 10 | 2 | 85.5% |
| No. 20 | 0.85 | 83.8% |
| No. 40 | 0.425 | 76.8% |
| No. 60 | 0.25 | 38.8% |
| No. 140 | 0.106 | 7.6% |
| No. 200 | 0.075 | 5.8% |
| NA | 0.0349 | 3.3% |
| NA | 0.0221 | 2.9% |
| NA | 0.0128 | 2.5% |
| NA | 0.0091 | 1.8% |
| NA | 0.0064 | 1.0% |
| NA | 0.0032 | 0.9% |
| NA | 0.0013 | 0.9% |

| USCS SOIL CLASSIFICATION | | | |
|--|-------------------|--------------------------------------|----------------|
| <i>Corrected For 100% Passing a 3" Sieve</i> | | | |
| % Gravel (-3" & +#4) | 9.8 | Silt=4.9% Clay=0.9% | |
| Coarse=0; Fine=9.8 | | D60, mm | 0.336 |
| % Sand (-#4 & +#200) | 84.4 | D30, mm | 0.196 |
| Coarse=4.8; Medium=8.6; Fine=71 | | D10, mm | 0.113 |
| % Fines (-#200) | 5.8 | Cc | 1.010 |
| % Plus #200 (-3") | 94.2 | Cu | 2.960 |
| USCS Description | | | |
| POORLY GRADED SAND WITH SILT | | | |
| USCS Group Symbol | | Atterberg Limits Group Symbol | |
| sp-sm | | np - Non-Plastic (assumed) | |
| Auxiliary Information | Wt Ret, gm | % Retained | % Finer |
| 12" Sieve - 300 mm | 0 | 0.0 | 100.0 |
| 6" Sieve - 150 mm | 0 | 0.0 | 100.0 |
| 3" Sieve - 75 mm | 0 | 0.0 | 100.0 |

| USDA CLASSIFICATION | | | |
|----------------------------|-------------------|--|--|
| Particle Size (mm) | Percent Finer (%) | Percent of Each Component (Material) (%) | Corrected Percent of -2.0 mm Material for USDA |
| 100 | 100 | | |
| 2 | 85.5 | Gravel 14.5 | 0 |
| 0.05 | 4.5 | Sand 81.0 | 94.8 |
| 0.002 | 0.9 | Silt 3.6 | 4.2 |
| | | Clay 0.9 | 1.0 |
| USDA Classification | | | |
| SAND | | | |

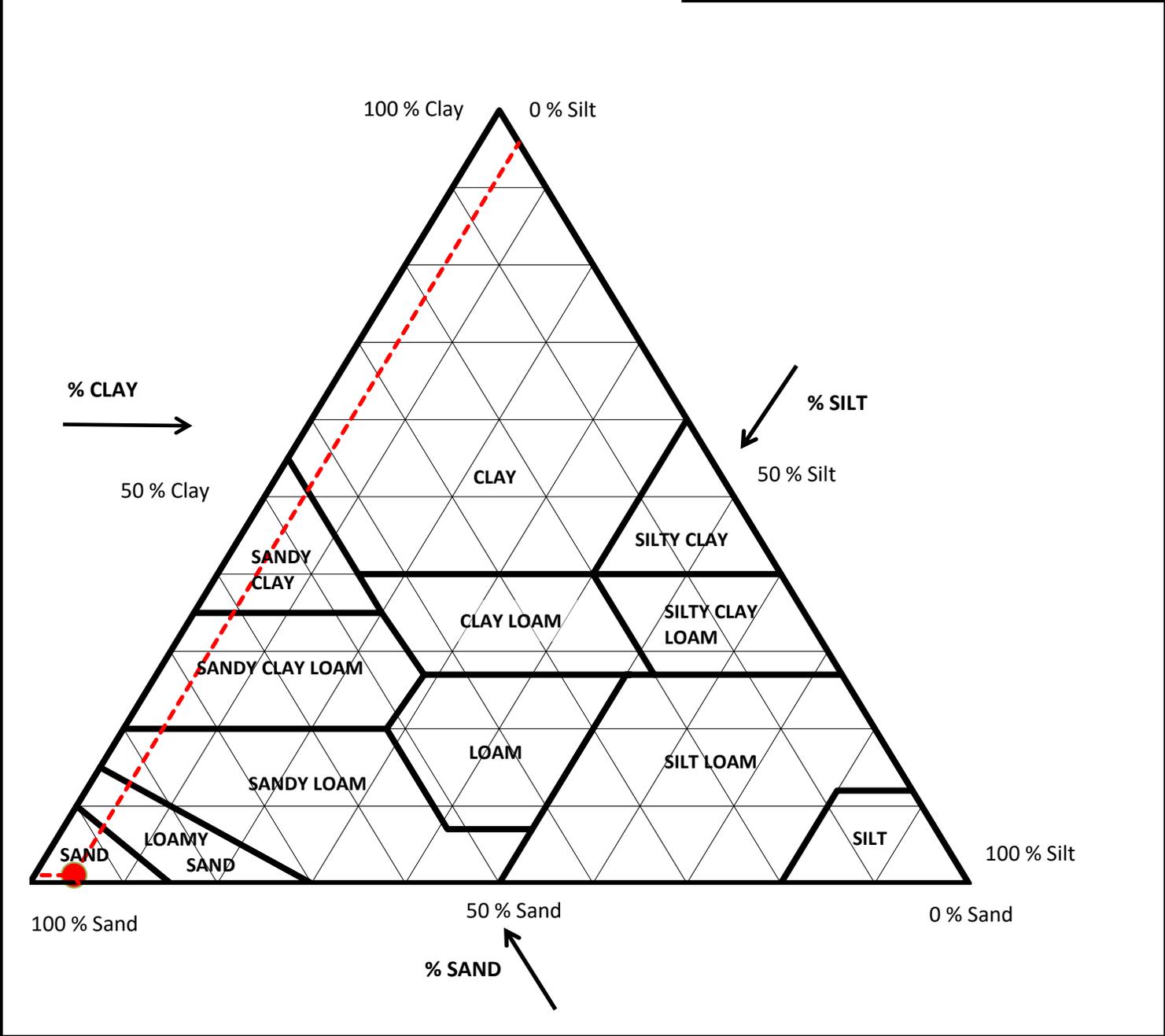
USDA CLASSIFICATION CHART

Client Merit Laboratories, Inc
 Client Project S43321
 Project No. 45368

Boring NA
 Depth NA
 Sample S43321.06
 Lab Sample 45368001

Sample Color: **GRAY**
 USCS Group Name: **POORLY GRADED SAND WITH SILT**
 USCS Group Symbol: **sp-sm** USDA: **SAND**

| Corrected for 0% gravel | | Sand Subsizes Corrected Percentages | |
|-------------------------|------|--|-------------|
| Percent Gravel, % | 0.0 | Very Coarse Sand; 2-1 | 1.6 |
| Percent Sand, % | 94.8 | Coarse Sand; 1-0.5 | 6.6 |
| Percent Silt, % | 4.2 | Medium Sand; 0.5-0.25 | 46.4 |
| Percent Clay, % | 1.0 | Fine Sand; 0.25-0.1 | 36.9 |
| | | Very Fine Sand; 0.1-0.05 | 3.3 |
| | | Total | 94.8 |



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Merit Laboratories, Inc
 Client Project S43321
 Project No. 45368

Boring NA
 Depth NA
 Sample S43321.07
 Lab Sample 45368002

Sample Color: **GRAY**
 USCS Group Name: **POORLY GRADED SAND WITH GRAVEL**
 USCS Group Symbol: **sp** USDA: **SAND**

Dry Prep: R58-11(2018)¹

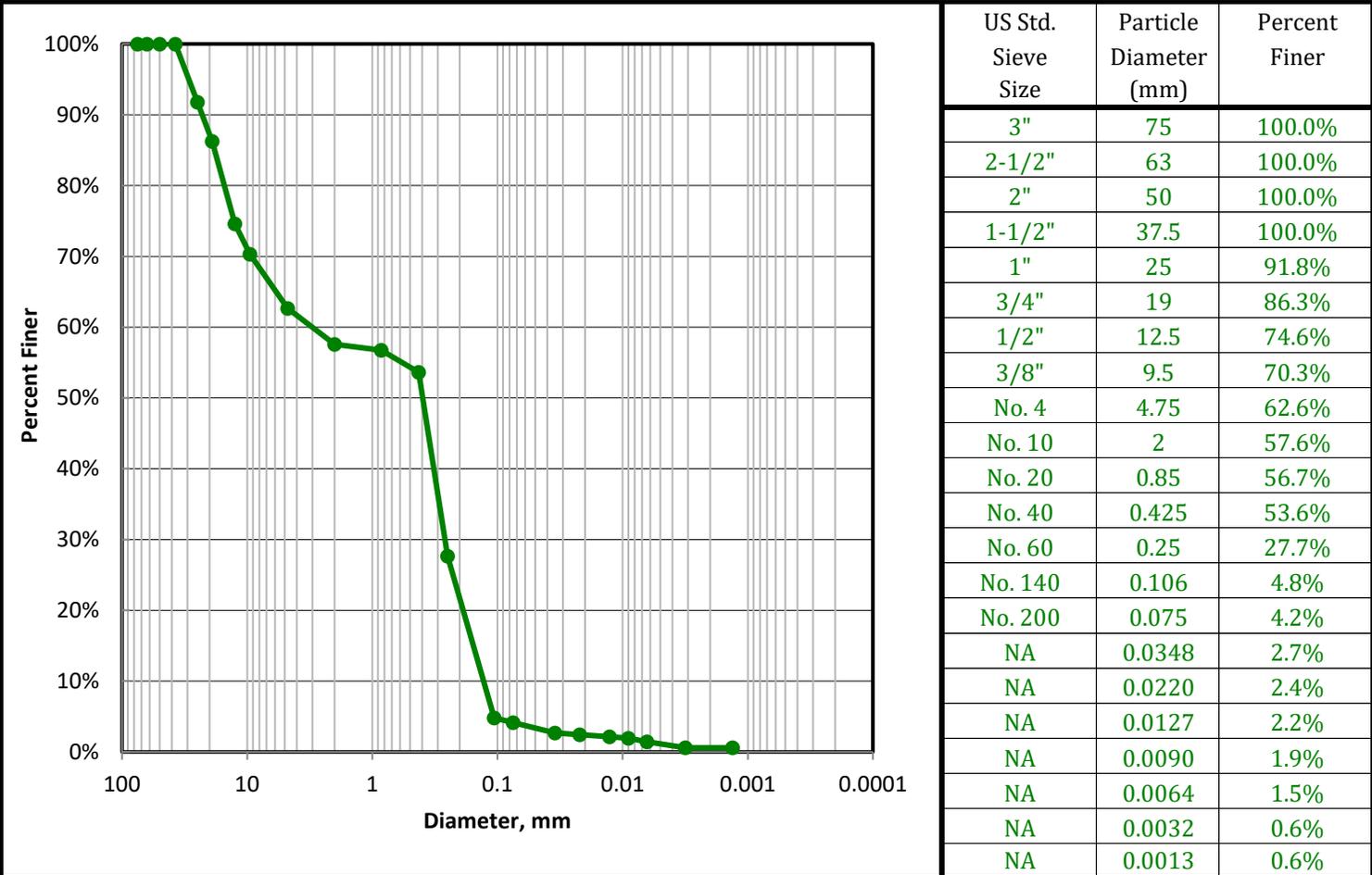
| MECHANICAL SIEVE | | | | | | | | |
|---------------------------------------|-------------------------------|---|----------------------|---------------------|-------------------|--|--|----------------------|
| Total Sample | | Sieve Size | Nominal Opening, mm | Dry Wt, gm | Split % Retained | Normalized % Finer | Project Specifications | |
| Tare No. | 912 | 3" | 75 | 0 | 0.0% | 100.0% | | |
| Tare + WS., gm | 1084.39 | 2-1/2" | 63 | 0 | 0.0% | 100.0% | | |
| Tare + DS., gm | 908.97 | 2" | 50 | 0 | 0.0% | 100.0% | | |
| Tare, gm | 186.99 | 1-1/2" | 37.5 | 0 | 0.0% | 100.0% | | |
| Total sample WC | 24.3% | 1" | 25 | 59.18 | 8.2% | 91.8% | | |
| Total Sample Dry Wt, gm (-3") | 722 | 3/4" | 19 | 39.93 | 5.5% | 86.3% | | |
| Hygroscopic WC (-#10) | | 1/2" | 12.5 | 84.24 | 11.7% | 74.6% | | |
| Tare No. | 419 | 3/8" | 9.5 | 30.94 | 4.3% | 70.3% | | |
| Tare + WS., gm | 27.94 | No. 4 | 4.75 | 55.44 | 7.7% | 62.6% | | |
| Tare + DS., gm | 27.8 | No. 10 | 2 | 36.52 | 5.1% | 57.6% | | |
| Tare, gm | 10.7 | No. 20 | 0.85 | 1.55 | 0.8% | 56.7% | | |
| Hygroscopic WC | 0.82% | No. 40 | 0.425 | 5.71 | 3.1% | 53.6% | | |
| -#10 Hydro/Sieve air dry wt. | 105.42 | No. 60 | 0.25 | 47.49 | 25.9% | 27.7% | | |
| Wt. of +#200 Sample, gm | 97.79 | No. 140 | 0.106 | 41.82 | 22.8% | 4.8% | | |
| | | No. 200 | 0.075 | 1.22 | 0.7% | 4.2% | | |
| HYDROMETER (-#10) | | | | | | | | |
| Split Air Dry Wt | 106.28 | | | | | | Specific Gravity | 2.7 |
| Hygroscopic WC | 0.82% | | | | | | | Assumed |
| Corrected Dry wt | 105.4 | -#10 Dispersed 1min in Hamilton Beach Mixer | | | | | a Factor | 0.9889 |
| Elapsed Time (min.) | R Measured | Temp °C | Composite Correction | R Corrected | K Factor | Percent Finer (%) | Particle Diameter (mm) | Adjusted % Finer (%) |
| 2 | 10 | 23.7 | 5.0 | 5.0 | 0.0129 | 4.7 | 0.0348 | 2.7% |
| 5 | 9.5 | 23.8 | 5.0 | 4.5 | 0.0129 | 4.2 | 0.0220 | 2.4% |
| 15 | 9 | 23.9 | 5.0 | 4.0 | 0.0129 | 3.8 | 0.0127 | 2.2% |
| 30 | 8.5 | 24.2 | 4.9 | 3.6 | 0.0128 | 3.4 | 0.0090 | 1.9% |
| 60 | 7.5 | 24.6 | 4.8 | 2.7 | 0.0128 | 2.5 | 0.0064 | 1.5% |
| 250 | 6 | 24.3 | 4.9 | 1.1 | 0.0128 | 1.0 | 0.0032 | 0.6% |
| 1440 | 6 | 24.1 | 4.9 | 1.1 | 0.0128 | 1.0 | 0.0013 | 0.6% |
| USCS SOIL CLASSIFICATION | | | | USDA CLASSIFICATION | | | | |
| Corrected For 100% Passing a 3" Sieve | | | | Particle Size (mm) | Percent Finer (%) | Percent of Each Component (Material) (%) | Corrected Percent of -2.0 mm Material for USDA | |
| % Gravel (-3" & +#4) | 37.4 | Silt=3% Clay=1.2% | D60, mm | 3.02 | 100 | 100 | 0 | |
| Coarse=13.7; Fine=23.6 | | D30, mm | 0.26 | | | | | |
| % Sand (-#4 & +#200) | 58.5 | D10, mm | 0.13 | | | | | |
| Coarse=5.1; Medium=4; Fine=49.5 | | Cc | 0.18 | | | | | |
| % Fines (-#200) | 4.2 | Cu | 23.50 | | | | | |
| % Plus #200 (-3") | 95.8 | | | | Gravel | 42.4 | | |
| USCS Description | | | | 2 | 57.6 | Sand | 54.2 | 94.1 |
| POORLY GRADED SAND WITH GRAVEL | | | | 0.05 | 3.4 | Silt | 2.8 | 4.9 |
| USCS Group Symbol | Atterberg Limits Group Symbol | | | 0.002 | 0.6 | Clay | 0.6 | 1.0 |
| sp | np - Non-Plastic (assumed) | | | | | | | |
| Auxiliary Information | Wt Ret, gm | % Retained | % Finer | | | | | |
| 12" Sieve - 300 mm | 0 | 0.0 | 100.0 | | | | | |
| 6" Sieve - 150 mm | 0 | 0.0 | 100.0 | | | | | |
| 3" Sieve - 75 mm | 0 | 0.0 | 100.0 | | | | | |
| | | | | USDA Classification | | | | |
| | | | | SAND | | | | |

Input Validation RS Reviewed By: JK Date Tested 12/29/2022

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

| | | | |
|----------------|-------------------------|------------|-----------|
| Client | Merit Laboratories, Inc | Boring | NA |
| Client Project | S43321 | Depth | NA |
| Project No. | 45368 | Sample | S43321.07 |
| | | Lab Sample | 45368002 |

Sample Color: **GRAY**
 USCS Group Name: **POORLY GRADED SAND WITH GRAVEL**
 USCS Group Symbol: **sp** USDA: **SAND**



| USCS SOIL CLASSIFICATION | | | | USDA CLASSIFICATION | | | | | | |
|--|-------------|-----------------------------------|---------|---------------------|-------------------|--|--|------|--------|------|
| <i>Corrected For 100% Passing a 3" Sieve</i> | | | | Particle Size (mm) | Percent Finer (%) | Percent of Each Component (Material) (%) | Corrected Percent of -2.0 mm Material for USDA | | | |
| % Gravel (-3" & +#4) | 37.4 | Silt=3% Clay=1.2% | 100 | | | | | 100 | | |
| Coarse=13.7; Fine=23.6 | | D60, mm | 2 | | | | | 57.6 | Gravel | 42.4 |
| % Sand (-#4 & +#200) | 58.5 | D30, mm | 0.05 | | | | | 3.4 | Sand | 54.2 |
| Coarse=5.1; Medium=4; Fine=49.5 | | D10, mm | 0.002 | | | | | 0.6 | Silt | 2.8 |
| % Fines (-#200) | 4.2 | Cc | | | Clay | 0.6 | 1.0 | | | |
| % Plus #200 (-3") | 95.8 | Cu | | | | | | | | |
| USCS Description | | | | USDA Classification | | | | | | |
| POORLY GRADED SAND WITH GRAVEL | | | | SAND | | | | | | |
| USCS Group Symbol | | Atterberg Limits Group Symbol | | | | | | | | |
| sp | | np - Non-Plastic (assumed) | | | | | | | | |
| Auxiliary Information | Wt Ret, gm | % Retained | % Finer | | | | | | | |
| 12" Sieve - 300 mm | 0 | 0.0 | 100.0 | | | | | | | |
| 6" Sieve - 150 mm | 0 | 0.0 | 100.0 | | | | | | | |
| 3" Sieve - 75 mm | 0 | 0.0 | 100.0 | | | | | | | |

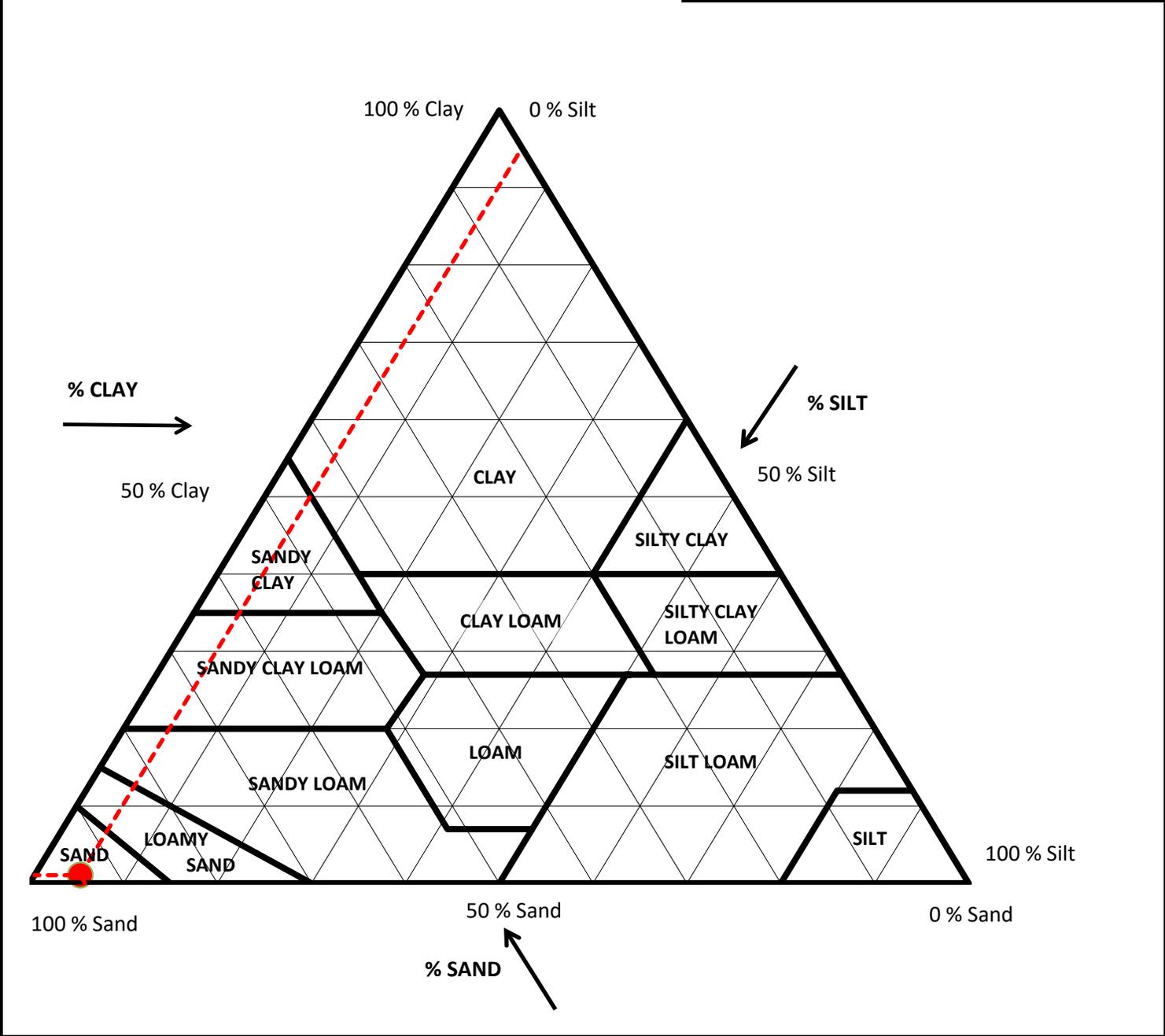
USDA CLASSIFICATION CHART

Client Merit Laboratories, Inc
 Client Project S43321
 Project No. 45368

Boring NA
 Depth NA
 Sample S43321.07
 Lab Sample 45368002

Sample Color: **GRAY**
 USCS Group Name: **POORLY GRADED SAND WITH GRAVEL**
 USCS Group Symbol: **sp** USDA: **SAND**

| Corrected for 0% gravel | | Sand Subsizes Corrected Percentages | |
|-------------------------|------|--|-------------|
| Percent Gravel, % | 0.0 | Very Coarse Sand; 2-1 | 1.2 |
| Percent Sand, % | 94.1 | Coarse Sand; 1-0.5 | 4.4 |
| Percent Silt, % | 4.9 | Medium Sand; 0.5-0.25 | 46.3 |
| Percent Clay, % | 1.0 | Fine Sand; 0.25-0.1 | 39.9 |
| | | Very Fine Sand; 0.1-0.05 | 2.3 |
| | | Total | 94.1 |



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

| | | | |
|-----------------------|-------------------------|-------------------|-----------|
| Client | Merit Laboratories, Inc | Boring | NA |
| Client Project | S43321 | Depth | NA |
| Project No. | 45368 | Sample | S43321.08 |
| | | Lab Sample | 45368003 |

Sample Color: GRAY
USCS Group Name: SILTY SAND WITH GRAVEL
USCS Group Symbol: sm

USDA: SANDY LOAM

Dry Prep: R58-11(2018)¹

| MECHANICAL SIEVE | | | | | | | | | | |
|---------------------------------------|-------------------------------|---|----------------------|---------------------------------------|-------------------|--|------------------------|--|---------|---|
| Total Sample | | Sieve Size | Nominal Opening, mm | Dry Wt, gm | Split % Retained | Normalized % Finer | Project Specifications | | | |
| Tare No. | 1004 | 3" | 75 | 0 | 0.0% | 100.0% | | | | |
| Tare + WS., gm | 742.28 | 2-1/2" | 63 | 0 | 0.0% | 100.0% | | | | |
| Tare + DS., gm | 527.92 | 2" | 50 | 0 | 0.0% | 100.0% | | | | |
| Tare, gm | 194.17 | 1-1/2" | 37.5 | 0 | 0.0% | 100.0% | | | | |
| Total sample WC | 64.2% | 1" | 25 | 0 | 0.0% | 100.0% | | | | |
| Total Sample Dry Wt, gm (-3") | 334 | 3/4" | 19 | 0 | 0.0% | 100.0% | | | | |
| Hygroscopic WC (-#10) | | 1/2" | 12.5 | 8.99 | 2.7% | 97.3% | | | | |
| Tare No. | 449 | 3/8" | 9.5 | 17.11 | 5.1% | 92.2% | | | | |
| Tare + WS., gm | 29.77 | No. 4 | 4.75 | 68.59 | 20.6% | 71.6% | | | | |
| Tare + DS., gm | 29.69 | No. 10 | 2 | 37.04 | 11.1% | 60.5% | | | | |
| Tare, gm | 10.69 | No. 20 | 0.85 | 16.06 | 12.1% | 48.5% | | | | |
| Hygroscopic WC | 0.42% | No. 40 | 0.425 | 4.58 | 3.4% | 45.0% | | | | |
| -#10 Hydro/Sieve air dry wt. | 80.64 | No. 60 | 0.25 | 10.49 | 7.9% | 37.2% | | | | |
| Wt. of +#200 Sample, gm | 51.16 | No. 140 | 0.106 | 14.27 | 10.7% | 26.5% | | | | |
| | | No. 200 | 0.075 | 5.76 | 4.3% | 22.1% | | | | |
| HYDROMETER (-#10) | | | | | | | | | | |
| Split Air Dry Wt | 80.98 | | | | | | | Specific Gravity | 2.7 | |
| Hygroscopic WC | 0.42% | | | | | | | | Assumed | |
| Corrected Dry wt | 80.6 | -#10 Dispersed 1min in Hamilton Beach Mixer | | | | | | a Factor | 0.9889 | |
| Elapsed Time (min.) | R Measured | Temp °C | Composite Correction | R Corrected | K Factor | Percent Finer (%) | Particle Diameter (mm) | Adjusted % Finer (%) | | |
| 2 | 25 | 23.6 | 5.0 | 20.0 | 0.0129 | 24.5 | 0.0318 | 14.8% | | |
| 5 | 18 | 23.6 | 5.0 | 13.0 | 0.0129 | 15.9 | 0.0210 | 9.6% | | |
| 15 | 14.5 | 23.8 | 5.0 | 9.5 | 0.0129 | 11.6 | 0.0124 | 7.1% | | |
| 30 | 12 | 24 | 4.9 | 7.1 | 0.0128 | 8.7 | 0.0088 | 5.3% | | |
| 60 | 9.5 | 24.4 | 4.8 | 4.7 | 0.0128 | 5.8 | 0.0063 | 3.5% | | |
| 250 | 7 | 24.2 | 4.9 | 2.1 | 0.0128 | 2.6 | 0.0031 | 1.6% | | |
| 1440 | 6.5 | 24.1 | 4.9 | 1.6 | 0.0128 | 2.0 | 0.0013 | 1.2% | | |
| USCS SOIL CLASSIFICATION | | | | USDA CLASSIFICATION | | | | | | |
| Corrected For 100% Passing a 3" Sieve | | | | Particle Size (mm) | Percent Finer (%) | Percent of Each Component (Material) (%) | | Corrected Percent of -2.0 mm Material for USDA | | |
| % Gravel (-3" & +#4) | 28.4 | Silt=19.3% Clay=2.8% | | | | 100 | 100 | Gravel | 39.5 | 0 |
| Coarse=0; Fine=28.4 | | D60, mm | NA | | | | | | | |
| % Sand (-#4 & +#200) | 49.5 | D30, mm | NA | | | | | | | |
| Coarse=11.1; Medium=15.5; Fine=22.9 | | D10, mm | NA | | | | | | | |
| % Fines (-#200) | 22.1 | Cc | | 2 | 60.5 | Sand | 41.8 | 69.1 | | |
| % Plus #200 (-3") | 77.9 | Cu | | | | | | | | |
| USCS Description | | | | | | | | | | |
| SILTY SAND WITH GRAVEL | | | | 0.05 | 18.7 | Silt | 17.3 | 28.6 | | |
| USCS Group Symbol | Atterberg Limits Group Symbol | | | | | | | | | |
| sm | np - Non-Plastic (assumed) | | | 0.002 | 1.4 | Clay | 1.4 | 2.3 | | |
| Auxiliary Information | Wt Ret, gm | % Retained | % Finer | | | | | | | |
| 12" Sieve - 300 mm | 0 | 0.0 | 100.0 | | | | | | | |
| 6" Sieve - 150 mm | 0 | 0.0 | 100.0 | | | | | | | |
| 3" Sieve - 75 mm | 0 | 0.0 | 100.0 | USDA Classification SANDY LOAM | | | | | | |

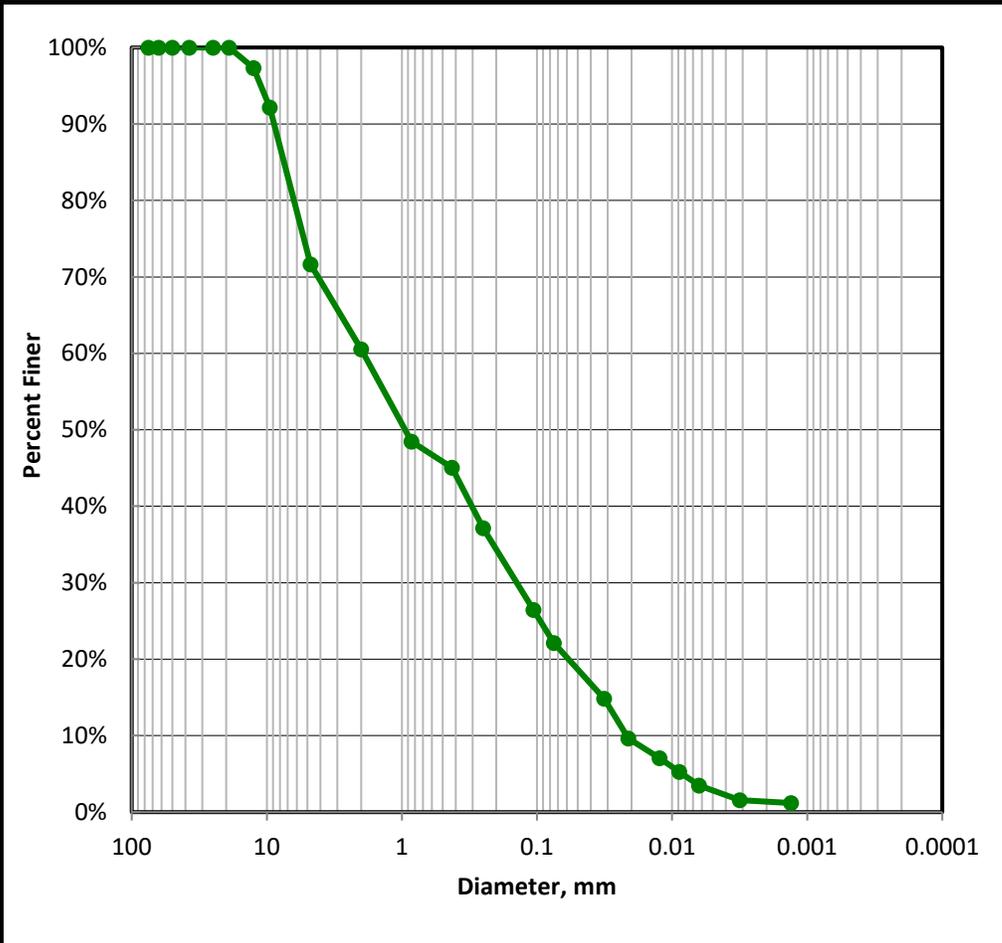
Input Validation RS Reviewed By: JK Date Tested 12/29/2022

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Merit Laboratories, Inc
 Client Project S43321
 Project No. 45368

Boring NA
 Depth NA
 Sample S43321.08
 Lab Sample 45368003

Sample Color: **GRAY**
 USCS Group Name: **SILTY SAND WITH GRAVEL**
 USCS Group Symbol: **sm** USDA: **SANDY LOAM**



| US Std. Sieve Size | Particle Diameter (mm) | Percent Finer |
|--------------------|------------------------|---------------|
| 3" | 75 | 100.0% |
| 2-1/2" | 63 | 100.0% |
| 2" | 50 | 100.0% |
| 1-1/2" | 37.5 | 100.0% |
| 1" | 25 | 100.0% |
| 3/4" | 19 | 100.0% |
| 1/2" | 12.5 | 97.3% |
| 3/8" | 9.5 | 92.2% |
| No. 4 | 4.75 | 71.6% |
| No. 10 | 2 | 60.5% |
| No. 20 | 0.85 | 48.5% |
| No. 40 | 0.425 | 45.0% |
| No. 60 | 0.25 | 37.2% |
| No. 140 | 0.106 | 26.5% |
| No. 200 | 0.075 | 22.1% |
| NA | 0.0318 | 14.8% |
| NA | 0.0210 | 9.6% |
| NA | 0.0124 | 7.1% |
| NA | 0.0088 | 5.3% |
| NA | 0.0063 | 3.5% |
| NA | 0.0031 | 1.6% |
| NA | 0.0013 | 1.2% |

| USCS SOIL CLASSIFICATION | | | |
|--|-------------|--------------------------------------|---------|
| <i>Corrected For 100% Passing a 3" Sieve</i> | | | |
| % Gravel (-3" & +#4) | 28.4 | Silt=19.3% Clay=2.8% | |
| <i>Coarse=0; Fine=28.4</i> | | D60, mm | NA |
| % Sand (-#4 & +#200) | 49.5 | D30, mm | NA |
| <i>Coarse=11.1; Medium=15.5; Fine=22.9</i> | | D10, mm | NA |
| % Fines (-#200) | 22.1 | Cc | NA |
| % Plus #200 (-3") | 77.9 | Cu | NA |
| USCS Description | | | |
| SILTY SAND WITH GRAVEL | | | |
| USCS Group Symbol | | Atterberg Limits Group Symbol | |
| sm | | np - Non-Plastic (assumed) | |
| Auxiliary Information | Wt Ret, gm | % Retained | % Finer |
| 12" Sieve - 300 mm | 0 | 0.0 | 100.0 |
| 6" Sieve - 150 mm | 0 | 0.0 | 100.0 |
| 3" Sieve - 75 mm | 0 | 0.0 | 100.0 |

| USDA CLASSIFICATION | | | |
|----------------------------|-------------------|--|--|
| Particle Size (mm) | Percent Finer (%) | Percent of Each Component (Material) (%) | Corrected Percent of -2.0 mm Material for USDA |
| 100 | 100 | | |
| 2 | 60.5 | Gravel | 39.5 |
| 0.05 | 18.7 | Sand | 41.8 |
| 0.002 | 1.4 | Silt | 17.3 |
| | | Clay | 1.4 |
| USDA Classification | | | |
| SANDY LOAM | | | |

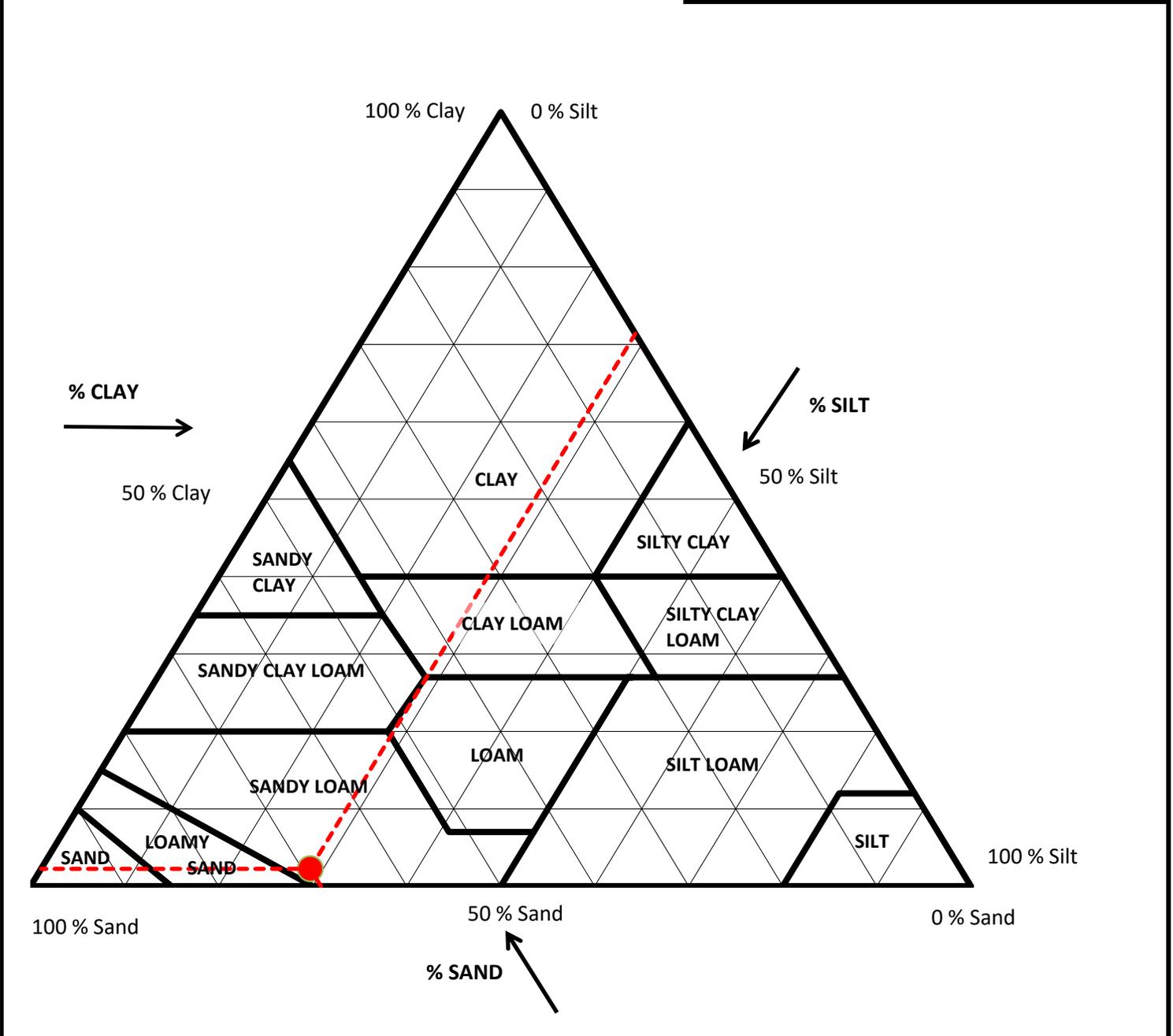
USDA CLASSIFICATION CHART

Client: Merit Laboratories, Inc
 Client Project: S43321
 Project No.: 45368

Boring: NA
 Depth: NA
 Sample: S43321.08
 Lab Sample: 45368003

Sample Color: **GRAY**
 USCS Group Name: **SILTY SAND WITH GRAVEL**
 USCS Group Symbol: **sm** USDA: **SANDY LOAM**

| Corrected for 0% gravel | | Sand Subsizes Corrected Percentages | |
|-------------------------|------|--|-------------|
| Percent Gravel, % | 0.0 | Very Coarse Sand; 2-1 | 16.1 |
| Percent Sand, % | 69.1 | Coarse Sand; 1-0.5 | 8.1 |
| Percent Silt, % | 28.6 | Medium Sand; 0.5-0.25 | 14.3 |
| Percent Clay, % | 2.3 | Fine Sand; 0.25-0.1 | 18.9 |
| | | Very Fine Sand; 0.1-0.05 | 11.6 |
| | | Total | 69.1 |



December 19, 2022

John Laverty
Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan 48823

Re: Routine Analysis
Work Order: 603904
SDG: S43321

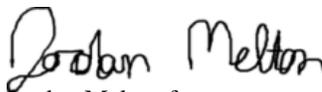
Dear John Laverty:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on December 13, 2022. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 1614.

Sincerely,



Jordan Melton for
Delaney Stone
Project Manager

Purchase Order: GELP20-0018
Enclosures



Table of Contents

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Case Narrative

**Receipt Narrative
for
Merit Laboratories, Inc.
SDG: S43321
Work Order: 603904**

December 19, 2022

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary:

Sample receipt: The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on December 13, 2022 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

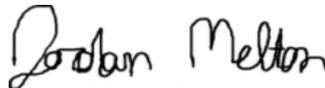
Sample Identification: The laboratory received the following samples:

| <u>Laboratory ID</u> | <u>Client ID</u> |
|-----------------------------|-------------------------|
| 603904001 | S43321.06 |
| 603904002 | S43321.07 |
| 603904003 | S43321.08 |

Case Narrative:

Sample analyses were conducted using methodology as outlined in GEL's Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry.



Jordan Melton for
Delaney Stone
Project Manager

Chain of Custody and Supporting Documentation



LABORATORIES LLC

SAMPLE RECEIPT & REVIEW FORM

Client: **NERT** Sample/Reference Number: **1403904**

Received By: **Blayne Grooms** Date Received: **13-DEC-22**

Carrier and Tracking Number: **1Z 468 477 01 6234 2648**

State/Region: **Field Service Center**

| Inspected/Checked Information | Y/N | Notes |
|---|-----|-------|
| 1. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 2. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 3. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 4. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 5. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 6. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 7. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 8. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 9. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 10. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 11. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 12. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 13. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 14. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 15. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 16. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 17. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 18. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 19. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 20. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 21. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 22. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 23. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 24. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 25. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 26. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 27. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 28. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 29. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 30. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 31. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 32. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 33. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 34. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 35. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 36. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 37. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 38. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 39. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 40. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 41. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 42. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 43. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 44. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 45. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 46. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 47. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 48. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 49. Did the items shipped meet the requirements of the order and invoice? | Y | |
| 50. Did the items shipped meet the requirements of the order and invoice? | Y | |

[Handwritten signature and date]

Laboratory Certifications

List of current GEL Certifications as of 19 December 2022

| State | Certification |
|---------------------------|------------------------------|
| Alabama | 42200 |
| Alaska | 17-018 |
| Alaska Drinking Water | SC00012 |
| Arkansas | 88-0651 |
| CLIA | 42D0904046 |
| California | 2940 |
| Colorado | SC00012 |
| Connecticut | PH-0169 |
| DoD ELAP/ ISO17025 A2LA | 2567.01 |
| Florida NELAP | E87156 |
| Foreign Soils Permit | P330-15-00283, P330-15-00253 |
| Georgia | SC00012 |
| Georgia SDWA | 967 |
| Hawaii | SC00012 |
| Idaho | SC00012 |
| Illinois NELAP | 200029 |
| Indiana | C-SC-01 |
| Kansas NELAP | E-10332 |
| Kentucky SDWA | 90129 |
| Kentucky Wastewater | 90129 |
| Louisiana Drinking Water | LA024 |
| Louisiana NELAP | 03046 (AI33904) |
| Maine | 2019020 |
| Maryland | 270 |
| Massachusetts | M-SC012 |
| Massachusetts PFAS Approv | Letter |
| Michigan | 9976 |
| Mississippi | SC00012 |
| Nebraska | NE-OS-26-13 |
| Nevada | SC000122023-3 |
| New Hampshire NELAP | 2054 |
| New Jersey NELAP | SC002 |
| New Mexico | SC00012 |
| New York NELAP | 11501 |
| North Carolina | 233 |
| North Carolina SDWA | 45709 |
| North Dakota | R-158 |
| Oklahoma | 2022-160 |
| Pennsylvania NELAP | 68-00485 |
| Puerto Rico | SC00012 |
| S. Carolina Radiochem | 10120002 |
| Sanitation Districts of L | 9255651 |
| South Carolina Chemistry | 10120001 |
| Tennessee | TN 02934 |
| Texas NELAP | T104704235-22-20 |
| Utah NELAP | SC000122022-37 |
| Vermont | VT87156 |
| Virginia NELAP | 460202 |
| Washington | C780 |

General Chem Analysis

Case Narrative

**General Chemistry
Technical Case Narrative
Merit Laboratories, Inc.
SDG #: S43321
Work Order #: 603904**

Product: Carbon, Total Organic

Analytical Method: SW846 9060A Modified

Analytical Procedure: GL-GC-E-062 REV# 21

Analytical Batch: 2354983

Preparation Method: SW846 9060A Modified Prep

Preparation Procedure: GL-GC-E-062 REV# 21

Preparation Batch: 2354982

The following samples were analyzed using the above methods and analytical procedure(s).

| <u>GEL Sample ID#</u> | <u>Client Sample Identification</u> |
|------------------------------|--|
| 603904001 | S43321.06 |
| 603904002 | S43321.07 |
| 603904003 | S43321.08 |
| 1205269027 | Method Blank (MB) |
| 1205269028 | Laboratory Control Sample (LCS) |
| 1205269030 | 602261001(NonSDG) Sample Duplicate (DUP) |
| 1205269032 | 602261001(NonSDG) Post Spike (PS) |

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Miscellaneous Information

Additional Comments

Presence of Total Inorganic Carbon was detected in the samples via the reaction with phosphoric acid. The samples were covered in phosphoric acid prior to drying. 603904001 (S43321.06) and 603904003 (S43321.08).

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report for

MERI001 Merit Laboratories, Inc.

Client SDG: S43321 GEL Work Order: 603904

The Qualifiers in this report are defined as follows:

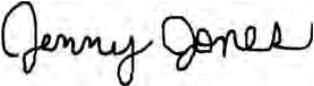
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

* A quality control analyte recovery is outside of specified acceptance criteria

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: 

Name: Jennifer Jones

Date: 09 JAN 2023

Title: Analyst II

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: January 9, 2023

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823

Contact: John Laverty
Project: Routine Analysis

| | | | |
|-------------------|-----------------|------------|-----------|
| Client Sample ID: | S43321.06 | Project: | MERI00120 |
| Sample ID: | 603904001 | Client ID: | MERI001 |
| Matrix: | Solid | | |
| Collect Date: | 07-DEC-22 15:00 | | |
| Receive Date: | 13-DEC-22 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|-----------|--------|-----|-----|-------|-------|----|---------|----------|------|---------|--------|
| Carbon Analysis | | | | | | | | | | | | |
| SW 9060A Total Organic Carbon "As Received" | | | | | | | | | | | | |
| Total Organic Carbon Average | | 9950 | 199 | 498 | mg/kg | 0.996 | 1 | RM3 | 12/15/22 | 2034 | 2354983 | 1 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---------------------------|---|---------|----------|------|------------|
| SW846 9060A Modified Prep | SW846 9060A Modified Total Organic Carbon | RM3 | 12/14/22 | 0657 | 2354982 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|--------|----------------------|------------------|
| 1 | SW846 9060A Modified | |

Notes:

Column headers are defined as follows:

| | |
|---------------------------------------|--------------------------------|
| DF: Dilution Factor | Lc/LC: Critical Level |
| DL: Detection Limit | PF: Prep Factor |
| MDA: Minimum Detectable Activity | RL: Reporting Limit |
| MDC: Minimum Detectable Concentration | SQL: Sample Quantitation Limit |

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: January 9, 2023

Page 1 of 2

Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan

Contact: John Laverty

Workorder: 603904

| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|------------------------------|-----------|--------|------|--------|-------|------|------|------------|-------|----------|-------|
| Carbon Analysis | | | | | | | | | | | |
| Batch | 2354983 | | | | | | | | | | |
| QC1205269030 | 602261001 | DUP | | | | | | | | | |
| Total Organic Carbon Average | | 341000 | | 318000 | mg/kg | 6.97 | | (0%-16%) | RM3 | 12/15/22 | 12:32 |
| QC1205269028 | LCS | | | | | | | | | | |
| Total Organic Carbon Average | 3870 | | | 4100 | mg/kg | | 106 | (57%-142%) | | 12/15/22 | 10:57 |
| QC1205269027 | MB | | | | | | | | | | |
| Total Organic Carbon Average | | | U | ND | mg/kg | | | | | 12/15/22 | 10:35 |
| QC1205269032 | 602261001 | PS | | | | | | | | | |
| Total Organic Carbon Average | 5000 | 17400 | | 24000 | mg/kg | | 131 | (30%-131%) | | 12/15/22 | 12:54 |

Notes:

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- H Analytical holding time was exceeded
- < Result is less than value reported
- > Result is greater than value reported
- h Preparation or preservation holding time was exceeded
- R Sample results are rejected
- Z Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
- d 5-day BOD--The 2:1 depletion requirement was not met for this sample
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
- N/A RPD or %Recovery limits do not apply.
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- NI See case narrative

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 603904

Page 2 of 2

| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|----------|-----|--------|------|----|-------|------|------|-------|-------|------|------|
| R | | | | | | | | | | | |
| B | | | | | | | | | | | |
| e | | | | | | | | | | | |
| J | | | | | | | | | | | |

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Instrument QC Data Summary

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Report Run On: 09-JAN-2023 14:59

GEL Laboratories LLC

Contract: MERI00120

SDG #: S43321

Carbon Analysis

Method: SW846 9060A Modified

Instrument: O-I Analytical 1030W Carbon Analyzer (TOC368)

Parmname: Total Organic Carbon
Average

Concentration Units:mg/kg

| Sample Type | Run Date | Data File | Result | Nominal | Recovery | Limits | Within Limits |
|-------------|-----------------------------|--------------------|-------------|-------------|------------|-------------------|---------------|
| ICV | 15-DEC-2022 10:14:00 | 121922a.csv | 5240 | 5000 | 105 | (80%-120%) | Yes |
| CCV | 15-DEC-2022 14:47:00 | 121922a.csv | 5290 | 5000 | 106 | (80%-120%) | Yes |
| CCV | 15-DEC-2022 21:41:00 | 121922a.csv | 5610 | 5000 | 112 | (80%-120%) | Yes |
| ICV | 16-DEC-2022 10:17:00 | 121922b.csv | 5590 | 5000 | 112 | (80%-120%) | Yes |
| CCV | 16-DEC-2022 14:15:00 | 121922b.csv | 5670 | 5000 | 113 | (80%-120%) | Yes |
| CCV | 16-DEC-2022 15:20:00 | 121922b.csv | 5430 | 5000 | 109 | (80%-120%) | Yes |

| Sample Type | Run Date | Data File | Result | Limits | Within Limits |
|-------------|-----------------------------|--------------------|------------|------------|---------------|
| ICB | 15-DEC-2022 10:25:00 | 121922a.csv | 130 | 500 | Yes |
| CCB | 15-DEC-2022 14:57:00 | 121922a.csv | 150 | 500 | Yes |
| CCB | 15-DEC-2022 21:52:00 | 121922a.csv | 230 | 500 | Yes |
| ICB | 16-DEC-2022 10:27:00 | 121922b.csv | 120 | 500 | Yes |
| CCB | 16-DEC-2022 14:25:00 | 121922b.csv | 190 | 500 | Yes |
| CCB | 16-DEC-2022 15:30:00 | 121922b.csv | 190 | 500 | Yes |

Carbon, Total Organic Raw Data

Prep Logbook

Total Carbon and Total Organic Carbon Analysis Using the OI Analytical 1030S TOC Solids Module

| | | | | | | |
|-----------------------------------|-------------|------------------|-------------------------------|----------------------|---------------------|--------------------|
| Batch ID: 2354982 | <u>Type</u> | <u>Sample Id</u> | <u>Description</u> | <u>Serial Number</u> | <u>Spike Amount</u> | <u>Spike Units</u> |
| Analyst: Ryan Monroe | PS | 1205269032 | Sucrose 0.01 mg C | 3414616 | | ug |
| Method: SW846 9060A Modified Prep | LCS | 1205269028 | TOC Stand. Reference LCS Soil | UTC3414673-06a | .1 | ug |
| Lab SOP: GL-GC-E-062 REV# 21 | PS | 1205269031 | Sucrose 0.01 mg C | 3414616 | | ug |
| Instrument: Ohaus BAL535 | | | | | | |

| Sample ID | Prep Date | Matrix | Instrument Aliquot (g) | Default Aliquot (g) | Prep Factor (g/g) |
|----------------------------|----------------------|--------|------------------------|---------------------|-------------------|
| 1205269027 MB | 14-DEC-2022 06:57:27 | Soil | 0.1 | 0.1 | 1 |
| 1205269028 LCS | 14-DEC-2022 06:57:27 | Soil | 0.1001 | 0.1 | 0.999 |
| 602261001 | 14-DEC-2022 06:57:27 | Solid | 0.0051 | 0.1 | 19.60784 |
| 1205269030 DUP (602261001) | 14-DEC-2022 06:57:27 | Solid | 0.005 | 0.1 | 20 |
| 1205269032 PS (602261001) | 14-DEC-2022 06:57:27 | Solid | 0.0054 | 0.1 | 18.51852 |
| 602379001 | 14-DEC-2022 06:57:27 | Soil | 0.1042 | 0.1 | 0.95969 |
| 602463001 | 14-DEC-2022 06:57:27 | Soil | 0.0999 | 0.1 | 1.001 |
| 602463002 | 14-DEC-2022 06:57:27 | Soil | 0.0965 | 0.1 | 1.03627 |
| 602808001 | 14-DEC-2022 06:57:27 | Soil | 0.0992 | 0.1 | 1.00806 |
| 602808002 | 14-DEC-2022 06:57:27 | Soil | 0.0997 | 0.1 | 1.00301 |
| 603619001 | 14-DEC-2022 06:57:27 | Soil | 0.0966 | 0.1 | 1.0352 |
| 603619002 | 14-DEC-2022 06:57:27 | Soil | 0.0993 | 0.1 | 1.00705 |
| 603619003 | 14-DEC-2022 06:57:27 | Soil | 0.1014 | 0.1 | 0.98619 |
| 603622001 | 14-DEC-2022 06:57:27 | Soil | 0.0976 | 0.1 | 1.02459 |
| 1205269029 DUP (603622001) | 14-DEC-2022 06:57:27 | Soil | 0.0963 | 0.1 | 1.03842 |
| 1205269031 PS (603622001) | 14-DEC-2022 06:57:27 | Soil | 0.1018 | 0.1 | 0.98232 |
| 603904001 | 14-DEC-2022 06:57:27 | Solid | 0.1004 | 0.1 | 0.99602 |
| 603904002 | 14-DEC-2022 06:57:27 | Solid | 0.1027 | 0.1 | 0.97371 |
| 603904003 | 14-DEC-2022 06:57:27 | Solid | 0.0426 | 0.1 | 2.34742 |

| Reagent/Solvent Lot ID | Description | Amount | Comments: |
|------------------------|-------------|--------|---|
| | | | Oven 007 Temperature (38-42C): 41 C Temperature within limits (Y/N)? : Y Thermometer ID: 947148 |

| Sample ID | Batch | Dilution | Analyst | Runtime | Dataset |
|---------------------|-------|----------|---------|-------------------------|-------------|
| Wake up | 1 | RM3 | | Oct 04 2022 12:39:00 PM | 100622a.csv |
| TOC-Std#1-0.050 mgC | 1 | RM3 | | Oct 04 2022 12:56:00 PM | 100622a.csv |
| TOC-Std#2-0.100 mgC | 1 | RM3 | | Oct 04 2022 01:14:00 PM | 100622a.csv |
| TOC-Std#3-0.500 mgC | 1 | RM3 | | Oct 04 2022 01:33:00 PM | 100622a.csv |
| TOC-Std#4-1.000 mgC | 1 | RM3 | | Oct 04 2022 01:53:00 PM | 100622a.csv |
| TOC-Std#5-2.000 mgC | 1 | RM3 | | Oct 04 2022 02:12:00 PM | 100622a.csv |
| TOC-Std#6-4.000 mgC | 1 | RM3 | | Oct 04 2022 02:35:00 PM | 100622a.csv |
| ICV 0.5 mgC | 1 | RM3 | | Oct 04 2022 03:33:00 PM | 100622a.csv |
| ICB | 1 | RM3 | | Oct 04 2022 03:43:00 PM | 100622a.csv |

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Sample Results

Spl #: 1 Sample ID : Wake up Type : Sample Date: 2022/10/04
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: RANGE Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 12:39 pm | - | - | - | - | 1,444 | 0.000 | 0.000 | 0.000 |
| 2 | 12:42 pm | - | - | - | - | 1,409 | 0.000 | 0.000 | 0.000 |
| 3 | 12:46 pm | - | - | - | - | 1,467 | 0.000 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 1,440 | 0.000 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 29 | | | |
| % RSD. | | | | | | 2.00 | | | |

Spl #: 2 Sample ID : TOC-Std#1-0.050 mgC Type : Std Date: 2022/10/04
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 12:56 pm | - | - | - | - | 2,923 | 0.050 | 0.000 | 0.000 |
| 2 | 12:59 pm | - | - | - | - | 3,006 | 0.050 | 0.000 | 0.000 |
| 3 | 1:02 pm | - | - | - | - | 2,929 | 0.050 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 2,953 | 0.050 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 46 | | | |
| % RSD. | | | | | | 1.56 | | | |

Spl #: 3 Sample ID : TOC-Std#2-0.100 mgC Type : Std Date: 2022/10/04
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 1:14 pm | - | - | - | - | 5,578 | 0.100 | 0.000 | 0.000 |
| 2 | 1:17 pm | - | - | - | - | 5,542 | 0.100 | 0.000 | 0.000 |
| 3 | 1:20 pm | - | - | - | - | 5,752 | 0.100 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 5,624 | 0.100 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 112 | | | |
| % RSD. | | | | | | 1.99 | | | |

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Spl #: 4 Sample ID : TOC-Std#3-0.500 mgC Type : Std Date: 2022/10/04
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 1:33 pm | - | - | - | - | 25,139 | 0.500 | 0.000 | 0.000 |
| 2 | 1:37 pm | - | - | - | - | 24,869 | 0.500 | 0.000 | 0.000 |
| 3 | 1:40 pm | - | - | - | - | 25,118 | 0.500 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 25,042 | 0.500 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 150 | | | |
| % RSD. | | | | | | 0.60 | | | |

Spl #: 5 Sample ID : TOC-Std#4-1.000 mgC Type : Std Date: 2022/10/04
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 1:53 pm | - | - | - | - | 49,432 | 1.000 | 0.000 | 0.000 |
| 2 | 1:56 pm | - | - | - | - | 50,196 | 1.000 | 0.000 | 0.000 |
| 3 | 2:00 pm | - | - | - | - | 50,006 | 1.000 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 49,878 | 1.000 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 398 | | | |
| % RSD. | | | | | | 0.80 | | | |

Spl #: 6 Sample ID : TOC-Std#5-2.000 mgC Type : Std Date: 2022/10/04
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 2:12 pm | - | - | - | - | 110,336 | 2.000 | 0.000 | 0.000 |
| 2 | 2:16 pm | - | - | - | - | 108,017 | 2.000 | 0.000 | 0.000 |
| 3 | 2:19 pm | - | - | - | - | 106,604 | 2.000 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 108,319 | 2.000 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 1,885 | | | |
| % RSD. | | | | | | 1.74 | | | |

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Spl #: 7 Sample ID : TOC-Std#6-4.000 mgC Type : Std Date: 2022/10/04
Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 2:35 pm | - | - | - | - | 214,337 | 4.000 | 0.000 | 0.000 |
| 2 | 2:38 pm | - | - | - | - | 210,223 | 4.000 | 0.000 | 0.000 |
| 3 | 2:42 pm | - | - | - | - | 204,340 | 4.000 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 209,633 | 4.000 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 5,024 | | | |
| % RSD. | | | | | | 2.40 | | | |

Spl #: 8 Sample ID : ICV 0.5 mgC Type : Chk Standar Date: 2022/10/04
Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 3:33 pm | - | - | - | - | 27,199 | 0.521 | n/a | n/a |
| Avg. | | - | - | - | - | 27,199 | 0.521 | n/a | n/a |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 9 Sample ID : ICB Type : Sample Date: 2022/10/04
Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Pass Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 3:43 pm | - | - | - | - | 862 | 0.022 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 862 | 0.022 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

| Sample ID | Batch | Dilution | Analyst | Runtime | Dataset |
|-------------|---------|----------|---------|----------------------|----------------|
| ICV 0.5 mgC | | 1 | RM3 | Dec 15 2022 10:14:00 | AM 121922a.csv |
| ICB | | 1 | RM3 | Dec 15 2022 10:25:00 | AM 121922a.csv |
| 1205269027 | 2354983 | 1 | RM3 | Dec 15 2022 10:35:00 | AM 121922a.csv |
| 1205269028 | 2354983 | 1 | RM3 | Dec 15 2022 10:57:00 | AM 121922a.csv |
| 602261001 | 2354983 | 1 | RM3 | Dec 15 2022 11:47:00 | AM 121922a.csv |
| 602261001 | 2354983 | 1 | RM3 | Dec 15 2022 12:09:00 | PM 121922a.csv |
| 1205269030 | 2354983 | 1 | RM3 | Dec 15 2022 12:32:00 | PM 121922a.csv |
| 1205269032 | 2354983 | 1 | RM3 | Dec 15 2022 12:54:00 | PM 121922a.csv |
| 603622001 | 2354983 | 1 | RM3 | Dec 15 2022 01:16:00 | PM 121922a.csv |
| 1205269029 | 2354983 | 1 | RM3 | Dec 15 2022 01:38:00 | PM 121922a.csv |
| 1205269031 | 2354983 | 1 | RM3 | Dec 15 2022 02:00:00 | PM 121922a.csv |
| 602379001 | 2354983 | 1 | RM3 | Dec 15 2022 02:25:00 | PM 121922a.csv |
| CCV 0.5 mgC | | 1 | RM3 | Dec 15 2022 02:47:00 | PM 121922a.csv |
| CCB | | 1 | RM3 | Dec 15 2022 02:57:00 | PM 121922a.csv |
| 602463001 | 2354983 | 1 | RM3 | Dec 15 2022 06:06:00 | PM 121922a.csv |
| 602463002 | 2354983 | 1 | RM3 | Dec 15 2022 06:27:00 | PM 121922a.csv |
| 602808001 | 2354983 | 1 | RM3 | Dec 15 2022 06:49:00 | PM 121922a.csv |
| 602808002 | 2354983 | 1 | RM3 | Dec 15 2022 07:10:00 | PM 121922a.csv |
| 603619001 | 2354983 | 1 | RM3 | Dec 15 2022 07:31:00 | PM 121922a.csv |
| 603619002 | 2354983 | 1 | RM3 | Dec 15 2022 07:52:00 | PM 121922a.csv |
| 603619003 | 2354983 | 1 | RM3 | Dec 15 2022 08:13:00 | PM 121922a.csv |
| 603904001 | 2354983 | 1 | RM3 | Dec 15 2022 08:34:00 | PM 121922a.csv |
| 603904002 | 2354983 | 1 | RM3 | Dec 15 2022 08:56:00 | PM 121922a.csv |
| 603904003 | 2354983 | 1 | RM3 | Dec 15 2022 09:18:00 | PM 121922a.csv |
| CCV 0.5 mgC | | 1 | RM3 | Dec 15 2022 09:41:00 | PM 121922a.csv |
| CCB | | 1 | RM3 | Dec 15 2022 09:52:00 | PM 121922a.csv |

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Sample Results

Spl #: 1 Sample ID : ICV 0.5 mgC Type : Chk Standar Date: 2022/12/15
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 10:14 am | - | - | - | - | 27,359 | 0.524 | n/a | n/a |
| Avg. | | - | - | - | - | 27,359 | 0.524 | n/a | n/a |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 2 Sample ID : ICB Type : Sample Date: 2022/12/15
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Pass Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 10:25 am | - | - | - | - | 420 | 0.013 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 420 | 0.013 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 3 Sample ID : 1205269027 Type : Sample Date: 2022/12/15
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Pass Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 10:35 am | - | - | - | - | 333 | 0.012 | 0.000 | 0.000 |
| 2 | 10:38 am | - | - | - | - | 377 | 0.012 | 0.000 | 0.000 |
| 3 | 10:41 am | - | - | - | - | 367 | 0.012 | 0.000 | 0.000 |
| 4 | 10:44 am | - | - | - | - | 395 | 0.013 | 0.000 | 0.000 |
| 5 | 10:47 am | - | - | - | - | 389 | 0.013 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 382 | 0.012 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 12 | | | |
| % RSD. | | | | | | 3.26 | | | |

Comments: 2354983|1|1| MB ID:TOC368

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Spl #: 4 Sample ID : 1205269028 Type : Sample Date: 2022/12/15
 Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
 04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 10:57 am | - | - | - | - | 21,443 | 0.412 | 0.000 | 0.000 |
| 2 | 11:01 am | - | - | - | - | 21,275 | 0.409 | 0.000 | 0.000 |
| 3 | 11:05 am | - | - | - | - | 21,307 | 0.410 | 0.000 | 0.000 |
| 4 | 11:08 am | - | - | - | - | 21,274 | 0.409 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 21,325 | 0.410 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 80 | | | |
| % RSD. | | | | | | 0.38 | | | |

Comments: 2354983|1|1| LCS ID:TOC368

Spl #: 5 Sample ID : 602261001 Type : Sample Date: 2022/12/15
 Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
 04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 11:47 am | - | - | - | - | 414,434 | 7.870 | 0.000 | 0.000 |
| 2 | 11:51 am | - | - | - | - | 408,931 | 7.766 | 0.000 | 0.000 |
| 3 | 11:54 am | - | - | - | - | 408,064 | 7.749 | 0.000 | 0.000 |
| 4 | 11:58 am | - | - | - | - | 407,230 | 7.734 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 409,665 | 7.780 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 3,255 | | | |
| % RSD. | | | | | | 0.79 | | | |

Comments: 2354983|1|1| ID:TOC368

Spl #: 6 Sample ID : 602261001 Type : Sample Date: 2022/12/15
 Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
 04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 12:09 pm | - | - | - | - | 92,541 | 1.761 | 0.000 | 0.000 |
| 2 | 12:13 pm | - | - | - | - | 91,327 | 1.738 | 0.000 | 0.000 |
| 3 | 12:17 pm | - | - | - | - | 90,891 | 1.730 | 0.000 | 0.000 |
| 4 | 12:21 pm | - | - | - | - | 90,607 | 1.725 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 91,341 | 1.739 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 853 | | | |
| % RSD. | | | | | | 0.93 | | | |

Comments: 2354983|1|1| ID:TOC368

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Spl #: 7 Sample ID : 1205269030 Type : Sample Date: 2022/12/15
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 12:32 pm | - | - | - | - | 84,203 | 1.603 | 0.000 | 0.000 |
| 2 | 12:35 pm | - | - | - | - | 83,501 | 1.590 | 0.000 | 0.000 |
| 3 | 12:39 pm | - | - | - | - | 83,225 | 1.585 | 0.000 | 0.000 |
| 4 | 12:43 pm | - | - | - | - | 83,065 | 1.582 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 83,498 | 1.590 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 503 | | | |
| % RSD. | | | | | | 0.60 | | | |

Comments: 2354983|1|1| DUP ID:TOC368

Spl #: 8 Sample ID : 1205269032 Type : Sample Date: 2022/12/15
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 12:54 pm | - | - | - | - | 127,097 | 2.417 | 0.000 | 0.000 |
| 2 | 12:58 pm | - | - | - | - | 125,825 | 2.393 | 0.000 | 0.000 |
| 3 | 1:01 pm | - | - | - | - | 125,584 | 2.389 | 0.000 | 0.000 |
| 4 | 1:05 pm | - | - | - | - | 125,325 | 2.384 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 125,958 | 2.396 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 786 | | | |
| % RSD. | | | | | | 0.62 | | | |

Comments: 2354983|1|1| PS ID:TOC368

Spl #: 9 Sample ID : 603622001 Type : Sample Date: 2022/12/15
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 1:16 pm | - | - | - | - | 10,099 | 0.197 | 0.000 | 0.000 |
| 2 | 1:20 pm | - | - | - | - | 10,054 | 0.196 | 0.000 | 0.000 |
| 3 | 1:23 pm | - | - | - | - | 9,926 | 0.194 | 0.000 | 0.000 |
| 4 | 1:27 pm | - | - | - | - | 9,868 | 0.193 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 9,987 | 0.195 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 108 | | | |
| % RSD. | | | | | | 1.08 | | | |

Comments: 2354983|1|1| ID:TOC368

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Spl #: 13 Sample ID : CCV 0.5 mgC Type : Chk Standar Date: 2022/12/15
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 2:47 pm | - | - | - | - | 27,601 | 0.529 | n/a | n/a |
| Avg. | | - | - | - | - | 27,601 | 0.529 | n/a | n/a |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 14 Sample ID : CCB Type : Sample Date: 2022/12/15
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Pass Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 2:57 pm | - | - | - | - | 490 | 0.015 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 490 | 0.015 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 15 Sample ID : 602463001 Type : Sample Date: 2022/12/15
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Pass Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 6:06 pm | - | - | - | - | 5,127 | 0.103 | 0.000 | 0.000 |
| 2 | 6:10 pm | - | - | - | - | 5,144 | 0.103 | 0.000 | 0.000 |
| 3 | 6:13 pm | - | - | - | - | 5,081 | 0.102 | 0.000 | 0.000 |
| 4 | 6:17 pm | - | - | - | - | 5,118 | 0.102 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 5,117 | 0.102 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 27 | | | |
| % RSD. | | | | | | 0.52 | | | |

Comments: 2354983|1|1| ID:TOC368

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Spl #: 22 Sample ID : 603904001 Type : Sample Date: 2022/12/15
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 8:34 pm | - | - | - | - | 52,742 | 1.006 | 0.000 | 0.000 |
| 2 | 8:38 pm | - | - | - | - | 52,316 | 0.998 | 0.000 | 0.000 |
| 3 | 8:42 pm | - | - | - | - | 52,215 | 0.996 | 0.000 | 0.000 |
| 4 | 8:45 pm | - | - | - | - | 52,127 | 0.994 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 52,350 | 0.999 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 273 | | | |
| % RSD. | | | | | | 0.52 | | | |

Comments: 2354983|1|1| ID:TOC368

Spl #: 23 Sample ID : 603904002 Type : Sample Date: 2022/12/15
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 8:56 pm | - | - | - | - | 100,320 | 1.909 | 0.000 | 0.000 |
| 2 | 9:00 pm | - | - | - | - | 99,420 | 1.892 | 0.000 | 0.000 |
| 3 | 9:04 pm | - | - | - | - | 99,144 | 1.887 | 0.000 | 0.000 |
| 4 | 9:07 pm | - | - | - | - | 99,081 | 1.886 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 99,492 | 1.893 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 572 | | | |
| % RSD. | | | | | | 0.57 | | | |

Comments: 2354983|1|1| ID:TOC368

Spl #: 24 Sample ID : 603904003 Type : Sample Date: 2022/12/15
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 9:18 pm | - | - | - | - | 261,265 | 4.963 | 0.000 | 0.000 |
| 2 | 9:22 pm | - | - | - | - | 258,433 | 4.910 | 0.000 | 0.000 |
| 3 | 9:26 pm | - | - | - | - | 258,037 | 4.902 | 0.000 | 0.000 |
| 4 | 9:30 pm | - | - | - | - | 257,317 | 4.889 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 258,763 | 4.916 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 1,731 | | | |
| % RSD. | | | | | | 0.67 | | | |

Comments: 2354983|1|1| ID:TOC368

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Spl #: 25 Sample ID : CCV 0.5 mgC Type : Chk Standar Date: 2022/12/15
Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 9:41 pm | - | - | - | - | 29,299 | 0.561 | n/a | n/a |
| Avg. | | - | - | - | - | 29,299 | 0.561 | n/a | n/a |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 26 Sample ID : CCB Type : Sample Date: 2022/12/15
Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Pass Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 9:52 pm | - | - | - | - | 944 | 0.023 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 944 | 0.023 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 1 Sample ID : Wake Up Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Pass Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 10:05 am | - | - | - | - | 434 | 0.013 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 434 | 0.013 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 2 Sample ID : ICV 0.5 mgC Type : Chk Standar Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 10:17 am | - | - | - | - | 29,157 | 0.559 | n/a | n/a |
| Avg. | | - | - | - | - | 29,157 | 0.559 | n/a | n/a |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

| Sample ID | Batch | Dilution | Analyst | Runtime | Dataset |
|-------------|---------|----------|---------|----------------------|----------------|
| Wake Up | | 1 | RM3 | Dec 16 2022 10:05:00 | AM 121922b.csv |
| ICV 0.5 mgC | | 1 | RM3 | Dec 16 2022 10:17:00 | AM 121922b.csv |
| ICB | | 1 | RM3 | Dec 16 2022 10:27:00 | AM 121922b.csv |
| 1205269033 | 2354990 | 1 | RM3 | Dec 16 2022 10:37:00 | AM 121922b.csv |
| 1205269034 | 2354990 | 1 | RM3 | Dec 16 2022 10:58:00 | AM 121922b.csv |
| 603563001 | 2354990 | 1 | RM3 | Dec 16 2022 11:20:00 | AM 121922b.csv |
| 603563001 | 2354990 | 1 | RM3 | Dec 16 2022 11:42:00 | AM 121922b.csv |
| 1205269036 | 2354990 | 1 | RM3 | Dec 16 2022 12:04:00 | PM 121922b.csv |
| 1205269038 | 2354990 | 1 | RM3 | Dec 16 2022 12:26:00 | PM 121922b.csv |
| 603731004 | 2354990 | 1 | RM3 | Dec 16 2022 12:48:00 | PM 121922b.csv |
| 1205269035 | 2354990 | 1 | RM3 | Dec 16 2022 01:09:00 | PM 121922b.csv |
| 1205269037 | 2354990 | 1 | RM3 | Dec 16 2022 01:31:00 | PM 121922b.csv |
| 603000001 | 2354990 | 1 | RM3 | Dec 16 2022 01:53:00 | PM 121922b.csv |
| CCV 0.5 mgC | | 1 | RM3 | Dec 16 2022 02:15:00 | PM 121922b.csv |
| CCB | | 1 | RM3 | Dec 16 2022 02:25:00 | PM 121922b.csv |
| 603904003 | 2354983 | 1 | RM3 | Dec 16 2022 02:36:00 | PM 121922b.csv |
| 603563002 | 2354990 | 1 | RM3 | Dec 16 2022 02:58:00 | PM 121922b.csv |
| CCV 0.5 mgC | | 1 | RM3 | Dec 16 2022 03:20:00 | PM 121922b.csv |
| CCB | | 1 | RM3 | Dec 16 2022 03:30:00 | PM 121922b.csv |
| CCV 0.5 mgC | | 1 | RM3 | Dec 16 2022 05:17:00 | PM 121922b.csv |
| CCB | | 1 | RM3 | Dec 16 2022 05:34:00 | PM 121922b.csv |
| 603563003 | 2354990 | 1 | RM3 | Dec 16 2022 05:53:00 | PM 121922b.csv |
| 603731001 | 2354990 | 1 | RM3 | Dec 16 2022 06:15:00 | PM 121922b.csv |
| 603731002 | 2354990 | 1 | RM3 | Dec 16 2022 06:37:00 | PM 121922b.csv |
| 603731003 | 2354990 | 1 | RM3 | Dec 16 2022 07:01:00 | PM 121922b.csv |
| 603731005 | 2354990 | 1 | RM3 | Dec 16 2022 07:23:00 | PM 121922b.csv |
| 603731006 | 2354990 | 1 | RM3 | Dec 16 2022 07:45:00 | PM 121922b.csv |
| 603563003 | 2354983 | 1 | RM3 | Dec 16 2022 08:07:00 | PM 121922b.csv |
| 603731007 | 2354990 | 1 | RM3 | Dec 16 2022 08:32:00 | PM 121922b.csv |
| 603731008 | 2354990 | 1 | RM3 | Dec 16 2022 09:04:00 | PM 121922b.csv |
| 603731009 | 2354990 | 1 | RM3 | Dec 16 2022 09:25:00 | PM 121922b.csv |
| CCV 0.5 mgC | | 1 | RM3 | Dec 16 2022 09:46:00 | PM 121922b.csv |
| CCB | | 1 | RM3 | Dec 16 2022 09:56:00 | PM 121922b.csv |

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Spl #: 3 Sample ID : ICB Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 10:27 am | - | - | - | - | 379 | 0.012 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 379 | 0.012 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 4 Sample ID : 1205269033 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 10:37 am | - | - | - | - | 300 | 0.011 | 0.000 | 0.000 |
| 2 | 10:40 am | - | - | - | - | 337 | 0.012 | 0.000 | 0.000 |
| 3 | 10:43 am | - | - | - | - | 356 | 0.012 | 0.000 | 0.000 |
| 4 | 10:46 am | - | - | - | - | 358 | 0.012 | 0.000 | 0.000 |
| 5 | 10:49 am | - | - | - | - | 387 | 0.013 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 359 | 0.012 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 20 | | | |
| % RSD. | | | | | | 5.66 | | | |

Comments: 2354990|1|1| MB ID:TOC368

Spl #: 5 Sample ID : 1205269034 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 10:58 am | - | - | - | - | 22,791 | 0.438 | 0.000 | 0.000 |
| 2 | 11:01 am | - | - | - | - | 22,745 | 0.437 | 0.000 | 0.000 |
| 3 | 11:05 am | - | - | - | - | 22,743 | 0.437 | 0.000 | 0.000 |
| 4 | 11:09 am | - | - | - | - | 22,675 | 0.436 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 22,738 | 0.437 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 48 | | | |
| % RSD. | | | | | | 0.21 | | | |

Comments: 2354990|1|1| LCS ID:TOC368

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Spl #: 12 Sample ID : 1205269037 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 1:31 pm | - | - | - | - | 61,841 | 1.179 | 0.000 | 0.000 |
| 2 | 1:35 pm | - | - | - | - | 61,309 | 1.169 | 0.000 | 0.000 |
| 3 | 1:38 pm | - | - | - | - | 61,223 | 1.167 | 0.000 | 0.000 |
| 4 | 1:42 pm | - | - | - | - | 61,049 | 1.164 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 61,356 | 1.170 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 341 | | | |
| % RSD. | | | | | | 0.56 | | | |

Comments: 2354990|1|1| PS ID:TOC368

Spl #: 13 Sample ID : 603000001 Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 1:53 pm | - | - | - | - | 103,967 | 1.978 | 0.000 | 0.000 |
| 2 | 1:57 pm | - | - | - | - | 102,983 | 1.960 | 0.000 | 0.000 |
| 3 | 2:00 pm | - | - | - | - | 102,633 | 1.953 | 0.000 | 0.000 |
| 4 | 2:04 pm | - | - | - | - | 102,514 | 1.951 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 103,024 | 1.960 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 659 | | | |
| % RSD. | | | | | | 0.64 | | | |

Comments: 2354990|1|1| ID:TOC368

Spl #: 14 Sample ID : CCV 0.5 mgC Type : Chk Standar Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct Status: Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 2:15 pm | - | - | - | - | 29,596 | 0.567 | n/a | n/a |
| Avg. | | - | - | - | - | 29,596 | 0.567 | n/a | n/a |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

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Spl #: 15 Sample ID : CCB Type : Sample Date: 2022/12/16
 Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
 04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 2:25 pm | - | - | - | - | 739 | 0.019 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 739 | 0.019 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 16 Sample ID : 603904003 Type : Sample Date: 2022/12/16
 Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
 04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 2:36 pm | - | - | - | - | 115,804 | 2.203 | 0.000 | 0.000 |
| 2 | 2:40 pm | - | - | - | - | 114,815 | 2.184 | 0.000 | 0.000 |
| 3 | 2:43 pm | - | - | - | - | 114,670 | 2.181 | 0.000 | 0.000 |
| 4 | 2:47 pm | - | - | - | - | 114,437 | 2.177 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 114,932 | 2.186 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 602 | | | |
| % RSD. | | | | | | 0.52 | | | |

Comments: 2354983|1|1| ID:TOC368

Spl #: 17 Sample ID : 603563002 Type : Sample Date: 2022/12/16
 Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
 04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 2:58 pm | - | - | - | - | 78,015 | 1.486 | 0.000 | 0.000 |
| 2 | 3:01 pm | - | - | - | - | 77,292 | 1.472 | 0.000 | 0.000 |
| 3 | 3:05 pm | - | - | - | - | 77,206 | 1.470 | 0.000 | 0.000 |
| 4 | 3:09 pm | - | - | - | - | 77,053 | 1.468 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 77,391 | 1.474 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 427 | | | |
| % RSD. | | | | | | 0.55 | | | |

Comments: 2354990|1|1| ID:TOC368

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Spl #: 18 Sample ID : CCV 0.5 mgC Type : Chk Standar Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 3:20 pm | - | - | - | - | 28,343 | 0.543 | n/a | n/a |
| Avg. | | - | - | - | - | 28,343 | 0.543 | n/a | n/a |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 19 Sample ID : CCB Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Pass Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 3:30 pm | - | - | - | - | 739 | 0.019 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 739 | 0.019 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 20 Sample ID : CCV 0.5 mgC Type : Chk Standar Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 5:17 pm | - | - | - | - | 27,172 | 0.521 | n/a | n/a |
| Avg. | | - | - | - | - | 27,172 | 0.521 | n/a | n/a |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 21 Sample ID : CCB Type : Sample Date: 2022/12/16
Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Pass Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 5:34 pm | - | - | - | - | 731 | 0.019 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 731 | 0.019 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |



Analytical Laboratory Report

Revised Report

Report ID: S43497.01(02)
Generated on 01/13/2023
Replaces report S43497.01(01) generated on 12/22/2022

Report to

Attention: Saamih Bashir
WSP
45850 Magellan Drive, Suite 190
Novi, MI 48377

Phone: n/a FAX:
Email: Saamih.Bashir@wsp.com

Additional Contacts: Jared Walbert

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
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Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S43497.01-S43497.09
Project: Former JB Sims Generating Station, Harbor Island, GrandHaven
Collected Date(s): 12/12/2022 - 12/14/2022
Submitted Date/Time: 12/15/2022 14:34
Sampled by: Jared Walbert
P.O. #: C012407104

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Maya Murshak
Technical Director



General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

Report Narrative

Reported to the MDL



Laboratory Certifications

| Authority | Certification ID |
|---------------------|------------------|
| Michigan DEQ | #9956 |
| DOD ELAP/ISO 17025 | #69699 |
| WBENC | #2005110032 |
| Ohio VAP | #CL0002 |
| Indiana DOH | #C-MI-07 |
| New York NELAC | #11814 |
| North Carolina DENR | #680 |
| North Carolina DOH | #26702 |
| Alaska CSLAP | #17-001 |
| Pennsylvania DEP | #68-05884 |
| Wisconsin DNR | FID# 399147320 |

Qualifier Descriptions

| Qualifier | Description |
|-----------|---|
| ! | Result is outside of stated limit criteria |
| B | Compound also found in associated method blank |
| E | Concentration exceeds calibration range |
| F | Analysis run outside of holding time |
| G | Estimated result due to extraction run outside of holding time |
| H | Sample submitted and run outside of holding time |
| I | Matrix interference with internal standard |
| J | Estimated value less than reporting limit, but greater than MDL |
| L | Elevated reporting limit due to low sample amount |
| M | Result reported to MDL not RDL |
| O | Analysis performed by outside laboratory. See attached report. |
| R | Preliminary result |
| S | Surrogate recovery outside of control limits |
| T | No correction for total solids |
| X | Elevated reporting limit due to matrix interference |
| Y | Elevated reporting limit due to high target concentration |
| b | Value detected less than reporting limit, but greater than MDL |
| e | Reported value estimated due to interference |
| j | Analyte also found in associated method blank |
| p | Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak. |
| x | Preserved from bulk sample |

Glossary of Abbreviations

| Abbreviation | Description |
|--------------|--|
| RL/RDL | Reporting Limit |
| MDL | Method Detection Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| SW | EPA SW 846 (Soil and Wastewater) Methods |
| E | EPA Methods |
| SM | Standard Methods |
| LN | Linear |
| BR | Branched |

Method Summary

| Method | Version |
|---------------|---|
| ASTMD7979-19M | ASTM Method D7979 - 19 Modified (Isotopic Dilution) |

Parameter Summary

| Parameter | Synonym | Cas # |
|------------------|--|--------------|
| PFBA | Perfluorobutanoic Acid | 375-22-4 |
| PFPeA | Perfluoropentanoic Acid | 2706-90-3 |
| 4:2 FTSA | 4:2 Fluorotelomer Sulfonic Acid | 757124-72-4 |
| PFHxA | Perfluorohexanoic Acid | 307-24-4 |
| PFBS | Perfluorobutane sulfonic Acid | 375-73-5 |
| PFHpA | Perfluoroheptanoic Acid | 375-85-9 |
| PFPeS | Perfluoropentane Sulfonic Acid | 2706-91-4 |
| 6:2 FTSA | 6:2 Fluorotelomer Sulfonic Acid | 27619-97-2 |
| PFOA | Perfluorooctanoic Acid | 335-67-1 |
| PFHxS | Perfluorohexane Sulfonic Acid | 355-46-4 |
| PFHxS-LN | Perfluorohexane Sulfonic Acid - LN | 355-46-4-LN |
| PFHxS-BR | Perfluorohexane Sulfonic Acid - BR | 355-46-4-BR |
| PFNA | Perfluorononanoic Acid | 375-95-1 |
| 8:2 FTSA | 8:2 Fluorotelomer Sulfonic Acid | 39108-34-4 |
| PFHpS | Perfluoroheptane Sulfonic Acid | 375-92-8 |
| PFDA | Perfluorodecanoic Acid | 335-76-2 |
| N-MeFOSAA | N-methyl perfluorooctanesulfonamidoacetic acid | 2355-31-9 |
| EtFOSAA | N-Ethyl Perfluorooctane Sulfonamidoacetic Acid | 2991-50-6 |
| PFOS | Perfluorooctane Sulfonic Acid | 1763-23-1 |
| PFOS-LN | Perfluorooctane Sulfonic Acid - LN | 1763-23-1-LN |
| PFOS-BR | Perfluorooctane Sulfonic Acid - BR | 1763-23-1-BR |
| PFUnDA | Perfluoroundecanoic Acid | 2058-94-8 |
| PFNS | Perfluorononane Sulfonic Acid | 68259-12-1 |
| PFDoDA | Perfluorododecanoic Acid | 307-55-1 |
| PFDS | Perfluorodecane Sulfonic Acid | 335-77-3 |
| PFTTrDA | Perfluorotridecanoic Acid | 72629-94-8 |
| FOSA | Perfluorooctane Sulfonamide | 754-91-6 |
| PFTeDA | Perfluorotetradecanoic Acid | 376-06-7 |
| 11Cl-PF3OUdS | 11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid | 763051-92-9 |
| 9Cl-PF3ONS | 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid | 756426-58-1 |
| ADONA | 4,8-dioxa-3H-perfluorononanoic acid | 919005-14-4 |
| HFPO-DA | Hexafluoropropylene oxide dimer | 13252-13-6 |
| FHpPA (7:3 FTCA) | 3-Perfluoroheptyl propanoic acid | 812-70-4 |
| FPePA (5:3 FTCA) | 3-Perfluoropentyl propanoic acid | 914637-49-3 |
| FPrPA (3:3 FTCA) | 3-Perfluoropropyl propanoic acid | 356-02-5 |
| PFBSA | Perfluorobutanesulfonamide | 30334-69-1 |
| PFECHS | Perfluoro-4-ethylcyclohexanesulfonate | 67584-42-3 |
| PFHxSA | Perfluorohexanesulfonamide | 41997-13-1 |



Sample Summary (9 samples)

| Sample ID | Sample Tag | Matrix | Collected Date/Time |
|-----------|-----------------|-------------|---------------------|
| S43497.01 | VAS31-3-7 | Groundwater | 12/12/22 14:00 |
| S43497.02 | VAS32-3-7 | Groundwater | 12/12/22 17:00 |
| S43497.03 | VAS33-3-7 | Groundwater | 12/13/22 10:05 |
| S43497.04 | VAS34-3-7 | Groundwater | 12/13/22 11:55 |
| S43497.05 | VAS35-1-5 | Groundwater | 12/13/22 14:30 |
| S43497.06 | DUP-07-13122022 | Groundwater | 12/13/22 00:00 |
| S43497.07 | VAS37-4-8 | Groundwater | 12/14/22 09:50 |
| S43497.08 | VAS38-5-9 | Groundwater | 12/14/22 11:30 |
| S43497.09 | VAS39-1-5 | Groundwater | 12/14/22 14:10 |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43497.01

Sample Tag: VAS31-3-7

Collected Date/Time: 12/12/2022 14:00

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.03/6.52/11 | ASTMD7979-19M | 12/17/22 09:30 | KCV | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/21/22 23:00, Analyst: JGH

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | 14 | 10 | 10 | ng/L | 2 | 375-22-4 | |
| PFPeA* | 12 | 4.0 | 1.0 | ng/L | 2 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 2 | 757124-72-4 | |
| PFHxA* | 7.9 | 2.0 | 1.4 | ng/L | 2 | 307-24-4 | |
| PFBS* | 3.9 | 2.0 | 1.4 | ng/L | 2 | 375-73-5 | |
| PFHpA* | 6.4 | 2.0 | 1.4 | ng/L | 2 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 2 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 27619-97-2 | |
| PFOA* | 10 | 2.0 | 1.6 | ng/L | 2 | 335-67-1 | |
| PFHxS* | 2.9 | 2.0 | 1.6 | ng/L | 2 | 355-46-4 | |
| PFHxS-LN* | 2.0 | 2.0 | 1.6 | ng/L | 2 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 2 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 2 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 2 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 2355-31-9 | |
| EtFOSAA* | 14 | 4.0 | 2.0 | ng/L | 2 | 2991-50-6 | |
| PFOS* | 41 | 2.0 | 2.0 | ng/L | 2 | 1763-23-1 | |
| PFOS-LN* | 25 | 2.0 | 2.0 | ng/L | 2 | 1763-23-1-LN | |
| PFOS-BR* | 15 | 2.0 | 2.0 | ng/L | 2 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 2 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 2 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 2 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 2 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 2 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 2 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.0 | ng/L | 2 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 2 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 2 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 2 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 2 | 30334-69-1 | |
| PFECHS* | 2.6 | 2.0 | 1.2 | ng/L | 2 | 67584-42-3 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43497.01 (continued)

Sample Tag: VAS31-3-7

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/21/22 23:00, Analyst: JGH (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|-----|-------|----------|------------|-------|
| PFHxSA* | Not detected | 2.0 | 1.0 | ng/L | 2 | 41997-13-1 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43497.02

Sample Tag: VAS32-3-7

Collected Date/Time: 12/12/2022 17:00

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.03/6.52/11 | ASTMD7979-19M | 12/17/22 09:30 | KCV | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/21/22 23:20, Analyst: JGH

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | Not detected | 10 | 10 | ng/L | 2 | 375-22-4 | |
| PFPeA* | 17 | 4.0 | 1.0 | ng/L | 2 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 2 | 757124-72-4 | |
| PFHxA* | 9.8 | 2.0 | 1.4 | ng/L | 2 | 307-24-4 | |
| PFBS* | 2.1 | 2.0 | 1.4 | ng/L | 2 | 375-73-5 | |
| PFHpA* | 4.8 | 2.0 | 1.4 | ng/L | 2 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 2 | 2706-91-4 | |
| 6:2 FTSA* | 4.2 | 2.0 | 2.0 | ng/L | 2 | 27619-97-2 | |
| PFOA* | 12 | 2.0 | 1.6 | ng/L | 2 | 335-67-1 | |
| PFHxS* | 5.7 | 2.0 | 1.6 | ng/L | 2 | 355-46-4 | |
| PFHxS-LN* | 4.4 | 2.0 | 1.6 | ng/L | 2 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 2 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 2 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 2 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 2 | 2991-50-6 | |
| PFOS* | 110 | 2.0 | 2.0 | ng/L | 2 | 1763-23-1 | |
| PFOS-LN* | 74 | 2.0 | 2.0 | ng/L | 2 | 1763-23-1-LN | |
| PFOS-BR* | 38 | 2.0 | 2.0 | ng/L | 2 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 2 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 2 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 2 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 2 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 2 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 2 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.0 | ng/L | 2 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 2 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 2 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 2 | 356-02-5 | |
| PFBSA* | 1.2 | 2.0 | 1.2 | ng/L | 2 | 30334-69-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43497.02 (continued)

Sample Tag: VAS32-3-7

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/21/22 23:20, Analyst: JGH (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|-----|-------|----------|------------|-------|
| PFECHS* | 3.0 | 2.0 | 1.2 | ng/L | 2 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 1.0 | ng/L | 2 | 41997-13-1 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43497.03

Sample Tag: VAS33-3-7

Collected Date/Time: 12/13/2022 10:05

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.10/6.56/11 | ASTMD7979-19M | 12/17/22 09:30 | KCV | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/21/22 23:39, Analyst: JGH

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|------|------|-------|----------|--------------|-------|
| PFBA* | 34 | 10.0 | 10.0 | ng/L | 1.99 | 375-22-4 | |
| PFPeA* | 72 | 4.0 | 1.00 | ng/L | 1.99 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 757124-72-4 | |
| PFHxA* | 41 | 2.0 | 1.4 | ng/L | 1.99 | 307-24-4 | |
| PFBS* | 6.1 | 2.0 | 1.4 | ng/L | 1.99 | 375-73-5 | |
| PFHpA* | 12 | 2.0 | 1.4 | ng/L | 1.99 | 375-85-9 | |
| PFPeS* | 2.1 | 2.0 | 1.8 | ng/L | 1.99 | 2706-91-4 | |
| 6:2 FTSA* | 3.9 | 2.0 | 2.0 | ng/L | 1.99 | 27619-97-2 | |
| PFOA* | 13 | 2.0 | 1.6 | ng/L | 1.99 | 335-67-1 | |
| PFHxS* | 4.9 | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4 | |
| PFHxS-LN* | 2.3 | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4-LN | |
| PFHxS-BR* | 2.2 | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 2355-31-9 | |
| EtFOSAA* | 60 | 4.0 | 2.0 | ng/L | 1.99 | 2991-50-6 | |
| PFOS* | 96 | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1 | |
| PFOS-LN* | 84 | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1-LN | |
| PFOS-BR* | 12 | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 1.99 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10.0 | 2.0 | ng/L | 1.99 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 1.99 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 1.99 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 1.99 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 30334-69-1 | |
| PFECHS* | 14 | 2.0 | 1.2 | ng/L | 1.99 | 67584-42-3 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43497.03 (continued)

Sample Tag: VAS33-3-7

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/21/22 23:39, Analyst: JGH (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 41997-13-1 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43497.04

Sample Tag: VAS34-3-7

Collected Date/Time: 12/13/2022 11:55

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.13/6.50/11 | ASTMD7979-19M | 12/17/22 09:30 | KCV | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/21/22 23:59, Analyst: JGH

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 30 | 9.8 | 9.8 | ng/L | 1.95 | 375-22-4 | |
| PFPeA* | 62 | 3.9 | 0.98 | ng/L | 1.95 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.95 | 757124-72-4 | |
| PFHxA* | 43 | 2.0 | 1.4 | ng/L | 1.95 | 307-24-4 | |
| PFBS* | 7.2 | 2.0 | 1.4 | ng/L | 1.95 | 375-73-5 | |
| PFHpA* | 26 | 2.0 | 1.4 | ng/L | 1.95 | 375-85-9 | |
| PFPeS* | 7.0 | 2.0 | 1.8 | ng/L | 1.95 | 2706-91-4 | |
| 6:2 FTSA* | 2.7 | 2.0 | 2.0 | ng/L | 1.95 | 27619-97-2 | |
| PFOA* | 110 | 2.0 | 1.6 | ng/L | 1.95 | 335-67-1 | |
| PFHxS* | 30 | 2.0 | 1.6 | ng/L | 1.95 | 355-46-4 | |
| PFHxS-LN* | 24 | 2.0 | 1.6 | ng/L | 1.95 | 355-46-4-LN | |
| PFHxS-BR* | 5.3 | 2.0 | 1.6 | ng/L | 1.95 | 355-46-4-BR | |
| PFNA* | 2.4 | 2.0 | 1.8 | ng/L | 1.95 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.98 | ng/L | 1.95 | 39108-34-4 | |
| PFHpS* | 12 | 2.0 | 2.0 | ng/L | 1.95 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.95 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.95 | 2355-31-9 | |
| EtFOSAA* | 16 | 3.9 | 2.0 | ng/L | 1.95 | 2991-50-6 | |
| PFOS* | 250 | 2.0 | 1.9 | ng/L | 1.95 | 1763-23-1 | |
| PFOS-LN* | 110 | 2.0 | 1.9 | ng/L | 1.95 | 1763-23-1-LN | |
| PFOS-BR* | 140 | 2.0 | 1.9 | ng/L | 1.95 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.95 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.95 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.8 | ng/L | 1.95 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.95 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.95 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.8 | 2.0 | ng/L | 1.95 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.9 | ng/L | 1.95 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.1 | ng/L | 1.95 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.95 | 356-02-5 | |
| PFBSA* | 2.5 | 2.0 | 1.2 | ng/L | 1.95 | 30334-69-1 | |
| PFECHS* | 7.8 | 2.0 | 1.2 | ng/L | 1.95 | 67584-42-3 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43497.04 (continued)

Sample Tag: VAS34-3-7

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/21/22 23:59, Analyst: JGH (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFHxSA* | 1.1 | 2.0 | 0.98 | ng/L | 1.95 | 41997-13-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43497.05

Sample Tag: VAS35-1-5

Collected Date/Time: 12/13/2022 14:30

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.14/6.53/11 | ASTMD7979-19M | 12/17/22 09:30 | KCV | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 00:18, Analyst: JGH

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 13 | 9.8 | 9.8 | ng/L | 1.96 | 375-22-4 | |
| PFPeA* | 9.0 | 3.9 | 0.98 | ng/L | 1.96 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.96 | 757124-72-4 | |
| PFHxA* | 11 | 2.0 | 1.4 | ng/L | 1.96 | 307-24-4 | |
| PFBS* | 3.5 | 2.0 | 1.4 | ng/L | 1.96 | 375-73-5 | |
| PFHpA* | 7.1 | 2.0 | 1.4 | ng/L | 1.96 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 1.96 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 27619-97-2 | |
| PFOA* | 14 | 2.0 | 1.6 | ng/L | 1.96 | 335-67-1 | |
| PFHxS* | 3.5 | 2.0 | 1.6 | ng/L | 1.96 | 355-46-4 | |
| PFHxS-LN* | 2.5 | 2.0 | 1.6 | ng/L | 1.96 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 1.96 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.96 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 2991-50-6 | |
| PFOS* | 32 | 2.0 | 1.9 | ng/L | 1.96 | 1763-23-1 | |
| PFOS-LN* | 17 | 2.0 | 1.9 | ng/L | 1.96 | 1763-23-1-LN | |
| PFOS-BR* | 15 | 2.0 | 1.9 | ng/L | 1.96 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.96 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.96 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.8 | ng/L | 1.96 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.96 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.8 | 2.0 | ng/L | 1.96 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.9 | ng/L | 1.96 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.2 | ng/L | 1.96 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.96 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 30334-69-1 | |
| PFECHS* | 8.3 | 2.0 | 1.2 | ng/L | 1.96 | 67584-42-3 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43497.05 (continued)

Sample Tag: VAS35-1-5

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 00:18, Analyst: JGH (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 41997-13-1 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43497.06

Sample Tag: DUP-07-13122022

Collected Date/Time: 12/13/2022 00:00

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.20/6.53/11 | ASTMD7979-19M | 12/17/22 09:30 | KCV | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 00:38, Analyst: JGH

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 16 | 9.7 | 9.7 | ng/L | 1.94 | 375-22-4 | |
| PFPeA* | 11 | 3.9 | 0.97 | ng/L | 1.94 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 1.6 | ng/L | 1.94 | 757124-72-4 | |
| PFHxA* | 10 | 1.9 | 1.4 | ng/L | 1.94 | 307-24-4 | |
| PFBS* | 3.1 | 1.9 | 1.4 | ng/L | 1.94 | 375-73-5 | |
| PFHpA* | 6.5 | 1.9 | 1.4 | ng/L | 1.94 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.94 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 27619-97-2 | |
| PFOA* | 12 | 1.9 | 1.6 | ng/L | 1.94 | 335-67-1 | |
| PFHxS* | 4.9 | 1.9 | 1.6 | ng/L | 1.94 | 355-46-4 | |
| PFHxS-LN* | 4.2 | 1.9 | 1.6 | ng/L | 1.94 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.6 | ng/L | 1.94 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 1.7 | ng/L | 1.94 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 1.9 | ng/L | 1.94 | 2991-50-6 | |
| PFOS* | 33 | 1.9 | 1.9 | ng/L | 1.94 | 1763-23-1 | |
| PFOS-LN* | 18 | 1.9 | 1.9 | ng/L | 1.94 | 1763-23-1-LN | |
| PFOS-BR* | 15 | 1.9 | 1.9 | ng/L | 1.94 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.4 | ng/L | 1.94 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.4 | ng/L | 1.94 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.6 | ng/L | 1.94 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.4 | ng/L | 1.94 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.94 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.7 | ng/L | 1.94 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.94 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.4 | ng/L | 1.94 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.7 | 1.9 | ng/L | 1.94 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.9 | ng/L | 1.94 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.1 | ng/L | 1.94 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.94 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 30334-69-1 | |
| PFECHS* | 9.2 | 1.9 | 1.2 | ng/L | 1.94 | 67584-42-3 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43497.06 (continued)

Sample Tag: DUP-07-13122022

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 00:38, Analyst: JGH (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 41997-13-1 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43497.07

Sample Tag: VAS37-4-8

Collected Date/Time: 12/14/2022 09:50

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.71/6.54/10 | ASTMD7979-19M | 12/17/22 09:30 | KCV | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 00:57, Analyst: JGH

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 18 | 9.7 | 9.7 | ng/L | 1.93 | 375-22-4 | |
| PFPeA* | 24 | 3.9 | 0.97 | ng/L | 1.93 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 757124-72-4 | |
| PFHxA* | 17 | 1.9 | 1.4 | ng/L | 1.93 | 307-24-4 | |
| PFBS* | 8.3 | 1.9 | 1.4 | ng/L | 1.93 | 375-73-5 | |
| PFHpA* | 6.0 | 1.9 | 1.4 | ng/L | 1.93 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 27619-97-2 | |
| PFOA* | 9.9 | 1.9 | 1.5 | ng/L | 1.93 | 335-67-1 | |
| PFHxS* | 3.6 | 1.9 | 1.5 | ng/L | 1.93 | 355-46-4 | |
| PFHxS-LN* | 2.1 | 1.9 | 1.5 | ng/L | 1.93 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 355-46-4-BR | |
| PFNA* | 2.3 | 1.9 | 1.7 | ng/L | 1.93 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 2355-31-9 | |
| EtFOSAA* | 7.2 | 3.9 | 1.9 | ng/L | 1.93 | 2991-50-6 | |
| PFOS* | 44 | 1.9 | 1.9 | ng/L | 1.93 | 1763-23-1 | |
| PFOS-LN* | 25 | 1.9 | 1.9 | ng/L | 1.93 | 1763-23-1-LN | |
| PFOS-BR* | 16 | 1.9 | 1.9 | ng/L | 1.93 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.7 | ng/L | 1.93 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.7 | 1.9 | ng/L | 1.93 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.9 | ng/L | 1.93 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.1 | ng/L | 1.93 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.93 | 356-02-5 | |
| PFBSA* | 4.2 | 1.9 | 1.2 | ng/L | 1.93 | 30334-69-1 | |
| PFECHS* | 2.9 | 1.9 | 1.2 | ng/L | 1.93 | 67584-42-3 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43497.07 (continued)

Sample Tag: VAS37-4-8

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 00:57, Analyst: JGH (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 41997-13-1 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43497.08

Sample Tag: VAS38-5-9

Collected Date/Time: 12/14/2022 11:30

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.89/6.57/11 | ASTMD7979-19M | 12/17/22 09:30 | KCV | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 01:17, Analyst: JGH

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | 14 | 10 | 10 | ng/L | 2.07 | 375-22-4 | |
| PFPeA* | 35 | 4.1 | 1.0 | ng/L | 2.07 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.1 | 1.7 | ng/L | 2.07 | 757124-72-4 | |
| PFHxA* | 19 | 2.1 | 1.4 | ng/L | 2.07 | 307-24-4 | |
| PFBS* | 12 | 2.1 | 1.4 | ng/L | 2.07 | 375-73-5 | |
| PFHpA* | 10 | 2.1 | 1.4 | ng/L | 2.07 | 375-85-9 | |
| PFPeS* | Not detected | 2.1 | 1.9 | ng/L | 2.07 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.1 | 2.1 | ng/L | 2.07 | 27619-97-2 | |
| PFOA* | 17 | 2.1 | 1.7 | ng/L | 2.07 | 335-67-1 | |
| PFHxS* | 6.2 | 2.1 | 1.7 | ng/L | 2.07 | 355-46-4 | |
| PFHxS-LN* | 4.8 | 2.1 | 1.7 | ng/L | 2.07 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.1 | 1.7 | ng/L | 2.07 | 355-46-4-BR | |
| PFNA* | Not detected | 2.1 | 1.9 | ng/L | 2.07 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.1 | 1.0 | ng/L | 2.07 | 39108-34-4 | |
| PFHpS* | Not detected | 2.1 | 2.1 | ng/L | 2.07 | 375-92-8 | |
| PFDA* | Not detected | 2.1 | 2.1 | ng/L | 2.07 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.1 | 2.1 | ng/L | 2.07 | 2355-31-9 | |
| EtFOSAA* | 3.6 | 4.1 | 2.1 | ng/L | 2.07 | 2991-50-6 | J |
| PFOS* | 140 | 2.1 | 2.0 | ng/L | 2.07 | 1763-23-1 | |
| PFOS-LN* | 94 | 2.1 | 2.0 | ng/L | 2.07 | 1763-23-1-LN | |
| PFOS-BR* | 46 | 2.1 | 2.0 | ng/L | 2.07 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.1 | 1.4 | ng/L | 2.07 | 2058-94-8 | |
| PFNS* | Not detected | 2.1 | 1.4 | ng/L | 2.07 | 68259-12-1 | |
| PFDODA* | Not detected | 2.1 | 1.7 | ng/L | 2.07 | 307-55-1 | |
| PFDS* | Not detected | 2.1 | 1.4 | ng/L | 2.07 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.1 | 1.2 | ng/L | 2.07 | 72629-94-8 | |
| FOSA* | Not detected | 2.1 | 1.9 | ng/L | 2.07 | 754-91-6 | |
| PFTeDA* | Not detected | 4.1 | 1.9 | ng/L | 2.07 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.1 | 1.9 | ng/L | 2.07 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.1 | 1.4 | ng/L | 2.07 | 756426-58-1 | |
| ADONA* | Not detected | 2.1 | 2.1 | ng/L | 2.07 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.1 | ng/L | 2.07 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.1 | 3.1 | ng/L | 2.07 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.1 | 2.3 | ng/L | 2.07 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.1 | 1.2 | ng/L | 2.07 | 356-02-5 | |
| PFBSA* | 2.4 | 2.1 | 1.2 | ng/L | 2.07 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43497.08 (continued)

Sample Tag: VAS38-5-9

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 01:17, Analyst: JGH (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|-----|-------|----------|------------|-------|
| PFECHS* | 5.0 | 2.1 | 1.2 | ng/L | 2.07 | 67584-42-3 | |
| PFHxSA* | 1.1 | 2.1 | 1.0 | ng/L | 2.07 | 41997-13-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43497.09

Sample Tag: VAS39-1-5

Collected Date/Time: 12/14/2022 14:10

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.11/6.52/11 | ASTMD7979-19M | 12/17/22 09:30 | KCV | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 01:36, Analyst: JGH

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 12 | 9.9 | 9.9 | ng/L | 1.97 | 375-22-4 | |
| PFPeA* | 21 | 3.9 | 0.99 | ng/L | 1.97 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 757124-72-4 | |
| PFHxA* | 18 | 2.0 | 1.4 | ng/L | 1.97 | 307-24-4 | |
| PFBS* | 4.2 | 2.0 | 1.4 | ng/L | 1.97 | 375-73-5 | |
| PFHpA* | 6.8 | 2.0 | 1.4 | ng/L | 1.97 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 1.97 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 27619-97-2 | |
| PFOA* | 21 | 2.0 | 1.6 | ng/L | 1.97 | 335-67-1 | |
| PFHxS* | 4.6 | 2.0 | 1.6 | ng/L | 1.97 | 355-46-4 | |
| PFHxS-LN* | 3.6 | 2.0 | 1.6 | ng/L | 1.97 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 355-46-4-BR | |
| PFNA* | 2.0 | 2.0 | 1.8 | ng/L | 1.97 | 375-95-1 | J |
| 8:2 FTSA* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 2355-31-9 | |
| EtFOSAA* | 7.8 | 3.9 | 2.0 | ng/L | 1.97 | 2991-50-6 | |
| PFOS* | 72 | 2.0 | 1.9 | ng/L | 1.97 | 1763-23-1 | |
| PFOS-LN* | 39 | 2.0 | 1.9 | ng/L | 1.97 | 1763-23-1-LN | |
| PFOS-BR* | 32 | 2.0 | 1.9 | ng/L | 1.97 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.97 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.8 | ng/L | 1.97 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.97 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.9 | 2.0 | ng/L | 1.97 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 3.0 | ng/L | 1.97 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.2 | ng/L | 1.97 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.97 | 356-02-5 | |
| PFBSA* | 1.3 | 2.0 | 1.2 | ng/L | 1.97 | 30334-69-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43497.09 (continued)

Sample Tag: VAS39-1-5

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 01:36, Analyst: JGH (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 6.1 | 2.0 | 1.2 | ng/L | 1.97 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 41997-13-1 | |

Merit Laboratories Login Checklist

Lab Set ID:S43497

Client:WSP (WSP)

Project: Former JB Sims Generating Station, Harbor Island, GrandHaven

Submitted: 12/15/2022 14:34 Login User: MMC

Attention: Saamih Bashir

Address: WSP

45850 Magellan Drive, Suite 190
Novi, MI 48377

Phone: n/a

FAX:

Email: Saamih.Bashir@wsp.com

| Selection | Description | Note |
|--------------------------|--|--|
| Sample Receiving | | |
| 01. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 3.4 |
| 02. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun |
| 03. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped |
| 04. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box |
| 05. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |
| Chain of Custody | | |
| 06. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out |
| 07. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab |
| 08. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC |
| 09. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to: |
| Preservation | | |
| 10. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation |
| 11. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs) |
| 12. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab? |
| Bottle Conditions | | |
| 13. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact |
| 14. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used |
| 15. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used |
| 16. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received |
| 17. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration |
| 18. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time |
| 19. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace |

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

WSP USA Environment & Infrastructure Inc.
 46850 Magellan Drive, Suite 190
 Novi, Michigan 48377
 (248) 926-4008

CHAIN OF CUSTODY

SHIP TO:
 Merit Laboratories, Inc.
 2680 East Lansing Drive
 East Lansing, MI 48823
 Atten: Johanna Murray
 Lab Phone# 517-827-2755

DATE: 12/15/2022
 COC #: _____
 PAGE: 7 OF 7

| | | | |
|--|---------------------------------------|---|-----------------------------------|
| Project Name: Former JB Sims Generating Station, Harbor Island, Grand Haven | Project Contact: Zach McCurley | Bill To: WSP USA Environment & Infrastructure Inc. | Disposal Instructions: LAB |
| Project Number: 3650220203.02.02.3650 | Phone Number: 248-775-9823 | Attn: Saamih Bashir | Shipment Method: FEDEX |
| Project Manager: Saamih Bashir | Purchase Order: C012407104 | 46850 Magellan Dr., Ste 190 Novi, MI 48377 | Waybill Number: N/A |
| Sampler Name: Jared Walbert | | | Waybill Number: N/A |

MATRIX Code W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL SW=SURFACE WATER
 L=LIQUID SD=SEDIMENT SL=SLUDGE DW=DRINKING WATER O=OIL A=AIR WS=WASTE

TURNAROUND TIME REQUIRED: 2 Days 5 Days Standard (10 TAT)
 DELIVERABLES REQUIRED: STD Level II Level III Level IV EDD

| Sample Information | | | | | | Methods for Analysis | | | | | | | | | | RUSH | | | | | | | |
|--------------------|----------|-----------------|------------|-------|--------|----------------------|-----------------------------|---------------------|----------------------|-----------------------------|-------------------------------|--------------------------------------|----------------------|--------|--|------|--|--|---------|---------|---------|--------|--|
| No. | Lab ID | Sample ID | Date | Time | Matrix | # of Bottles | PFAS ASTM 6799 Per Contract | VOCs (Per Contract) | SVOCs (Per Contract) | MI 10 Metals (per Contract) | pH/corrosivity (per Contract) | particle size (sieve and hydrometer) | Total Organic Carbon | MS/MSD | | | | | 24 Hour | 48 Hour | 72 Hour | 5 Days | |
| 1 | 43497.01 | VAS31-3-7 | 12/12/2022 | 14:00 | GW | 3 | X | | | | | | | | | | | | | | | | |
| 2 | .02 | VAS32-3-7 | 12/12/2022 | 17:00 | GW | 3 | X | | | | | | | | | | | | | | | | |
| 3 | .03 | VAS33-3-7 | 12/13/2022 | 10:05 | GW | 3 | X | | | | | | | | | | | | | | | | |
| 4 | .04 | VAS34-3-7 | 12/13/2022 | 11:55 | GW | 3 | X | | | | | | | | | | | | | | | | |
| 5 | .05 | VAS35-1-5 | 12/13/2022 | 14:30 | GW | 3 | X | | | | | | | | | | | | | | | | |
| 6 | .06 | DUP-07-13122022 | 12/13/2022 | 0:00 | GW | 3 | X | | | | | | | | | | | | | | | | |
| 7 | .07 | VAS37-4-8 | 12/14/2022 | 9:50 | GW | 3 | X | | | | | | | | | | | | | | | | |
| 8 | .08 | VAS38-5-9 | 12/14/2022 | 11:30 | GW | 3 | X | | | | | | | | | | | | | | | | |
| 9 | .09 | VAS39-1-5 | 12/14/2022 | 14:10 | GW | 3 | X | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | | | |

| | | | | |
|---|-----------------------|-------------------|---|-----------------------|
| Relinquished By/Affiliation: <i>Kate White</i> | Date: 12/15/22 | Time: 1430 | For Lab Use Does COC match samples: Y or N Broken Container: Y or N COC seal intact: Y or N Other problems: Y or N WSDOT contacted: Y or N Date contacted: _____ Cooler Temperature at receipt: 3.4 °C NUMBER OF COOLERS SENT: 1 | Comments: X |
| Received By: <i>Johanna Murray</i> | Date: 12/15/22 | Time: 1434 | | |
| Relinquished By/Affiliation: | Date: | Time: | | |
| Received By: | Date: | Time: | | |
| Relinquished By/Affiliation: | Date: | Time: | | |
| Received By (LAB): | Date: | Time: | | |



Analytical Laboratory Report

Report ID: S43499.01(01)
Generated on 01/20/2023

Report to

Attention: Saamih Bashir
WSP
45850 Magellan Drive, Suite 190
Novi, MI 48377

Phone: n/a FAX:
Email: Saamih.Bashir@wsp.com

Additional Contacts: Jared Walbert

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S43499.01-S43499.33
Project: Former JB Sims Generating Station, Harbor Island, GrandHaven
Collected Date(s): 12/12/2022 - 12/14/2022
Submitted Date/Time: 12/15/2022 14:34
Sampled by: Jared Walbert
P.O. #: C012407104

Table of Contents

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- General Report Notes (Page 2)
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Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Certifications

| Authority | Certification ID |
|---------------------|------------------|
| Michigan DEQ | #9956 |
| DOD ELAP/ISO 17025 | #69699 |
| WBENC | #2005110032 |
| Ohio VAP | #CL0002 |
| Indiana DOH | #C-MI-07 |
| New York NELAC | #11814 |
| North Carolina DENR | #680 |
| North Carolina DOH | #26702 |
| Alaska CSLAP | #17-001 |
| Pennsylvania DEP | #68-05884 |
| Wisconsin DNR | FID# 399147320 |

Qualifier Descriptions

| Qualifier | Description |
|-----------|---|
| ! | Result is outside of stated limit criteria |
| B | Compound also found in associated method blank |
| E | Concentration exceeds calibration range |
| F | Analysis run outside of holding time |
| G | Estimated result due to extraction run outside of holding time |
| H | Sample submitted and run outside of holding time |
| I | Matrix interference with internal standard |
| J | Estimated value less than reporting limit, but greater than MDL |
| L | Elevated reporting limit due to low sample amount |
| M | Result reported to MDL not RDL |
| O | Analysis performed by outside laboratory. See attached report. |
| R | Preliminary result |
| S | Surrogate recovery outside of control limits |
| T | No correction for total solids |
| X | Elevated reporting limit due to matrix interference |
| Y | Elevated reporting limit due to high target concentration |
| b | Value detected less than reporting limit, but greater than MDL |
| e | Reported value estimated due to interference |
| j | Analyte also found in associated method blank |
| p | Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak. |
| x | Preserved from bulk sample |

Glossary of Abbreviations

| Abbreviation | Description |
|--------------|--|
| RL/RDL | Reporting Limit |
| MDL | Method Detection Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| SW | EPA SW 846 (Soil and Wastewater) Methods |
| E | EPA Methods |
| SM | Standard Methods |
| LN | Linear |
| BR | Branched |



Analytical Laboratory Report

Method Summary

| Method | Version |
|----------------|---|
| ASTM D7968-17M | ASTM Method D7968 - 17 Modified (Isotopic Dilution) |
| ASTMD7979-19M | ASTM Method D7979 - 19 Modified (Isotopic Dilution) |
| SM2540B | Standard Method 2540 B 2015 |

Parameter Summary

| Parameter | Synonym | Cas # |
|------------------|--|--------------|
| PFBA | Perfluorobutanoic Acid | 375-22-4 |
| PFPeA | Perfluoropentanoic Acid | 2706-90-3 |
| 4:2 FTSA | 4:2 Fluorotelomer Sulfonic Acid | 757124-72-4 |
| PFHxA | Perfluorohexanoic Acid | 307-24-4 |
| PFBS | Perfluorobutane sulfonic Acid | 375-73-5 |
| PFHpA | Perfluoroheptanoic Acid | 375-85-9 |
| PFPeS | Perfluoropentane Sulfonic Acid | 2706-91-4 |
| 6:2 FTSA | 6:2 Fluorotelomer Sulfonic Acid | 27619-97-2 |
| PFOA | Perfluorooctanoic Acid | 335-67-1 |
| PFHxS | Perfluorohexane Sulfonic Acid | 355-46-4 |
| PFHxS-LN | Perfluorohexane Sulfonic Acid - LN | 355-46-4-LN |
| PFHxS-BR | Perfluorohexane Sulfonic Acid - BR | 355-46-4-BR |
| PFNA | Perfluorononanoic Acid | 375-95-1 |
| 8:2 FTSA | 8:2 Fluorotelomer Sulfonic Acid | 39108-34-4 |
| PFHpS | Perfluoroheptane Sulfonic Acid | 375-92-8 |
| PFDA | Perfluorodecanoic Acid | 335-76-2 |
| N-MeFOSAA | N-methyl perfluorooctanesulfonamidoacetic acid | 2355-31-9 |
| EtFOSAA | N-Ethyl Perfluorooctane Sulfonamidoacetic Acid | 2991-50-6 |
| PFOS | Perfluorooctane Sulfonic Acid | 1763-23-1 |
| PFOS-LN | Perfluorooctane Sulfonic Acid - LN | 1763-23-1-LN |
| PFOS-BR | Perfluorooctane Sulfonic Acid - BR | 1763-23-1-BR |
| PFUnDA | Perfluoroundecanoic Acid | 2058-94-8 |
| PFNS | Perfluorononane Sulfonic Acid | 68259-12-1 |
| PFDoDA | Perfluorododecanoic Acid | 307-55-1 |
| PFDS | Perfluorodecane Sulfonic Acid | 335-77-3 |
| PFTTrDA | Perfluorotridecanoic Acid | 72629-94-8 |
| FOSA | Perfluorooctane Sulfonamide | 754-91-6 |
| PFTeDA | Perfluorotetradecanoic Acid | 376-06-7 |
| 11Cl-PF3OUdS | 11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid | 763051-92-9 |
| 9Cl-PF3ONS | 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid | 756426-58-1 |
| ADONA | 4,8-dioxa-3H-perfluorononanoic acid | 919005-14-4 |
| HFPO-DA | Hexafluoropropylene oxide dimer | 13252-13-6 |
| FHpPA (7:3 FTCA) | 3-Perfluoroheptyl propanoic acid | 812-70-4 |
| FPePA (5:3 FTCA) | 3-Perfluoropentyl propanoic acid | 914637-49-3 |
| FPrPA (3:3 FTCA) | 3-Perfluoropropyl propanoic acid | 356-02-5 |
| PFBSA | Perfluorobutanesulfonamide | 30334-69-1 |
| PFECHS | Perfluoro-4-ethylcyclohexanesulfonate | 67584-42-3 |
| PFHxSA | Perfluorohexanesulfonamide | 41997-13-1 |



Analytical Laboratory Report

Sample Summary (33 samples)

| Sample ID | Sample Tag | Matrix | Collected Date/Time |
|-----------|--------------------|---------------|---------------------|
| S43499.01 | VAS29-4-8 | Groundwater | 12/12/22 10:20 |
| S43499.02 | VAS29-16-20 | Groundwater | 12/12/22 10:55 |
| S43499.03 | VAS30-4-8 | Groundwater | 12/12/22 11:45 |
| S43499.04 | VAS30-16-20 | Groundwater | 12/12/22 13:05 |
| S43499.05 | VAS31-16-20 | Groundwater | 12/12/22 15:45 |
| S43499.06 | VAS31-16-20 MS | Groundwater | 12/12/22 15:45 |
| S43499.07 | VAS31-16-20 MSD | Groundwater | 12/12/22 15:45 |
| S43499.08 | VAS32-16-20 | Groundwater | 12/12/22 18:05 |
| S43499.09 | DUP-06-12122022 | Groundwater | 12/12/22 00:00 |
| S43499.10 | VAS33-16-20 | Groundwater | 12/13/22 11:00 |
| S43499.11 | VAS34-16-20 | Groundwater | 12/13/22 12:50 |
| S43499.12 | VAS35-16-20 | Groundwater | 12/13/22 15:55 |
| S43499.13 | VAS36-4-8 | Groundwater | 12/13/22 16:50 |
| S43499.14 | VAS36-16-20 | Groundwater | 12/13/22 17:30 |
| S43499.15 | VAS37-16-20 | Groundwater | 12/14/22 10:35 |
| S43499.16 | VAS38-16-20 | Groundwater | 12/14/22 12:55 |
| S43499.17 | VAS39-16-20 | Groundwater | 12/14/22 15:00 |
| S43499.18 | VAS40-4-8 | Groundwater | 12/14/22 15:55 |
| S43499.19 | VAS40-16-20 | Groundwater | 12/14/22 16:20 |
| S43499.20 | SW-01-14122022 | Surface Water | 12/14/22 16:00 |
| S43499.21 | SW-02-14122022 | Surface Water | 12/14/22 16:25 |
| S43499.22 | SW-03-14122022 | Surface Water | 12/14/22 17:00 |
| S43499.23 | SW-04-14122022 | Surface Water | 12/14/22 17:15 |
| S43499.24 | SW-05-14122022 | Surface Water | 12/14/22 17:30 |
| S43499.25 | SW-06-14122022 | Surface Water | 12/14/22 17:50 |
| S43499.26 | Equipment Blank-03 | Water | 12/14/22 15:30 |
| S43499.27 | Field Blank-01 | Water | 12/14/22 15:45 |
| S43499.28 | VAS31-SB-3-5 | Soil | 12/12/22 13:00 |
| S43499.29 | VAS32-SB-3-5 | Soil | 12/12/22 15:00 |
| S43499.30 | VAS33-SB-3-5 | Soil | 12/13/22 09:00 |
| S43499.31 | VAS34-SB-3-5 | Soil | 12/13/22 10:45 |
| S43499.32 | VAS39-SB-3-5 | Soil | 12/14/22 12:40 |
| S43499.33 | Sed-01-14122022 | Soil | 12/14/22 16:00 |



Analytical Laboratory Report

Lab Sample ID: S43499.01

Sample Tag: VAS29-4-8

Collected Date/Time: 12/12/2022 10:20

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.85/6.54/11 | ASTMD7979-19M | 12/17/22 09:30 | KCV | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 01:56, Analyst: JGH

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | 14 | 10 | 10 | ng/L | 2.07 | 375-22-4 | |
| PFPeA* | 13 | 4.1 | 1.0 | ng/L | 2.07 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.1 | 1.7 | ng/L | 2.07 | 757124-72-4 | |
| PFHxA* | 8.0 | 2.1 | 1.4 | ng/L | 2.07 | 307-24-4 | |
| PFBS* | 4.5 | 2.1 | 1.4 | ng/L | 2.07 | 375-73-5 | |
| PFHpA* | 4.1 | 2.1 | 1.4 | ng/L | 2.07 | 375-85-9 | |
| PFPeS* | 2.6 | 2.1 | 1.9 | ng/L | 2.07 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.1 | 2.1 | ng/L | 2.07 | 27619-97-2 | |
| PFOA* | 3.4 | 2.1 | 1.7 | ng/L | 2.07 | 335-67-1 | |
| PFHxS* | 2.0 | 2.1 | 1.7 | ng/L | 2.07 | 355-46-4 | J |
| PFHxS-LN* | 2.0 | 2.1 | 1.7 | ng/L | 2.07 | 355-46-4-LN | J |
| PFHxS-BR* | Not detected | 2.1 | 1.7 | ng/L | 2.07 | 355-46-4-BR | |
| PFNA* | Not detected | 2.1 | 1.9 | ng/L | 2.07 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.1 | 1.0 | ng/L | 2.07 | 39108-34-4 | |
| PFHpS* | Not detected | 2.1 | 2.1 | ng/L | 2.07 | 375-92-8 | |
| PFDA* | Not detected | 2.1 | 2.1 | ng/L | 2.07 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.1 | 2.1 | ng/L | 2.07 | 2355-31-9 | |
| EtFOSAA* | 8.0 | 4.1 | 2.1 | ng/L | 2.07 | 2991-50-6 | |
| PFOS* | 56 | 2.1 | 2.0 | ng/L | 2.07 | 1763-23-1 | |
| PFOS-LN* | 37 | 2.1 | 2.0 | ng/L | 2.07 | 1763-23-1-LN | |
| PFOS-BR* | 17 | 2.1 | 2.0 | ng/L | 2.07 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.1 | 1.4 | ng/L | 2.07 | 2058-94-8 | |
| PFNS* | Not detected | 2.1 | 1.4 | ng/L | 2.07 | 68259-12-1 | |
| PFDoDA* | Not detected | 2.1 | 1.7 | ng/L | 2.07 | 307-55-1 | |
| PFDS* | Not detected | 2.1 | 1.4 | ng/L | 2.07 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.1 | 1.2 | ng/L | 2.07 | 72629-94-8 | |
| FOSA* | Not detected | 2.1 | 1.9 | ng/L | 2.07 | 754-91-6 | |
| PFTeDA* | Not detected | 4.1 | 1.9 | ng/L | 2.07 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.1 | 1.9 | ng/L | 2.07 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.1 | 1.4 | ng/L | 2.07 | 756426-58-1 | |
| ADONA* | Not detected | 2.1 | 2.1 | ng/L | 2.07 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.1 | ng/L | 2.07 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.1 | 3.1 | ng/L | 2.07 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.1 | 2.3 | ng/L | 2.07 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.1 | 1.2 | ng/L | 2.07 | 356-02-5 | |
| PFBSA* | Not detected | 2.1 | 1.2 | ng/L | 2.07 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.01 (continued)

Sample Tag: VAS29-4-8

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 01:56, Analyst: JGH (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|-----|-------|----------|------------|-------|
| PFECHS* | 3.5 | 2.1 | 1.2 | ng/L | 2.07 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.1 | 1.0 | ng/L | 2.07 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43499.02

Sample Tag: VAS29-16-20

Collected Date/Time: 12/12/2022 10:55

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.01/6.60/11 | ASTMD7979-19M | 12/17/22 09:30 | KCV | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 02:15, Analyst: JGH

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | Not detected | 10 | 10 | ng/L | 2.03 | 375-22-4 | |
| PFPeA* | 1.9 | 4.1 | 1.0 | ng/L | 2.03 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 2.03 | 757124-72-4 | |
| PFHxA* | 1.8 | 2.0 | 1.4 | ng/L | 2.03 | 307-24-4 | J |
| PFBS* | 1.6 | 2.0 | 1.4 | ng/L | 2.03 | 375-73-5 | J |
| PFHpA* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 2.03 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 27619-97-2 | |
| PFOA* | Not detected | 2.0 | 1.6 | ng/L | 2.03 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.6 | ng/L | 2.03 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.6 | ng/L | 2.03 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 2.03 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 2.03 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2.03 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.1 | 2.0 | ng/L | 2.03 | 2991-50-6 | |
| PFOS* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 2.03 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 2.03 | 754-91-6 | |
| PFTeDA* | Not detected | 4.1 | 1.8 | ng/L | 2.03 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 2.03 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.0 | ng/L | 2.03 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.1 | 3.0 | ng/L | 2.03 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.1 | 2.2 | ng/L | 2.03 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.1 | 1.2 | ng/L | 2.03 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.02 (continued)

Sample Tag: VAS29-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 02:15, Analyst: JGH (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|-----|-------|----------|------------|-------|
| PFECHS* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 1.0 | ng/L | 2.03 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43499.03

Sample Tag: VAS30-4-8

Collected Date/Time: 12/12/2022 11:45

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.04/6.54/11 | ASTMD7979-19M | 12/17/22 09:30 | KCV | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 02:35, Analyst: JGH

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | Not detected | 10 | 10 | ng/L | 2 | 375-22-4 | |
| PFPeA* | 1.7 | 4.0 | 1.0 | ng/L | 2 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 2 | 757124-72-4 | |
| PFHxA* | 2.1 | 2.0 | 1.4 | ng/L | 2 | 307-24-4 | |
| PFBS* | 1.8 | 2.0 | 1.4 | ng/L | 2 | 375-73-5 | J |
| PFHpA* | 1.6 | 2.0 | 1.4 | ng/L | 2 | 375-85-9 | J |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 2 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 27619-97-2 | |
| PFOA* | 6.2 | 2.0 | 1.6 | ng/L | 2 | 335-67-1 | |
| PFHxS* | 3.2 | 2.0 | 1.6 | ng/L | 2 | 355-46-4 | |
| PFHxS-LN* | 2.2 | 2.0 | 1.6 | ng/L | 2 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 2 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 2 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 2 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 2 | 2991-50-6 | |
| PFOS* | 15 | 2.0 | 2.0 | ng/L | 2 | 1763-23-1 | |
| PFOS-LN* | 6.0 | 2.0 | 2.0 | ng/L | 2 | 1763-23-1-LN | |
| PFOS-BR* | 8.6 | 2.0 | 2.0 | ng/L | 2 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 2 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 2 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 2 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 2 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 2 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 2 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.0 | ng/L | 2 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 2 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 2 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 2 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 2 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.03 (continued)

Sample Tag: VAS30-4-8

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 02:35, Analyst: JGH (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|-----|-------|----------|------------|-------|
| PFECHS* | 1.3 | 2.0 | 1.2 | ng/L | 2 | 67584-42-3 | J |
| PFHxSA* | Not detected | 2.0 | 1.0 | ng/L | 2 | 41997-13-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.04

Sample Tag: VAS30-16-20

Collected Date/Time: 12/12/2022 13:05

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.26/6.53/11 | ASTMD7979-19M | 12/17/22 09:30 | KCV | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 02:54, Analyst: JGH

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.6 | 9.6 | ng/L | 1.92 | 375-22-4 | |
| PFPeA* | Not detected | 3.8 | 0.96 | ng/L | 1.92 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 1.5 | ng/L | 1.92 | 757124-72-4 | |
| PFHxA* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 307-24-4 | |
| PFBS* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 375-73-5 | |
| PFHpA* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.92 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 27619-97-2 | |
| PFOA* | Not detected | 1.9 | 1.5 | ng/L | 1.92 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.5 | ng/L | 1.92 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.5 | ng/L | 1.92 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.5 | ng/L | 1.92 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 1.7 | ng/L | 1.92 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.8 | 1.9 | ng/L | 1.92 | 2991-50-6 | |
| PFOS* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.92 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.92 | 754-91-6 | |
| PFTeDA* | Not detected | 3.8 | 1.7 | ng/L | 1.92 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.92 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.6 | 1.9 | ng/L | 1.92 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.8 | 2.9 | ng/L | 1.92 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.8 | 2.1 | ng/L | 1.92 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.8 | 1.2 | ng/L | 1.92 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 30334-69-1 | |
| PFECHS* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S43499.04 (continued)

Sample Tag: VAS30-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 02:54, Analyst: JGH (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43499.05

Sample Tag: VAS31-16-20

Collected Date/Time: 12/12/2022 15:45

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.72/6.51/10 | ASTMD7979-19M | 12/17/22 09:30 | KCV | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 03:14, Analyst: JGH

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.6 | 9.6 | ng/L | 1.92 | 375-22-4 | |
| PFPeA* | 1.6 | 3.8 | 0.96 | ng/L | 1.92 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 1.9 | 1.5 | ng/L | 1.92 | 757124-72-4 | |
| PFHxA* | 1.8 | 1.9 | 1.3 | ng/L | 1.92 | 307-24-4 | J |
| PFBS* | 2.7 | 1.9 | 1.3 | ng/L | 1.92 | 375-73-5 | |
| PFHpA* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.92 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 27619-97-2 | |
| PFOA* | 2.5 | 1.9 | 1.5 | ng/L | 1.92 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.5 | ng/L | 1.92 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.5 | ng/L | 1.92 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.5 | ng/L | 1.92 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 1.7 | ng/L | 1.92 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.8 | 1.9 | ng/L | 1.92 | 2991-50-6 | |
| PFOS* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.92 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.92 | 754-91-6 | |
| PFTeDA* | Not detected | 3.8 | 1.7 | ng/L | 1.92 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.92 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.92 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.6 | 1.9 | ng/L | 1.92 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.8 | 2.9 | ng/L | 1.92 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.8 | 2.1 | ng/L | 1.92 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.8 | 1.2 | ng/L | 1.92 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.05 (continued)

Sample Tag: VAS31-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 03:14, Analyst: JGH (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43499.06

Sample Tag: VAS31-16-20 MS

Collected Date/Time: 12/12/2022 15:45

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.66/6.54/10 | ASTMD7979-19M | 12/17/22 09:30 | KCV | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 03:33, Analyst: JGH

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------|-----|------|-------|----------|--------------|-------|
| PFBA* | 100 | 9.8 | 9.8 | ng/L | 1.95 | 375-22-4 | 1 |
| PFPeA* | 100 | 3.9 | 0.98 | ng/L | 1.95 | 2706-90-3 | 1 |
| 4:2 FTSA* | 100 | 2.0 | 1.6 | ng/L | 1.95 | 757124-72-4 | 1 |
| PFHxA* | 110 | 2.0 | 1.4 | ng/L | 1.95 | 307-24-4 | 1 |
| PFBS* | 110 | 2.0 | 1.4 | ng/L | 1.95 | 375-73-5 | 1 |
| PFHpA* | 110 | 2.0 | 1.4 | ng/L | 1.95 | 375-85-9 | 1 |
| PFPeS* | 100 | 2.0 | 1.8 | ng/L | 1.95 | 2706-91-4 | 1 |
| 6:2 FTSA* | 110 | 2.0 | 2.0 | ng/L | 1.95 | 27619-97-2 | 1 |
| PFOA* | 110 | 2.0 | 1.6 | ng/L | 1.95 | 335-67-1 | 1 |
| PFHxS* | 110 | 2.0 | 1.6 | ng/L | 1.95 | 355-46-4 | 1 |
| PFHxS-LN* | 91 | 2.0 | 1.6 | ng/L | 1.95 | 355-46-4-LN | 1 |
| PFHxS-BR* | 17 | 2.0 | 1.6 | ng/L | 1.95 | 355-46-4-BR | 1 |
| PFNA* | 110 | 2.0 | 1.8 | ng/L | 1.95 | 375-95-1 | 1 |
| 8:2 FTSA* | 120 | 2.0 | 0.98 | ng/L | 1.95 | 39108-34-4 | 1 |
| PFHpS* | 110 | 2.0 | 2.0 | ng/L | 1.95 | 375-92-8 | 1 |
| PFDA* | 110 | 2.0 | 2.0 | ng/L | 1.95 | 335-76-2 | 1 |
| N-MeFOSAA* | 100 | 2.0 | 2.0 | ng/L | 1.95 | 2355-31-9 | 1 |
| EtFOSAA* | 93 | 3.9 | 2.0 | ng/L | 1.95 | 2991-50-6 | 1 |
| PFOS* | 110 | 2.0 | 1.9 | ng/L | 1.95 | 1763-23-1 | 1 |
| PFOS-LN* | 71 | 2.0 | 1.9 | ng/L | 1.95 | 1763-23-1-LN | 1 |
| PFOS-BR* | 32 | 2.0 | 1.9 | ng/L | 1.95 | 1763-23-1-BR | 1 |
| PFUnDA* | 97 | 2.0 | 1.4 | ng/L | 1.95 | 2058-94-8 | 1 |
| PFNS* | 100 | 2.0 | 1.4 | ng/L | 1.95 | 68259-12-1 | 1 |
| PFDODA* | 96 | 2.0 | 1.6 | ng/L | 1.95 | 307-55-1 | 1 |
| PFDS* | 99 | 2.0 | 1.4 | ng/L | 1.95 | 335-77-3 | 1 |
| PFTDA* | 86 | 2.0 | 1.2 | ng/L | 1.95 | 72629-94-8 | 1 |
| FOSA* | 98 | 2.0 | 1.8 | ng/L | 1.95 | 754-91-6 | 1 |
| PFTeDA* | 92 | 3.9 | 1.8 | ng/L | 1.95 | 376-06-7 | 1 |
| 11Cl-PF3OUdS* | 91 | 2.0 | 1.8 | ng/L | 1.95 | 763051-92-9 | 1 |
| 9Cl-PF3ONS* | 98 | 2.0 | 1.4 | ng/L | 1.95 | 756426-58-1 | 1 |
| ADONA* | 90 | 2.0 | 2.0 | ng/L | 1.95 | 919005-14-4 | 1 |
| HFPO-DA* | 88 | 9.8 | 2.0 | ng/L | 1.95 | 13252-13-6 | 1 |
| FHpPA (7:3 FTCA)* | 94 | 3.9 | 2.9 | ng/L | 1.95 | 812-70-4 | 1 |
| FPePA (5:3 FTCA)* | 94 | 3.9 | 2.1 | ng/L | 1.95 | 914637-49-3 | 1 |
| FPrPA (3:3 FTCA)* | 95 | 3.9 | 1.2 | ng/L | 1.95 | 356-02-5 | 1 |
| PFBSA* | 82 | 2.0 | 1.2 | ng/L | 1.95 | 30334-69-1 | 1 |

1-Spiked at 97.5ng/L



Analytical Laboratory Report

Lab Sample ID: S43499.06 (continued)

Sample Tag: VAS31-16-20 MS

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 03:33, Analyst: JGH (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFECHS* | 91 | 2.0 | 1.2 | ng/L | 1.95 | 67584-42-3 | 1 |
| PFHxSA* | 86 | 2.0 | 0.98 | ng/L | 1.95 | 41997-13-1 | 1 |

1-Spiked at 97.5ng/L



Analytical Laboratory Report

Lab Sample ID: S43499.07

Sample Tag: VAS31-16-20 MSD

Collected Date/Time: 12/12/2022 15:45

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.67/6.54/10 | ASTMD7979-19M | 12/17/22 09:30 | KCV | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 03:53, Analyst: JGH

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------|-----|------|-------|----------|--------------|-------|
| PFBA* | 100 | 9.8 | 9.8 | ng/L | 1.95 | 375-22-4 | 1 |
| PFPeA* | 99 | 3.9 | 0.98 | ng/L | 1.95 | 2706-90-3 | 1 |
| 4:2 FTSA* | 110 | 2.0 | 1.6 | ng/L | 1.95 | 757124-72-4 | 1 |
| PFHxA* | 99 | 2.0 | 1.4 | ng/L | 1.95 | 307-24-4 | 1 |
| PFBS* | 93 | 2.0 | 1.4 | ng/L | 1.95 | 375-73-5 | 1 |
| PFHpA* | 110 | 2.0 | 1.4 | ng/L | 1.95 | 375-85-9 | 1 |
| PFPeS* | 92 | 2.0 | 1.8 | ng/L | 1.95 | 2706-91-4 | 1 |
| 6:2 FTSA* | 110 | 2.0 | 2.0 | ng/L | 1.95 | 27619-97-2 | 1 |
| PFOA* | 100 | 2.0 | 1.6 | ng/L | 1.95 | 335-67-1 | 1 |
| PFHxS* | 100 | 2.0 | 1.6 | ng/L | 1.95 | 355-46-4 | 1 |
| PFHxS-LN* | 86 | 2.0 | 1.6 | ng/L | 1.95 | 355-46-4-LN | 1 |
| PFHxS-BR* | 14 | 2.0 | 1.6 | ng/L | 1.95 | 355-46-4-BR | 1 |
| PFNA* | 100 | 2.0 | 1.8 | ng/L | 1.95 | 375-95-1 | 1 |
| 8:2 FTSA* | 110 | 2.0 | 0.98 | ng/L | 1.95 | 39108-34-4 | 1 |
| PFHpS* | 95 | 2.0 | 2.0 | ng/L | 1.95 | 375-92-8 | 1 |
| PFDA* | 94 | 2.0 | 2.0 | ng/L | 1.95 | 335-76-2 | 1 |
| N-MeFOSAA* | 100 | 2.0 | 2.0 | ng/L | 1.95 | 2355-31-9 | 1 |
| EtFOSAA* | 87 | 3.9 | 2.0 | ng/L | 1.95 | 2991-50-6 | 1 |
| PFOS* | 89 | 2.0 | 1.9 | ng/L | 1.95 | 1763-23-1 | 1 |
| PFOS-LN* | 59 | 2.0 | 1.9 | ng/L | 1.95 | 1763-23-1-LN | 1 |
| PFOS-BR* | 29 | 2.0 | 1.9 | ng/L | 1.95 | 1763-23-1-BR | 1 |
| PFUnDA* | 92 | 2.0 | 1.4 | ng/L | 1.95 | 2058-94-8 | 1 |
| PFNS* | 99 | 2.0 | 1.4 | ng/L | 1.95 | 68259-12-1 | 1 |
| PFDODA* | 110 | 2.0 | 1.6 | ng/L | 1.95 | 307-55-1 | 1 |
| PFDS* | 94 | 2.0 | 1.4 | ng/L | 1.95 | 335-77-3 | 1 |
| PFTDA* | 100 | 2.0 | 1.2 | ng/L | 1.95 | 72629-94-8 | 1 |
| FOSA* | 86 | 2.0 | 1.8 | ng/L | 1.95 | 754-91-6 | 1 |
| PFTeDA* | 85 | 3.9 | 1.8 | ng/L | 1.95 | 376-06-7 | 1 |
| 11Cl-PF3OUdS* | 94 | 2.0 | 1.8 | ng/L | 1.95 | 763051-92-9 | 1 |
| 9Cl-PF3ONS* | 85 | 2.0 | 1.4 | ng/L | 1.95 | 756426-58-1 | 1 |
| ADONA* | 97 | 2.0 | 2.0 | ng/L | 1.95 | 919005-14-4 | 1 |
| HFPO-DA* | 110 | 9.8 | 2.0 | ng/L | 1.95 | 13252-13-6 | 1 |
| FHpPA (7:3 FTCA)* | 90 | 3.9 | 2.9 | ng/L | 1.95 | 812-70-4 | 1 |
| FPePA (5:3 FTCA)* | 97 | 3.9 | 2.1 | ng/L | 1.95 | 914637-49-3 | 1 |
| FPrPA (3:3 FTCA)* | 97 | 3.9 | 1.2 | ng/L | 1.95 | 356-02-5 | 1 |
| PFBSA* | 76 | 2.0 | 1.2 | ng/L | 1.95 | 30334-69-1 | 1 |

1-Spiked at 97.5ng/L



Analytical Laboratory Report

Lab Sample ID: S43499.07 (continued)

Sample Tag: VAS31-16-20 MSD

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 03:53, Analyst: JGH (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFECHS* | 89 | 2.0 | 1.2 | ng/L | 1.95 | 67584-42-3 | 1 |
| PFHxSA* | 77 | 2.0 | 0.98 | ng/L | 1.95 | 41997-13-1 | 1 |

1-Spiked at 97.5ng/L



Analytical Laboratory Report

Lab Sample ID: S43499.08

Sample Tag: VAS32-16-20

Collected Date/Time: 12/12/2022 18:05

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.13/6.51/11 | ASTMD7979-19M | 12/17/22 09:30 | KCV | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 04:12, Analyst: JGH

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.8 | 9.8 | ng/L | 1.96 | 375-22-4 | |
| PFPeA* | Not detected | 3.9 | 0.98 | ng/L | 1.96 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.96 | 757124-72-4 | |
| PFHxA* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 307-24-4 | |
| PFBS* | 1.9 | 2.0 | 1.4 | ng/L | 1.96 | 375-73-5 | J |
| PFHpA* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 1.96 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 27619-97-2 | |
| PFOA* | 4.2 | 2.0 | 1.6 | ng/L | 1.96 | 335-67-1 | |
| PFHxS* | 1.8 | 2.0 | 1.6 | ng/L | 1.96 | 355-46-4 | J |
| PFHxS-LN* | Not detected | 2.0 | 1.6 | ng/L | 1.96 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 1.96 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.96 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 2991-50-6 | |
| PFOS* | 2.2 | 2.0 | 1.9 | ng/L | 1.96 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 1.9 | ng/L | 1.96 | 1763-23-1-LN | |
| PFOS-BR* | 2.0 | 2.0 | 1.9 | ng/L | 1.96 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.96 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.96 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.8 | ng/L | 1.96 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.96 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.8 | 2.0 | ng/L | 1.96 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.9 | ng/L | 1.96 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.2 | ng/L | 1.96 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | 2.2 | 3.9 | 1.2 | ng/L | 1.96 | 356-02-5 | J |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.08 (continued)

Sample Tag: VAS32-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 04:12, Analyst: JGH (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 2.2 | 2.0 | 1.2 | ng/L | 1.96 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43499.09

Sample Tag: DUP-06-12122022

Collected Date/Time: 12/12/2022 00:00

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.01/6.60/11 | ASTMD7979-19M | 12/17/22 09:30 | KCV | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 04:32, Analyst: JGH

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | 15 | 10 | 10 | ng/L | 2.03 | 375-22-4 | |
| PFPeA* | 12 | 4.1 | 1.0 | ng/L | 2.03 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 2.03 | 757124-72-4 | |
| PFHxA* | 9.1 | 2.0 | 1.4 | ng/L | 2.03 | 307-24-4 | |
| PFBS* | 4.2 | 2.0 | 1.4 | ng/L | 2.03 | 375-73-5 | |
| PFHpA* | 6.8 | 2.0 | 1.4 | ng/L | 2.03 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 2.03 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 27619-97-2 | |
| PFOA* | 9.9 | 2.0 | 1.6 | ng/L | 2.03 | 335-67-1 | |
| PFHxS* | 3.4 | 2.0 | 1.6 | ng/L | 2.03 | 355-46-4 | |
| PFHxS-LN* | 2.5 | 2.0 | 1.6 | ng/L | 2.03 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 2.03 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 2.03 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2.03 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 2355-31-9 | |
| EtFOSAA* | 11 | 4.1 | 2.0 | ng/L | 2.03 | 2991-50-6 | |
| PFOS* | 37 | 2.0 | 2.0 | ng/L | 2.03 | 1763-23-1 | |
| PFOS-LN* | 24 | 2.0 | 2.0 | ng/L | 2.03 | 1763-23-1-LN | |
| PFOS-BR* | 13 | 2.0 | 2.0 | ng/L | 2.03 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 2.03 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 2.03 | 754-91-6 | |
| PFTeDA* | Not detected | 4.1 | 1.8 | ng/L | 2.03 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 2.03 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.0 | ng/L | 2.03 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.1 | 3.0 | ng/L | 2.03 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.1 | 2.2 | ng/L | 2.03 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.1 | 1.2 | ng/L | 2.03 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 30334-69-1 | |
| PFECHS* | 2.5 | 2.0 | 1.2 | ng/L | 2.03 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S43499.09 (continued)

Sample Tag: DUP-06-12122022

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 04:32, Analyst: JGH (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|-----|-------|----------|------------|-------|
| PFHxSA* | Not detected | 2.0 | 1.0 | ng/L | 2.03 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43499.10

Sample Tag: VAS33-16-20

Collected Date/Time: 12/13/2022 11:00

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.24/6.53/11 | ASTMD7979-19M | 12/17/22 09:30 | KCV | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 04:51, Analyst: JGH

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.7 | 9.7 | ng/L | 1.93 | 375-22-4 | |
| PFPeA* | 1.7 | 3.9 | 0.97 | ng/L | 1.93 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 757124-72-4 | |
| PFHxA* | 2.1 | 1.9 | 1.4 | ng/L | 1.93 | 307-24-4 | |
| PFBS* | 3.1 | 1.9 | 1.4 | ng/L | 1.93 | 375-73-5 | |
| PFHpA* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 27619-97-2 | |
| PFOA* | 4.8 | 1.9 | 1.5 | ng/L | 1.93 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 1.9 | ng/L | 1.93 | 2991-50-6 | |
| PFOS* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.7 | ng/L | 1.93 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.7 | 1.9 | ng/L | 1.93 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.9 | ng/L | 1.93 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.1 | ng/L | 1.93 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.93 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.10 (continued)

Sample Tag: VAS33-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 12/22/22 04:51, Analyst: JGH (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 2.1 | 1.9 | 1.2 | ng/L | 1.93 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43499.11

Sample Tag: VAS34-16-20

Collected Date/Time: 12/13/2022 12:50

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.06/6.55/11 | ASTMD7979-19M | 01/06/23 09:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/06/23 19:33, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 5.8 | 10 | 1.6 | ng/L | 2 | 375-22-4 | J |
| PFPeA* | 2.2 | 4.0 | 0.80 | ng/L | 2 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 2.0 | 0.80 | ng/L | 2 | 757124-72-4 | |
| PFHxA* | 2.2 | 2.0 | 0.40 | ng/L | 2 | 307-24-4 | |
| PFBS* | 2.1 | 2.0 | 0.80 | ng/L | 2 | 375-73-5 | |
| PFHpA* | 1.0 | 2.0 | 1.0 | ng/L | 2 | 375-85-9 | J |
| PFPeS* | 1.3 | 2.0 | 0.80 | ng/L | 2 | 2706-91-4 | J |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 2 | 27619-97-2 | |
| PFOA* | 5.8 | 2.0 | 1.6 | ng/L | 2 | 335-67-1 | |
| PFHxS* | 1.4 | 2.0 | 1.2 | ng/L | 2 | 355-46-4 | J |
| PFHxS-LN* | Not detected | 2.0 | 1.2 | ng/L | 2 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.2 | ng/L | 2 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 0.80 | ng/L | 2 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 2 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.60 | ng/L | 2 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 2 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 2 | 2991-50-6 | |
| PFOS* | 1.7 | 2.0 | 1.2 | ng/L | 2 | 1763-23-1 | J |
| PFOS-LN* | Not detected | 2.0 | 1.2 | ng/L | 2 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 1.2 | ng/L | 2 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.0 | ng/L | 2 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.0 | ng/L | 2 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.60 | ng/L | 2 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 2 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.0 | ng/L | 2 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.80 | ng/L | 2 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 0.40 | ng/L | 2 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.80 | ng/L | 2 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.80 | ng/L | 2 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 1.0 | ng/L | 2 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.0 | ng/L | 2 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 2.0 | ng/L | 2 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.0 | ng/L | 2 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.0 | ng/L | 2 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 2 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.11 (continued)

Sample Tag: VAS34-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/06/23 19:33, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 8.3 | 2.0 | 1.0 | ng/L | 2 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.80 | ng/L | 2 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43499.12

Sample Tag: VAS35-16-20

Collected Date/Time: 12/13/2022 15:55

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.45/6.50/10 | ASTMD7979-19M | 01/06/23 09:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/06/23 20:12, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 6.5 | 10 | 1.6 | ng/L | 2.02 | 375-22-4 | J |
| PFPeA* | 2.9 | 4.0 | 0.81 | ng/L | 2.02 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 2.0 | 0.81 | ng/L | 2.02 | 757124-72-4 | |
| PFHxA* | 2.7 | 2.0 | 0.40 | ng/L | 2.02 | 307-24-4 | |
| PFBS* | 2.4 | 2.0 | 0.81 | ng/L | 2.02 | 375-73-5 | |
| PFHpA* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 375-85-9 | |
| PFPeS* | 1.4 | 2.0 | 0.81 | ng/L | 2.02 | 2706-91-4 | J |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 27619-97-2 | |
| PFOA* | Not detected | 2.0 | 1.6 | ng/L | 2.02 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 0.81 | ng/L | 2.02 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.61 | ng/L | 2.02 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 2.02 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 2.02 | 2991-50-6 | |
| PFOS* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.61 | ng/L | 2.02 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.81 | ng/L | 2.02 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 0.40 | ng/L | 2.02 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.81 | ng/L | 2.02 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.81 | ng/L | 2.02 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.0 | ng/L | 2.02 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 2.0 | ng/L | 2.02 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.0 | ng/L | 2.02 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.0 | ng/L | 2.02 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.12 (continued)

Sample Tag: VAS35-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/06/23 20:12, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 2.3 | 2.0 | 1.0 | ng/L | 2.02 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.81 | ng/L | 2.02 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43499.13

Sample Tag: VAS36-4-8

Collected Date/Time: 12/13/2022 16:50

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.62/6.53/10 | ASTMD7979-19M | 01/06/23 09:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/06/23 20:32, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 12 | 9.8 | 1.6 | ng/L | 1.96 | 375-22-4 | |
| PFPeA* | 21 | 3.9 | 0.78 | ng/L | 1.96 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 757124-72-4 | |
| PFHxA* | 13 | 2.0 | 0.39 | ng/L | 1.96 | 307-24-4 | |
| PFBS* | 2.5 | 2.0 | 0.78 | ng/L | 1.96 | 375-73-5 | |
| PFHpA* | 6.3 | 2.0 | 0.98 | ng/L | 1.96 | 375-85-9 | |
| PFPeS* | 1.5 | 2.0 | 0.78 | ng/L | 1.96 | 2706-91-4 | J |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 27619-97-2 | |
| PFOA* | 8.8 | 2.0 | 1.6 | ng/L | 1.96 | 335-67-1 | |
| PFHxS* | 4.1 | 2.0 | 1.2 | ng/L | 1.96 | 355-46-4 | |
| PFHxS-LN* | 3.2 | 2.0 | 1.2 | ng/L | 1.96 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 355-46-4-BR | |
| PFNA* | 0.82 | 2.0 | 0.78 | ng/L | 1.96 | 375-95-1 | J |
| 8:2 FTSA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.59 | ng/L | 1.96 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 2355-31-9 | |
| EtFOSAA* | 4.9 | 3.9 | 2.0 | ng/L | 1.96 | 2991-50-6 | |
| PFOS* | 22 | 2.0 | 1.2 | ng/L | 1.96 | 1763-23-1 | |
| PFOS-LN* | 13 | 2.0 | 1.2 | ng/L | 1.96 | 1763-23-1-LN | |
| PFOS-BR* | 9.6 | 2.0 | 1.2 | ng/L | 1.96 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.59 | ng/L | 1.96 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 0.39 | ng/L | 1.96 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.8 | 2.0 | ng/L | 1.96 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 0.98 | ng/L | 1.96 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.13 (continued)

Sample Tag: VAS36-4-8

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/06/23 20:32, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 2.7 | 2.0 | 0.98 | ng/L | 1.96 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43499.14

Sample Tag: VAS36-16-20

Collected Date/Time: 12/13/2022 17:30

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.89/6.50/10 | ASTMD7979-19M | 01/06/23 09:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/06/23 20:51, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 3.6 | 9.3 | 1.5 | ng/L | 1.86 | 375-22-4 | J |
| PFPeA* | 4.7 | 3.7 | 0.74 | ng/L | 1.86 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 0.74 | ng/L | 1.86 | 757124-72-4 | |
| PFHxA* | 3.2 | 1.9 | 0.37 | ng/L | 1.86 | 307-24-4 | |
| PFBS* | 1.8 | 1.9 | 0.74 | ng/L | 1.86 | 375-73-5 | J |
| PFHpA* | Not detected | 1.9 | 0.93 | ng/L | 1.86 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 0.74 | ng/L | 1.86 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.1 | ng/L | 1.86 | 27619-97-2 | |
| PFOA* | Not detected | 1.9 | 1.5 | ng/L | 1.86 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.1 | ng/L | 1.86 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.1 | ng/L | 1.86 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.1 | ng/L | 1.86 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 0.74 | ng/L | 1.86 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.93 | ng/L | 1.86 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.1 | ng/L | 1.86 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 0.56 | ng/L | 1.86 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.3 | ng/L | 1.86 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.7 | 1.9 | ng/L | 1.86 | 2991-50-6 | |
| PFOS* | Not detected | 1.9 | 1.1 | ng/L | 1.86 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.9 | 1.1 | ng/L | 1.86 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.9 | 1.1 | ng/L | 1.86 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 0.93 | ng/L | 1.86 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.93 | ng/L | 1.86 | 68259-12-1 | |
| PFDoDA* | 0.56 | 1.9 | 0.56 | ng/L | 1.86 | 307-55-1 | J |
| PFDS* | Not detected | 1.9 | 1.1 | ng/L | 1.86 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.93 | ng/L | 1.86 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 0.74 | ng/L | 1.86 | 754-91-6 | |
| PFTeDA* | 1.1 | 3.7 | 0.37 | ng/L | 1.86 | 376-06-7 | J |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.74 | ng/L | 1.86 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.74 | ng/L | 1.86 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.93 | ng/L | 1.86 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.3 | 1.9 | ng/L | 1.86 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.7 | 1.9 | ng/L | 1.86 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.7 | 1.9 | ng/L | 1.86 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.7 | 0.93 | ng/L | 1.86 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.1 | ng/L | 1.86 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.14 (continued)

Sample Tag: VAS36-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/06/23 20:51, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 1.9 | 0.93 | ng/L | 1.86 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.9 | 0.74 | ng/L | 1.86 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43499.15

Sample Tag: VAS37-16-20

Collected Date/Time: 12/14/2022 10:35

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.12/6.52/11 | ASTMD7979-19M | 01/06/23 09:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/06/23 21:11, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 2.5 | 9.8 | 1.6 | ng/L | 1.96 | 375-22-4 | J |
| PFPeA* | 3.4 | 3.9 | 0.78 | ng/L | 1.96 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 757124-72-4 | |
| PFHxA* | 2.6 | 2.0 | 0.39 | ng/L | 1.96 | 307-24-4 | |
| PFBS* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 375-73-5 | |
| PFHpA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 27619-97-2 | |
| PFOA* | Not detected | 2.0 | 1.6 | ng/L | 1.96 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.59 | ng/L | 1.96 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 2991-50-6 | |
| PFOS* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.59 | ng/L | 1.96 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 0.39 | ng/L | 1.96 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.8 | 2.0 | ng/L | 1.96 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 0.98 | ng/L | 1.96 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.15 (continued)

Sample Tag: VAS37-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/06/23 21:11, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43499.16

Sample Tag: VAS38-16-20

Collected Date/Time: 12/14/2022 12:55

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.80/6.53/10 | ASTMD7979-19M | 01/06/23 09:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/06/23 21:30, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.5 | 1.5 | ng/L | 1.9 | 375-22-4 | |
| PFPeA* | Not detected | 3.8 | 0.76 | ng/L | 1.9 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 0.76 | ng/L | 1.9 | 757124-72-4 | |
| PFHxA* | Not detected | 1.9 | 0.38 | ng/L | 1.9 | 307-24-4 | |
| PFBS* | Not detected | 1.9 | 0.76 | ng/L | 1.9 | 375-73-5 | |
| PFHpA* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 0.76 | ng/L | 1.9 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.1 | ng/L | 1.9 | 27619-97-2 | |
| PFOA* | Not detected | 1.9 | 1.5 | ng/L | 1.9 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.1 | ng/L | 1.9 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.1 | ng/L | 1.9 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.1 | ng/L | 1.9 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 0.76 | ng/L | 1.9 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.1 | ng/L | 1.9 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 0.57 | ng/L | 1.9 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.3 | ng/L | 1.9 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.8 | 1.9 | ng/L | 1.9 | 2991-50-6 | |
| PFOS* | Not detected | 1.9 | 1.1 | ng/L | 1.9 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.9 | 1.1 | ng/L | 1.9 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.9 | 1.1 | ng/L | 1.9 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 0.57 | ng/L | 1.9 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.1 | ng/L | 1.9 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 0.76 | ng/L | 1.9 | 754-91-6 | |
| PFTeDA* | Not detected | 3.8 | 0.38 | ng/L | 1.9 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.76 | ng/L | 1.9 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.76 | ng/L | 1.9 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.5 | 1.9 | ng/L | 1.9 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.8 | 1.9 | ng/L | 1.9 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.8 | 1.9 | ng/L | 1.9 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.8 | 0.95 | ng/L | 1.9 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.1 | ng/L | 1.9 | 30334-69-1 | |
| PFECHS* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S43499.16 (continued)

Sample Tag: VAS38-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/06/23 21:30, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 1.9 | 0.76 | ng/L | 1.9 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43499.17

Sample Tag: VAS39-16-20

Collected Date/Time: 12/14/2022 15:00

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.28/6.51/11 | ASTMD7979-19M | 01/06/23 09:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/06/23 21:50, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.6 | 1.5 | ng/L | 1.91 | 375-22-4 | |
| PFPeA* | 0.84 | 3.8 | 0.76 | ng/L | 1.91 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 1.9 | 0.76 | ng/L | 1.91 | 757124-72-4 | |
| PFHxA* | 0.80 | 1.9 | 0.38 | ng/L | 1.91 | 307-24-4 | J |
| PFBS* | Not detected | 1.9 | 0.76 | ng/L | 1.91 | 375-73-5 | |
| PFHpA* | Not detected | 1.9 | 0.96 | ng/L | 1.91 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 0.76 | ng/L | 1.91 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.1 | ng/L | 1.91 | 27619-97-2 | |
| PFOA* | Not detected | 1.9 | 1.5 | ng/L | 1.91 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.1 | ng/L | 1.91 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.1 | ng/L | 1.91 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.1 | ng/L | 1.91 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 0.76 | ng/L | 1.91 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.96 | ng/L | 1.91 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.1 | ng/L | 1.91 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 0.57 | ng/L | 1.91 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.3 | ng/L | 1.91 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.8 | 1.9 | ng/L | 1.91 | 2991-50-6 | |
| PFOS* | Not detected | 1.9 | 1.1 | ng/L | 1.91 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.9 | 1.1 | ng/L | 1.91 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.9 | 1.1 | ng/L | 1.91 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 0.96 | ng/L | 1.91 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.96 | ng/L | 1.91 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 0.57 | ng/L | 1.91 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.1 | ng/L | 1.91 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.96 | ng/L | 1.91 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 0.76 | ng/L | 1.91 | 754-91-6 | |
| PFTeDA* | Not detected | 3.8 | 0.38 | ng/L | 1.91 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.76 | ng/L | 1.91 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.76 | ng/L | 1.91 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.96 | ng/L | 1.91 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.6 | 1.9 | ng/L | 1.91 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.8 | 1.9 | ng/L | 1.91 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.8 | 1.9 | ng/L | 1.91 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.8 | 0.96 | ng/L | 1.91 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.1 | ng/L | 1.91 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.17 (continued)

Sample Tag: VAS39-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/06/23 21:50, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 1.9 | 0.96 | ng/L | 1.91 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.9 | 0.76 | ng/L | 1.91 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43499.18

Sample Tag: VAS40-4-8

Collected Date/Time: 12/14/2022 15:55

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.18/6.57/11 | ASTMD7979-19M | 01/06/23 09:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/06/23 22:09, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 12 | 9.8 | 1.6 | ng/L | 1.96 | 375-22-4 | |
| PFPeA* | 20 | 3.9 | 0.78 | ng/L | 1.96 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 757124-72-4 | |
| PFHxA* | 15 | 2.0 | 0.39 | ng/L | 1.96 | 307-24-4 | |
| PFBS* | 5.1 | 2.0 | 0.78 | ng/L | 1.96 | 375-73-5 | |
| PFHpA* | 6.3 | 2.0 | 0.98 | ng/L | 1.96 | 375-85-9 | |
| PFPeS* | 1.8 | 2.0 | 0.78 | ng/L | 1.96 | 2706-91-4 | J |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 27619-97-2 | |
| PFOA* | 19 | 2.0 | 1.6 | ng/L | 1.96 | 335-67-1 | |
| PFHxS* | 3.7 | 2.0 | 1.2 | ng/L | 1.96 | 355-46-4 | |
| PFHxS-LN* | 2.9 | 2.0 | 1.2 | ng/L | 1.96 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.59 | ng/L | 1.96 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 2991-50-6 | |
| PFOS* | 9.0 | 2.0 | 1.2 | ng/L | 1.96 | 1763-23-1 | |
| PFOS-LN* | 2.6 | 2.0 | 1.2 | ng/L | 1.96 | 1763-23-1-LN | |
| PFOS-BR* | 6.3 | 2.0 | 1.2 | ng/L | 1.96 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 68259-12-1 | |
| PFDoDA* | 0.71 | 2.0 | 0.59 | ng/L | 1.96 | 307-55-1 | J |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 0.39 | ng/L | 1.96 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.8 | 2.0 | ng/L | 1.96 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 0.98 | ng/L | 1.96 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.18 (continued)

Sample Tag: VAS40-4-8

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/06/23 22:09, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 4.4 | 2.0 | 0.98 | ng/L | 1.96 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43499.19

Sample Tag: VAS40-16-20

Collected Date/Time: 12/14/2022 16:20

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.74/6.58/10 | ASTMD7979-19M | 01/06/23 09:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/06/23 22:29, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 3.7 | 9.7 | 1.6 | ng/L | 1.94 | 375-22-4 | J |
| PFPeA* | 2.7 | 3.9 | 0.78 | ng/L | 1.94 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 757124-72-4 | |
| PFHxA* | 2.4 | 1.9 | 0.39 | ng/L | 1.94 | 307-24-4 | |
| PFBS* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 375-73-5 | |
| PFHpA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 27619-97-2 | |
| PFOA* | Not detected | 1.9 | 1.6 | ng/L | 1.94 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 0.58 | ng/L | 1.94 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.4 | ng/L | 1.94 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 1.9 | ng/L | 1.94 | 2991-50-6 | |
| PFOS* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 0.58 | ng/L | 1.94 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 0.39 | ng/L | 1.94 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.7 | 1.9 | ng/L | 1.94 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 1.9 | ng/L | 1.94 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 1.9 | ng/L | 1.94 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 0.97 | ng/L | 1.94 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.19 (continued)

Sample Tag: VAS40-16-20

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/06/23 22:29, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43499.20

Sample Tag: SW-01-14122022

Collected Date/Time: 12/14/2022 16:00

Matrix: Surface Water

COC Reference: 2

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.30/6.55/11 | ASTMD7979-19M | 01/06/23 09:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/06/23 22:48, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 2.9 | 9.6 | 1.5 | ng/L | 1.91 | 375-22-4 | J |
| PFPeA* | 2.4 | 3.8 | 0.76 | ng/L | 1.91 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 1.9 | 0.76 | ng/L | 1.91 | 757124-72-4 | |
| PFHxA* | 2.2 | 1.9 | 0.38 | ng/L | 1.91 | 307-24-4 | |
| PFBS* | 1.8 | 1.9 | 0.76 | ng/L | 1.91 | 375-73-5 | J |
| PFHpA* | 1.1 | 1.9 | 0.96 | ng/L | 1.91 | 375-85-9 | J |
| PFPeS* | Not detected | 1.9 | 0.76 | ng/L | 1.91 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.1 | ng/L | 1.91 | 27619-97-2 | |
| PFOA* | Not detected | 1.9 | 1.5 | ng/L | 1.91 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.1 | ng/L | 1.91 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.1 | ng/L | 1.91 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.1 | ng/L | 1.91 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 0.76 | ng/L | 1.91 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.96 | ng/L | 1.91 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.1 | ng/L | 1.91 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 0.57 | ng/L | 1.91 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.3 | ng/L | 1.91 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.8 | 1.9 | ng/L | 1.91 | 2991-50-6 | |
| PFOS* | 2.3 | 1.9 | 1.1 | ng/L | 1.91 | 1763-23-1 | |
| PFOS-LN* | 1.3 | 1.9 | 1.1 | ng/L | 1.91 | 1763-23-1-LN | J |
| PFOS-BR* | Not detected | 1.9 | 1.1 | ng/L | 1.91 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 0.96 | ng/L | 1.91 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.96 | ng/L | 1.91 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 0.57 | ng/L | 1.91 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.1 | ng/L | 1.91 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.96 | ng/L | 1.91 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 0.76 | ng/L | 1.91 | 754-91-6 | |
| PFTeDA* | 1.2 | 3.8 | 0.38 | ng/L | 1.91 | 376-06-7 | J |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.76 | ng/L | 1.91 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.76 | ng/L | 1.91 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.96 | ng/L | 1.91 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.6 | 1.9 | ng/L | 1.91 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.8 | 1.9 | ng/L | 1.91 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.8 | 1.9 | ng/L | 1.91 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.8 | 0.96 | ng/L | 1.91 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.1 | ng/L | 1.91 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.20 (continued)

Sample Tag: SW-01-14122022

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/06/23 22:48, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 2.0 | 1.9 | 0.96 | ng/L | 1.91 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.9 | 0.76 | ng/L | 1.91 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43499.21

Sample Tag: SW-02-14122022

Collected Date/Time: 12/14/2022 16:25

Matrix: Surface Water

COC Reference: 2

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.97/6.54/11 | ASTMD7979-19M | 01/06/23 09:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/06/23 23:27, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 2.5 | 10 | 1.6 | ng/L | 2.03 | 375-22-4 | J |
| PFPeA* | 2.2 | 4.1 | 0.81 | ng/L | 2.03 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 2.0 | 0.81 | ng/L | 2.03 | 757124-72-4 | |
| PFHxA* | 2.2 | 2.0 | 0.41 | ng/L | 2.03 | 307-24-4 | |
| PFBS* | 1.7 | 2.0 | 0.81 | ng/L | 2.03 | 375-73-5 | J |
| PFHpA* | Not detected | 2.0 | 1.0 | ng/L | 2.03 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 0.81 | ng/L | 2.03 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 27619-97-2 | |
| PFOA* | Not detected | 2.0 | 1.6 | ng/L | 2.03 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 0.81 | ng/L | 2.03 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2.03 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.61 | ng/L | 2.03 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.1 | 2.0 | ng/L | 2.03 | 2991-50-6 | |
| PFOS* | 2.0 | 2.0 | 1.2 | ng/L | 2.03 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.0 | ng/L | 2.03 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.0 | ng/L | 2.03 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.61 | ng/L | 2.03 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.0 | ng/L | 2.03 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.81 | ng/L | 2.03 | 754-91-6 | |
| PFTeDA* | Not detected | 4.1 | 0.41 | ng/L | 2.03 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.81 | ng/L | 2.03 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.81 | ng/L | 2.03 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 1.0 | ng/L | 2.03 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.0 | ng/L | 2.03 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.1 | 2.0 | ng/L | 2.03 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.1 | 2.0 | ng/L | 2.03 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.1 | 1.0 | ng/L | 2.03 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.21 (continued)

Sample Tag: SW-02-14122022

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/06/23 23:27, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 2.5 | 2.0 | 1.0 | ng/L | 2.03 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.81 | ng/L | 2.03 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43499.22

Sample Tag: SW-03-14122022

Collected Date/Time: 12/14/2022 17:00

Matrix: Surface Water

COC Reference: 2

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.19/6.51/11 | ASTMD7979-19M | 01/06/23 09:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/06/23 23:47, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 3.3 | 9.7 | 1.6 | ng/L | 1.94 | 375-22-4 | J |
| PFPeA* | 2.6 | 3.9 | 0.78 | ng/L | 1.94 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 757124-72-4 | |
| PFHxA* | 2.7 | 1.9 | 0.39 | ng/L | 1.94 | 307-24-4 | |
| PFBS* | 2.0 | 1.9 | 0.78 | ng/L | 1.94 | 375-73-5 | |
| PFHpA* | 0.99 | 1.9 | 0.97 | ng/L | 1.94 | 375-85-9 | J |
| PFPeS* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 27619-97-2 | |
| PFOA* | 2.2 | 1.9 | 1.6 | ng/L | 1.94 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 0.58 | ng/L | 1.94 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.4 | ng/L | 1.94 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 1.9 | ng/L | 1.94 | 2991-50-6 | |
| PFOS* | 4.3 | 1.9 | 1.2 | ng/L | 1.94 | 1763-23-1 | |
| PFOS-LN* | 2.8 | 1.9 | 1.2 | ng/L | 1.94 | 1763-23-1-LN | |
| PFOS-BR* | 1.2 | 1.9 | 1.2 | ng/L | 1.94 | 1763-23-1-BR | J |
| PFUnDA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 0.58 | ng/L | 1.94 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 0.39 | ng/L | 1.94 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.7 | 1.9 | ng/L | 1.94 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 1.9 | ng/L | 1.94 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 1.9 | ng/L | 1.94 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 0.97 | ng/L | 1.94 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.22 (continued)

Sample Tag: SW-03-14122022

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/06/23 23:47, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 1.4 | 1.9 | 0.97 | ng/L | 1.94 | 67584-42-3 | J |
| PFHxSA* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 41997-13-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.23

Sample Tag: SW-04-14122022

Collected Date/Time: 12/14/2022 17:15

Matrix: Surface Water

COC Reference: 2

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.75/6.53/10 | ASTMD7979-19M | 01/06/23 09:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/07/23 00:06, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 2.9 | 9.6 | 1.5 | ng/L | 1.92 | 375-22-4 | J |
| PFPeA* | 2.1 | 3.8 | 0.77 | ng/L | 1.92 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 1.9 | 0.77 | ng/L | 1.92 | 757124-72-4 | |
| PFHxA* | 2.1 | 1.9 | 0.38 | ng/L | 1.92 | 307-24-4 | |
| PFBS* | 1.9 | 1.9 | 0.77 | ng/L | 1.92 | 375-73-5 | |
| PFHpA* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 0.77 | ng/L | 1.92 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 27619-97-2 | |
| PFOA* | Not detected | 1.9 | 1.5 | ng/L | 1.92 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 0.77 | ng/L | 1.92 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 0.58 | ng/L | 1.92 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.8 | 1.9 | ng/L | 1.92 | 2991-50-6 | |
| PFOS* | 2.2 | 1.9 | 1.2 | ng/L | 1.92 | 1763-23-1 | |
| PFOS-LN* | 1.2 | 1.9 | 1.2 | ng/L | 1.92 | 1763-23-1-LN | J |
| PFOS-BR* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 0.58 | ng/L | 1.92 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 0.77 | ng/L | 1.92 | 754-91-6 | |
| PFTeDA* | Not detected | 3.8 | 0.38 | ng/L | 1.92 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.77 | ng/L | 1.92 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.77 | ng/L | 1.92 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.6 | 1.9 | ng/L | 1.92 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.8 | 1.9 | ng/L | 1.92 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.8 | 1.9 | ng/L | 1.92 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.8 | 0.96 | ng/L | 1.92 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.23 (continued)

Sample Tag: SW-04-14122022

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/07/23 00:06, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 2.3 | 1.9 | 0.96 | ng/L | 1.92 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.9 | 0.77 | ng/L | 1.92 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43499.24

Sample Tag: SW-05-14122022

Collected Date/Time: 12/14/2022 17:30

Matrix: Surface Water

COC Reference: 2

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.00/6.53/11 | ASTMD7979-19M | 01/06/23 09:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/07/23 00:26, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 3.0 | 10 | 1.6 | ng/L | 2.01 | 375-22-4 | J |
| PFPeA* | 2.2 | 4.0 | 0.80 | ng/L | 2.01 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 2.0 | 0.80 | ng/L | 2.01 | 757124-72-4 | |
| PFHxA* | 2.3 | 2.0 | 0.40 | ng/L | 2.01 | 307-24-4 | |
| PFBS* | 1.6 | 2.0 | 0.80 | ng/L | 2.01 | 375-73-5 | J |
| PFHpA* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 0.80 | ng/L | 2.01 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 27619-97-2 | |
| PFOA* | 1.6 | 2.0 | 1.6 | ng/L | 2.01 | 335-67-1 | J |
| PFHxS* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 0.80 | ng/L | 2.01 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.60 | ng/L | 2.01 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 2.01 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 2.01 | 2991-50-6 | |
| PFOS* | 3.2 | 2.0 | 1.2 | ng/L | 2.01 | 1763-23-1 | |
| PFOS-LN* | 1.6 | 2.0 | 1.2 | ng/L | 2.01 | 1763-23-1-LN | J |
| PFOS-BR* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.60 | ng/L | 2.01 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.80 | ng/L | 2.01 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 0.40 | ng/L | 2.01 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.80 | ng/L | 2.01 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.80 | ng/L | 2.01 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.0 | ng/L | 2.01 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 2.0 | ng/L | 2.01 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.0 | ng/L | 2.01 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.0 | ng/L | 2.01 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.24 (continued)

Sample Tag: SW-05-14122022

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/07/23 00:26, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 2.3 | 2.0 | 1.0 | ng/L | 2.01 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.80 | ng/L | 2.01 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43499.25

Sample Tag: SW-06-14122022

Collected Date/Time: 12/14/2022 17:50

Matrix: Surface Water

COC Reference: 2

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.28/6.58/11 | ASTMD7979-19M | 01/06/23 09:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/07/23 00:45, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 3.2 | 9.7 | 1.5 | ng/L | 1.93 | 375-22-4 | J |
| PFPeA* | 2.1 | 3.9 | 0.77 | ng/L | 1.93 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 1.9 | 0.77 | ng/L | 1.93 | 757124-72-4 | |
| PFHxA* | 2.2 | 1.9 | 0.39 | ng/L | 1.93 | 307-24-4 | |
| PFBS* | 1.8 | 1.9 | 0.77 | ng/L | 1.93 | 375-73-5 | J |
| PFHpA* | 1.1 | 1.9 | 0.97 | ng/L | 1.93 | 375-85-9 | J |
| PFPeS* | Not detected | 1.9 | 0.77 | ng/L | 1.93 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 27619-97-2 | |
| PFOA* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 0.77 | ng/L | 1.93 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 0.58 | ng/L | 1.93 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 1.9 | ng/L | 1.93 | 2991-50-6 | |
| PFOS* | 1.8 | 1.9 | 1.2 | ng/L | 1.93 | 1763-23-1 | J |
| PFOS-LN* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 0.58 | ng/L | 1.93 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 0.77 | ng/L | 1.93 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 0.39 | ng/L | 1.93 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.77 | ng/L | 1.93 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.77 | ng/L | 1.93 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.7 | 1.9 | ng/L | 1.93 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 1.9 | ng/L | 1.93 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 1.9 | ng/L | 1.93 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 0.97 | ng/L | 1.93 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.25 (continued)

Sample Tag: SW-06-14122022

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/07/23 00:45, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 1.8 | 1.9 | 0.97 | ng/L | 1.93 | 67584-42-3 | J |
| PFHxSA* | Not detected | 1.9 | 0.77 | ng/L | 1.93 | 41997-13-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.26

Sample Tag: Equipment Blank-03

Collected Date/Time: 12/14/2022 15:30

Matrix: Water

COC Reference: 2

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.01/6.56/11 | ASTMD7979-19M | 01/06/23 09:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/07/23 01:05, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 10 | 1.6 | ng/L | 2.02 | 375-22-4 | |
| PFPeA* | Not detected | 4.0 | 0.81 | ng/L | 2.02 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 0.81 | ng/L | 2.02 | 757124-72-4 | |
| PFHxA* | Not detected | 2.0 | 0.40 | ng/L | 2.02 | 307-24-4 | |
| PFBS* | Not detected | 2.0 | 0.81 | ng/L | 2.02 | 375-73-5 | |
| PFHpA* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 0.81 | ng/L | 2.02 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 27619-97-2 | |
| PFOA* | Not detected | 2.0 | 1.6 | ng/L | 2.02 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 0.81 | ng/L | 2.02 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.61 | ng/L | 2.02 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 2.02 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 2.02 | 2991-50-6 | |
| PFOS* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.61 | ng/L | 2.02 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.81 | ng/L | 2.02 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 0.40 | ng/L | 2.02 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.81 | ng/L | 2.02 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.81 | ng/L | 2.02 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.0 | ng/L | 2.02 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 2.0 | ng/L | 2.02 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.0 | ng/L | 2.02 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.0 | ng/L | 2.02 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 30334-69-1 | |
| PFECHS* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S43499.26 (continued)

Sample Tag: Equipment Blank-03

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/07/23 01:05, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 2.0 | 0.81 | ng/L | 2.02 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43499.27

Sample Tag: Field Blank-01

Collected Date/Time: 12/14/2022 15:45

Matrix: Water

COC Reference: 2

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.41/6.55/10 | ASTMD7979-19M | 01/06/23 09:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/07/23 01:25, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 10 | 1.6 | ng/L | 2.06 | 375-22-4 | |
| PFPeA* | Not detected | 4.1 | 0.82 | ng/L | 2.06 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.1 | 0.82 | ng/L | 2.06 | 757124-72-4 | |
| PFHxA* | Not detected | 2.1 | 0.41 | ng/L | 2.06 | 307-24-4 | |
| PFBS* | Not detected | 2.1 | 0.82 | ng/L | 2.06 | 375-73-5 | |
| PFHpA* | Not detected | 2.1 | 1.0 | ng/L | 2.06 | 375-85-9 | |
| PFPeS* | Not detected | 2.1 | 0.82 | ng/L | 2.06 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.1 | 1.2 | ng/L | 2.06 | 27619-97-2 | |
| PFOA* | Not detected | 2.1 | 1.6 | ng/L | 2.06 | 335-67-1 | |
| PFHxS* | Not detected | 2.1 | 1.2 | ng/L | 2.06 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.1 | 1.2 | ng/L | 2.06 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.1 | 1.2 | ng/L | 2.06 | 355-46-4-BR | |
| PFNA* | Not detected | 2.1 | 0.82 | ng/L | 2.06 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.1 | 1.0 | ng/L | 2.06 | 39108-34-4 | |
| PFHpS* | Not detected | 2.1 | 1.2 | ng/L | 2.06 | 375-92-8 | |
| PFDA* | Not detected | 2.1 | 0.62 | ng/L | 2.06 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.1 | 1.4 | ng/L | 2.06 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.1 | 2.1 | ng/L | 2.06 | 2991-50-6 | |
| PFOS* | Not detected | 2.1 | 1.2 | ng/L | 2.06 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.1 | 1.2 | ng/L | 2.06 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.1 | 1.2 | ng/L | 2.06 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.1 | 1.0 | ng/L | 2.06 | 2058-94-8 | |
| PFNS* | Not detected | 2.1 | 1.0 | ng/L | 2.06 | 68259-12-1 | |
| PFDODA* | Not detected | 2.1 | 0.62 | ng/L | 2.06 | 307-55-1 | |
| PFDS* | Not detected | 2.1 | 1.2 | ng/L | 2.06 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.1 | 1.0 | ng/L | 2.06 | 72629-94-8 | |
| FOSA* | Not detected | 2.1 | 0.82 | ng/L | 2.06 | 754-91-6 | |
| PFTeDA* | Not detected | 4.1 | 0.41 | ng/L | 2.06 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.1 | 0.82 | ng/L | 2.06 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.1 | 0.82 | ng/L | 2.06 | 756426-58-1 | |
| ADONA* | Not detected | 2.1 | 1.0 | ng/L | 2.06 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.1 | ng/L | 2.06 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.1 | 2.1 | ng/L | 2.06 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.1 | 2.1 | ng/L | 2.06 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.1 | 1.0 | ng/L | 2.06 | 356-02-5 | |
| PFBSA* | Not detected | 2.1 | 1.2 | ng/L | 2.06 | 30334-69-1 | |
| PFCHS* | Not detected | 2.1 | 1.0 | ng/L | 2.06 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S43499.27 (continued)

Sample Tag: Field Blank-01

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/07/23 01:25, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 2.1 | 0.82 | ng/L | 2.06 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43499.28

Sample Tag: VAS31-SB-3-5

Collected Date/Time: 12/12/2022 13:00

Matrix: Soil

COC Reference: 5

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |
| 1 | 250ml Plastic | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|----------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 8.66/6.52/10 | ASTM D7968-17M | 01/04/23 13:33 | PTW | |

Inorganics

Method: SM2540B, Run Date: 12/15/22 15:12, Analyst: MAM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------|--------|----|-----|-------|----------|------|-------|
| Total Solids* | 80 | 1 | 1 | % | 1 | | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/05/23 00:34, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | 12 | 120 | 9.3 | ng/kg | 5.84 | 375-22-4 | J |
| PFPeA* | Not detected | 58 | 4.7 | ng/kg | 5.84 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 58 | 9.3 | ng/kg | 5.84 | 757124-72-4 | |
| PFHxA* | Not detected | 58 | 6.4 | ng/kg | 5.84 | 307-24-4 | |
| PFBS* | Not detected | 58 | 8.2 | ng/kg | 5.84 | 375-73-5 | |
| PFHpA* | Not detected | 58 | 12 | ng/kg | 5.84 | 375-85-9 | |
| PFPeS* | Not detected | 58 | 9.9 | ng/kg | 5.84 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 58 | 15 | ng/kg | 5.84 | 27619-97-2 | |
| PFOA* | Not detected | 58 | 11 | ng/kg | 5.84 | 335-67-1 | |
| PFHxS* | Not detected | 58 | 11 | ng/kg | 5.84 | 355-46-4 | |
| PFHxS-LN* | Not detected | 58 | 11 | ng/kg | 5.84 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 58 | 11 | ng/kg | 5.84 | 355-46-4-BR | |
| PFNA* | Not detected | 58 | 8.2 | ng/kg | 5.84 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 58 | 17 | ng/kg | 5.84 | 39108-34-4 | |
| PFHpS* | Not detected | 58 | 7.6 | ng/kg | 5.84 | 375-92-8 | |
| PFDA* | Not detected | 58 | 9.3 | ng/kg | 5.84 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 58 | 18 | ng/kg | 5.84 | 2355-31-9 | |
| EtFOSAA* | 7.6 | 58 | 7.0 | ng/kg | 5.84 | 2991-50-6 | J |
| PFOS* | 260 | 58 | 8.2 | ng/kg | 5.84 | 1763-23-1 | |
| PFOS-LN* | 220 | 58 | 8.2 | ng/kg | 5.84 | 1763-23-1-LN | |
| PFOS-BR* | 34 | 58 | 8.2 | ng/kg | 5.84 | 1763-23-1-BR | J |
| PFUnDA* | Not detected | 58 | 11 | ng/kg | 5.84 | 2058-94-8 | |
| PFNS* | Not detected | 58 | 13 | ng/kg | 5.84 | 68259-12-1 | |
| PFDODA* | Not detected | 58 | 6.4 | ng/kg | 5.84 | 307-55-1 | |
| PFDS* | Not detected | 58 | 8.2 | ng/kg | 5.84 | 335-77-3 | |
| PFTTrDA* | Not detected | 58 | 12 | ng/kg | 5.84 | 72629-94-8 | |
| FOSA* | Not detected | 58 | 7.0 | ng/kg | 5.84 | 754-91-6 | |
| PFTeDA* | Not detected | 58 | 9.9 | ng/kg | 5.84 | 376-06-7 | |
| 11CI-PF3OUdS* | Not detected | 58 | 7.0 | ng/kg | 5.84 | 763051-92-9 | |
| 9CI-PF3ONS* | Not detected | 58 | 11 | ng/kg | 5.84 | 756426-58-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.28 (continued)

Sample Tag: VAS31-SB-3-5

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/05/23 00:34, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|----|-----|-------|----------|-------------|-------|
| ADONA* | Not detected | 58 | 8.2 | ng/kg | 5.84 | 919005-14-4 | |
| HFPO-DA* | Not detected | 58 | 15 | ng/kg | 5.84 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 58 | 8.8 | ng/kg | 5.84 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 58 | 14 | ng/kg | 5.84 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 58 | 14 | ng/kg | 5.84 | 356-02-5 | |
| PFBSA* | Not detected | 58 | 9.3 | ng/kg | 5.84 | 30334-69-1 | |
| PFECHS* | Not detected | 58 | 8.8 | ng/kg | 5.84 | 67584-42-3 | |
| PFHxSA* | Not detected | 58 | 11 | ng/kg | 5.84 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43499.29

Sample Tag: VAS32-SB-3-5

Collected Date/Time: 12/12/2022 15:00

Matrix: Soil

COC Reference: 5

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |
| 1 | 250ml Plastic | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|----------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 7.42/6.51/10 | ASTM D7968-17M | 01/04/23 13:33 | PTW | |

Inorganics

Method: SM2540B, Run Date: 12/15/22 15:12, Analyst: MAM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------|--------|----|-----|-------|----------|------|-------|
| Total Solids* | 82 | 1 | 1 | % | 1 | | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/05/23 00:53, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | Not detected | 270 | 21 | ng/kg | 13.4 | 375-22-4 | |
| PFPeA* | Not detected | 130 | 11 | ng/kg | 13.4 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 130 | 21 | ng/kg | 13.4 | 757124-72-4 | I |
| PFHxA* | Not detected | 130 | 15 | ng/kg | 13.4 | 307-24-4 | |
| PFBS* | Not detected | 130 | 19 | ng/kg | 13.4 | 375-73-5 | |
| PFHpA* | Not detected | 130 | 27 | ng/kg | 13.4 | 375-85-9 | |
| PFPeS* | Not detected | 130 | 23 | ng/kg | 13.4 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 130 | 34 | ng/kg | 13.4 | 27619-97-2 | I |
| PFOA* | 140 | 130 | 25 | ng/kg | 13.4 | 335-67-1 | |
| PFHxS* | 29 | 130 | 24 | ng/kg | 13.4 | 355-46-4 | J |
| PFHxS-LN* | 29 | 130 | 24 | ng/kg | 13.4 | 355-46-4-LN | J |
| PFHxS-BR* | Not detected | 130 | 24 | ng/kg | 13.4 | 355-46-4-BR | |
| PFNA* | 36 | 130 | 19 | ng/kg | 13.4 | 375-95-1 | J |
| 8:2 FTSA* | Not detected | 130 | 39 | ng/kg | 13.4 | 39108-34-4 | I |
| PFHpS* | 59 | 130 | 17 | ng/kg | 13.4 | 375-92-8 | J |
| PFDA* | Not detected | 130 | 21 | ng/kg | 13.4 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 130 | 42 | ng/kg | 13.4 | 2355-31-9 | |
| EtFOSAA* | 990 | 130 | 16 | ng/kg | 13.4 | 2991-50-6 | |
| PFOS* | 15,000 | 130 | 19 | ng/kg | 13.4 | 1763-23-1 | |
| PFOS-LN* | 14,000 | 130 | 19 | ng/kg | 13.4 | 1763-23-1-LN | |
| PFOS-BR* | 1,500 | 130 | 19 | ng/kg | 13.4 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 130 | 25 | ng/kg | 13.4 | 2058-94-8 | |
| PFNS* | 96 | 130 | 29 | ng/kg | 13.4 | 68259-12-1 | J |
| PFDODA* | Not detected | 130 | 15 | ng/kg | 13.4 | 307-55-1 | |
| PFDS* | 96 | 130 | 19 | ng/kg | 13.4 | 335-77-3 | J |
| PFTTrDA* | Not detected | 130 | 27 | ng/kg | 13.4 | 72629-94-8 | |
| FOSA* | 420 | 130 | 16 | ng/kg | 13.4 | 754-91-6 | |
| PFTeDA* | Not detected | 130 | 23 | ng/kg | 13.4 | 376-06-7 | |
| 11CI-PF3OUdS* | Not detected | 130 | 16 | ng/kg | 13.4 | 763051-92-9 | |

I-Matrix interference with internal standard

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.29 (continued)

Sample Tag: VAS32-SB-3-5

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/05/23 00:53, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|-------------|-------|
| 9CI-PF3ONS* | Not detected | 130 | 25 | ng/kg | 13.4 | 756426-58-1 | |
| ADONA* | Not detected | 130 | 19 | ng/kg | 13.4 | 919005-14-4 | |
| HFPO-DA* | Not detected | 130 | 35 | ng/kg | 13.4 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 130 | 20 | ng/kg | 13.4 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 130 | 32 | ng/kg | 13.4 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 130 | 32 | ng/kg | 13.4 | 356-02-5 | |
| PFBSA* | Not detected | 130 | 21 | ng/kg | 13.4 | 30334-69-1 | |
| PFECHS* | 34 | 130 | 20 | ng/kg | 13.4 | 67584-42-3 | J |
| PFHxSA* | Not detected | 130 | 25 | ng/kg | 13.4 | 41997-13-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.30

Sample Tag: VAS33-SB-3-5

Collected Date/Time: 12/13/2022 09:00

Matrix: Soil

COC Reference: 5

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |
| 1 | 250ml Plastic | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|----------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 7.84/6.54/10 | ASTM D7968-17M | 01/04/23 13:33 | PTW | |

Inorganics

Method: SM2540B, Run Date: 12/15/22 15:12, Analyst: MAM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------|--------|----|-----|-------|----------|------|-------|
| Total Solids* | 80 | 1 | 1 | % | 1 | | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/05/23 12:12, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | Not detected | 190 | 15 | ng/kg | 9.62 | 375-22-4 | |
| PFPeA* | Not detected | 96 | 7.7 | ng/kg | 9.62 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 96 | 15 | ng/kg | 9.62 | 757124-72-4 | I |
| PFHxA* | Not detected | 96 | 11 | ng/kg | 9.62 | 307-24-4 | |
| PFBS* | Not detected | 96 | 13 | ng/kg | 9.62 | 375-73-5 | |
| PFHpA* | Not detected | 96 | 19 | ng/kg | 9.62 | 375-85-9 | |
| PFPeS* | Not detected | 96 | 16 | ng/kg | 9.62 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 96 | 24 | ng/kg | 9.62 | 27619-97-2 | I |
| PFOA* | Not detected | 96 | 18 | ng/kg | 9.62 | 335-67-1 | |
| PFHxS* | Not detected | 96 | 17 | ng/kg | 9.62 | 355-46-4 | |
| PFHxS-LN* | Not detected | 96 | 17 | ng/kg | 9.62 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 96 | 17 | ng/kg | 9.62 | 355-46-4-BR | |
| PFNA* | Not detected | 96 | 13 | ng/kg | 9.62 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 96 | 28 | ng/kg | 9.62 | 39108-34-4 | |
| PFHpS* | Not detected | 96 | 13 | ng/kg | 9.62 | 375-92-8 | |
| PFDA* | Not detected | 96 | 15 | ng/kg | 9.62 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 96 | 30 | ng/kg | 9.62 | 2355-31-9 | |
| EtFOSAA* | 27 | 96 | 12 | ng/kg | 9.62 | 2991-50-6 | J |
| PFOS* | 330 | 96 | 13 | ng/kg | 9.62 | 1763-23-1 | |
| PFOS-LN* | 230 | 96 | 13 | ng/kg | 9.62 | 1763-23-1-LN | |
| PFOS-BR* | 87 | 96 | 13 | ng/kg | 9.62 | 1763-23-1-BR | J |
| PFUnDA* | Not detected | 96 | 18 | ng/kg | 9.62 | 2058-94-8 | |
| PFNS* | Not detected | 96 | 21 | ng/kg | 9.62 | 68259-12-1 | |
| PFDODA* | Not detected | 96 | 11 | ng/kg | 9.62 | 307-55-1 | |
| PFDS* | Not detected | 96 | 13 | ng/kg | 9.62 | 335-77-3 | |
| PFTTrDA* | Not detected | 96 | 19 | ng/kg | 9.62 | 72629-94-8 | |
| FOSA* | Not detected | 96 | 12 | ng/kg | 9.62 | 754-91-6 | |
| PFTeDA* | Not detected | 96 | 16 | ng/kg | 9.62 | 376-06-7 | |
| 11CI-PF3OUdS* | Not detected | 96 | 12 | ng/kg | 9.62 | 763051-92-9 | |

I-Matrix interference with internal standard

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.30 (continued)

Sample Tag: VAS33-SB-3-5

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/05/23 12:12, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|----|-----|-------|----------|-------------|-------|
| 9CI-PF3ONS* | Not detected | 96 | 18 | ng/kg | 9.62 | 756426-58-1 | |
| ADONA* | Not detected | 96 | 13 | ng/kg | 9.62 | 919005-14-4 | |
| HFPO-DA* | Not detected | 96 | 25 | ng/kg | 9.62 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 96 | 14 | ng/kg | 9.62 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 96 | 23 | ng/kg | 9.62 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 96 | 23 | ng/kg | 9.62 | 356-02-5 | |
| PFBSA* | Not detected | 96 | 15 | ng/kg | 9.62 | 30334-69-1 | |
| PFECHS* | Not detected | 96 | 14 | ng/kg | 9.62 | 67584-42-3 | |
| PFHxSA* | Not detected | 96 | 18 | ng/kg | 9.62 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43499.31

Sample Tag: VAS34-SB-3-5

Collected Date/Time: 12/13/2022 10:45

Matrix: Soil

COC Reference: 5

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |
| 1 | 250ml Plastic | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|----------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 8.06/6.57/10 | ASTM D7968-17M | 01/04/23 13:33 | PTW | |

Inorganics

Method: SM2540B, Run Date: 12/15/22 15:12, Analyst: MAM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------|--------|----|-----|-------|----------|------|-------|
| Total Solids* | 78 | 1 | 1 | % | 1 | | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/05/23 01:32, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | Not detected | 170 | 14 | ng/kg | 8.6 | 375-22-4 | |
| PFPeA* | 15 | 86 | 6.9 | ng/kg | 8.6 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 86 | 14 | ng/kg | 8.6 | 757124-72-4 | |
| PFHxA* | 16 | 86 | 9.5 | ng/kg | 8.6 | 307-24-4 | J |
| PFBS* | Not detected | 86 | 12 | ng/kg | 8.6 | 375-73-5 | |
| PFHpA* | Not detected | 86 | 17 | ng/kg | 8.6 | 375-85-9 | |
| PFPeS* | Not detected | 86 | 15 | ng/kg | 8.6 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 86 | 22 | ng/kg | 8.6 | 27619-97-2 | |
| PFOA* | 48 | 86 | 16 | ng/kg | 8.6 | 335-67-1 | J |
| PFHxS* | 17 | 86 | 15 | ng/kg | 8.6 | 355-46-4 | J |
| PFHxS-LN* | Not detected | 86 | 15 | ng/kg | 8.6 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 86 | 15 | ng/kg | 8.6 | 355-46-4-BR | |
| PFNA* | Not detected | 86 | 12 | ng/kg | 8.6 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 86 | 25 | ng/kg | 8.6 | 39108-34-4 | |
| PFHpS* | Not detected | 86 | 11 | ng/kg | 8.6 | 375-92-8 | |
| PFDA* | Not detected | 86 | 14 | ng/kg | 8.6 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 86 | 27 | ng/kg | 8.6 | 2355-31-9 | |
| EtFOSAA* | Not detected | 86 | 10 | ng/kg | 8.6 | 2991-50-6 | |
| PFOS* | 640 | 86 | 12 | ng/kg | 8.6 | 1763-23-1 | |
| PFOS-LN* | 450 | 86 | 12 | ng/kg | 8.6 | 1763-23-1-LN | |
| PFOS-BR* | 180 | 86 | 12 | ng/kg | 8.6 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 86 | 16 | ng/kg | 8.6 | 2058-94-8 | |
| PFNS* | Not detected | 86 | 19 | ng/kg | 8.6 | 68259-12-1 | |
| PFDODA* | Not detected | 86 | 9.5 | ng/kg | 8.6 | 307-55-1 | |
| PFDS* | Not detected | 86 | 12 | ng/kg | 8.6 | 335-77-3 | |
| PFTTrDA* | Not detected | 86 | 17 | ng/kg | 8.6 | 72629-94-8 | |
| FOSA* | Not detected | 86 | 10 | ng/kg | 8.6 | 754-91-6 | |
| PFTeDA* | Not detected | 86 | 15 | ng/kg | 8.6 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 86 | 10 | ng/kg | 8.6 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 86 | 16 | ng/kg | 8.6 | 756426-58-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.31 (continued)

Sample Tag: VAS34-SB-3-5

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/05/23 01:32, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|----|-----|-------|----------|-------------|-------|
| ADONA* | Not detected | 86 | 12 | ng/kg | 8.6 | 919005-14-4 | |
| HFPO-DA* | Not detected | 86 | 22 | ng/kg | 8.6 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 86 | 13 | ng/kg | 8.6 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 86 | 21 | ng/kg | 8.6 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 86 | 21 | ng/kg | 8.6 | 356-02-5 | |
| PFBSA* | Not detected | 86 | 14 | ng/kg | 8.6 | 30334-69-1 | |
| PFECHS* | Not detected | 86 | 13 | ng/kg | 8.6 | 67584-42-3 | |
| PFHxSA* | Not detected | 86 | 16 | ng/kg | 8.6 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43499.32

Sample Tag: VAS39-SB-3-5

Collected Date/Time: 12/14/2022 12:40

Matrix: Soil

COC Reference: 5

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |
| 1 | 250ml Plastic | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|----------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 7.79/6.55/10 | ASTM D7968-17M | 01/04/23 13:33 | PTW | |

Inorganics

Method: SM2540B, Run Date: 12/15/22 17:15, Analyst: MAM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------|--------|----|-----|-------|----------|------|-------|
| Total Solids* | 76 | 1 | 1 | % | 1 | | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/05/23 01:52, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | Not detected | 210 | 17 | ng/kg | 10.6 | 375-22-4 | |
| PFPeA* | Not detected | 110 | 8.5 | ng/kg | 10.6 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 110 | 17 | ng/kg | 10.6 | 757124-72-4 | |
| PFHxA* | Not detected | 110 | 12 | ng/kg | 10.6 | 307-24-4 | |
| PFBS* | Not detected | 110 | 15 | ng/kg | 10.6 | 375-73-5 | |
| PFHpA* | Not detected | 110 | 21 | ng/kg | 10.6 | 375-85-9 | |
| PFPeS* | Not detected | 110 | 18 | ng/kg | 10.6 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 110 | 27 | ng/kg | 10.6 | 27619-97-2 | |
| PFOA* | Not detected | 110 | 20 | ng/kg | 10.6 | 335-67-1 | |
| PFHxS* | Not detected | 110 | 19 | ng/kg | 10.6 | 355-46-4 | |
| PFHxS-LN* | Not detected | 110 | 19 | ng/kg | 10.6 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 110 | 19 | ng/kg | 10.6 | 355-46-4-BR | |
| PFNA* | Not detected | 110 | 15 | ng/kg | 10.6 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 110 | 31 | ng/kg | 10.6 | 39108-34-4 | |
| PFHpS* | Not detected | 110 | 14 | ng/kg | 10.6 | 375-92-8 | |
| PFDA* | Not detected | 110 | 17 | ng/kg | 10.6 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 110 | 33 | ng/kg | 10.6 | 2355-31-9 | |
| EtFOSAA* | Not detected | 110 | 13 | ng/kg | 10.6 | 2991-50-6 | |
| PFOS* | 290 | 110 | 15 | ng/kg | 10.6 | 1763-23-1 | |
| PFOS-LN* | 220 | 110 | 15 | ng/kg | 10.6 | 1763-23-1-LN | |
| PFOS-BR* | 56 | 110 | 15 | ng/kg | 10.6 | 1763-23-1-BR | J |
| PFUnDA* | Not detected | 110 | 20 | ng/kg | 10.6 | 2058-94-8 | |
| PFNS* | Not detected | 110 | 23 | ng/kg | 10.6 | 68259-12-1 | |
| PFDODA* | Not detected | 110 | 12 | ng/kg | 10.6 | 307-55-1 | |
| PFDS* | Not detected | 110 | 15 | ng/kg | 10.6 | 335-77-3 | |
| PFTTrDA* | Not detected | 110 | 21 | ng/kg | 10.6 | 72629-94-8 | |
| FOSA* | Not detected | 110 | 13 | ng/kg | 10.6 | 754-91-6 | |
| PFTeDA* | Not detected | 110 | 18 | ng/kg | 10.6 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 110 | 13 | ng/kg | 10.6 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 110 | 20 | ng/kg | 10.6 | 756426-58-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.32 (continued)

Sample Tag: VAS39-SB-3-5

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/05/23 01:52, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|-------------|-------|
| ADONA* | Not detected | 110 | 15 | ng/kg | 10.6 | 919005-14-4 | |
| HFPO-DA* | Not detected | 110 | 28 | ng/kg | 10.6 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 110 | 16 | ng/kg | 10.6 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 110 | 25 | ng/kg | 10.6 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 110 | 25 | ng/kg | 10.6 | 356-02-5 | |
| PFBSA* | Not detected | 110 | 17 | ng/kg | 10.6 | 30334-69-1 | |
| PFECHS* | Not detected | 110 | 16 | ng/kg | 10.6 | 67584-42-3 | |
| PFHxSA* | Not detected | 110 | 20 | ng/kg | 10.6 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S43499.33

Sample Tag: Sed-01-14122022

Collected Date/Time: 12/14/2022 16:00

Matrix: Soil

COC Reference: 6

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 3.4 | IR |
| 1 | 250ml Plastic | None | Yes | 3.4 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|----------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 8.87/6.52/10 | ASTM D7968-17M | 01/04/23 13:33 | PTW | |

Inorganics

Method: SM2540B, Run Date: 12/15/22 17:15, Analyst: MAM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------|--------|----|-----|-------|----------|------|-------|
| Total Solids* | 52 | 1 | 1 | % | 1 | | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/05/23 12:32, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | 33 | 160 | 13 | ng/kg | 8.18 | 375-22-4 | J |
| PFPeA* | Not detected | 82 | 6.5 | ng/kg | 8.18 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 82 | 13 | ng/kg | 8.18 | 757124-72-4 | |
| PFHxA* | 13 | 82 | 9.0 | ng/kg | 8.18 | 307-24-4 | J |
| PFBS* | Not detected | 82 | 11 | ng/kg | 8.18 | 375-73-5 | |
| PFHpA* | Not detected | 82 | 16 | ng/kg | 8.18 | 375-85-9 | |
| PFPeS* | Not detected | 82 | 14 | ng/kg | 8.18 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 82 | 20 | ng/kg | 8.18 | 27619-97-2 | |
| PFOA* | 57 | 82 | 16 | ng/kg | 8.18 | 335-67-1 | J |
| PFHxS* | 42 | 82 | 15 | ng/kg | 8.18 | 355-46-4 | J |
| PFHxS-LN* | 33 | 82 | 15 | ng/kg | 8.18 | 355-46-4-LN | J |
| PFHxS-BR* | Not detected | 82 | 15 | ng/kg | 8.18 | 355-46-4-BR | |
| PFNA* | 16 | 82 | 11 | ng/kg | 8.18 | 375-95-1 | J |
| 8:2 FTSA* | Not detected | 82 | 24 | ng/kg | 8.18 | 39108-34-4 | |
| PFHpS* | Not detected | 82 | 11 | ng/kg | 8.18 | 375-92-8 | |
| PFDA* | 29 | 82 | 13 | ng/kg | 8.18 | 335-76-2 | J |
| N-MeFOSAA* | Not detected | 82 | 25 | ng/kg | 8.18 | 2355-31-9 | |
| EtFOSAA* | 41 | 82 | 9.8 | ng/kg | 8.18 | 2991-50-6 | J |
| PFOS* | 610 | 82 | 11 | ng/kg | 8.18 | 1763-23-1 | |
| PFOS-LN* | 370 | 82 | 11 | ng/kg | 8.18 | 1763-23-1-LN | |
| PFOS-BR* | 230 | 82 | 11 | ng/kg | 8.18 | 1763-23-1-BR | |
| PFUnDA* | 22 | 82 | 16 | ng/kg | 8.18 | 2058-94-8 | J |
| PFNS* | Not detected | 82 | 18 | ng/kg | 8.18 | 68259-12-1 | |
| PFDODA* | 32 | 82 | 9.0 | ng/kg | 8.18 | 307-55-1 | J |
| PFDS* | 30 | 82 | 11 | ng/kg | 8.18 | 335-77-3 | J |
| PFTTrDA* | Not detected | 82 | 16 | ng/kg | 8.18 | 72629-94-8 | |
| FOSA* | 12 | 82 | 9.8 | ng/kg | 8.18 | 754-91-6 | J |
| PFTeDA* | 24 | 82 | 14 | ng/kg | 8.18 | 376-06-7 | J |
| 11Cl-PF3OUdS* | Not detected | 82 | 9.8 | ng/kg | 8.18 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 82 | 16 | ng/kg | 8.18 | 756426-58-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S43499.33 (continued)

Sample Tag: Sed-01-14122022

34 PFAs, Method: ASTMD7979-19M, Run Date: 01/05/23 12:32, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|----|-----|-------|----------|-------------|-------|
| ADONA* | Not detected | 82 | 11 | ng/kg | 8.18 | 919005-14-4 | |
| HFPO-DA* | Not detected | 82 | 21 | ng/kg | 8.18 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 82 | 12 | ng/kg | 8.18 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 82 | 20 | ng/kg | 8.18 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 82 | 20 | ng/kg | 8.18 | 356-02-5 | |
| PFBSA* | Not detected | 82 | 13 | ng/kg | 8.18 | 30334-69-1 | |
| PFECHS* | 29 | 82 | 12 | ng/kg | 8.18 | 67584-42-3 | J |
| PFHxSA* | Not detected | 82 | 16 | ng/kg | 8.18 | 41997-13-1 | |

J-Estimated value less than reporting limit, but greater than MDL

Merit Laboratories Login Checklist

Lab Set ID:S43499

Client:WSP (WSP)

Project: Former JB Sims Generating Station, Harbor Island, GrandHaven

Submitted: 12/15/2022 14:34 Login User: MMC

Attention: Saamih Bashir

Address: WSP

45850 Magellan Drive, Suite 190

Novi, MI 48377

Phone: n/a

FAX:

Email: Saamih.Bashir@wsp.com

| Selection | Description | Note |
|--------------------------|--|--|
| Sample Receiving | | |
| 01. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 3.4 |
| 02. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun |
| 03. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped |
| 04. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box |
| 05. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |
| Chain of Custody | | |
| 06. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out |
| 07. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab |
| 08. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC |
| 09. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to: |
| Preservation | | |
| 10. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation |
| 11. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs) |
| 12. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab? |
| Bottle Conditions | | |
| 13. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact |
| 14. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used |
| 15. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used |
| 16. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received |
| 17. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration |
| 18. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time |
| 19. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace |

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

WSP USA Environment & Infrastructure Inc.
 46850 Magellan Drive, Suite 190
 Novi, Michigan 48377
 (248) 926-4008

CHAIN OF CUSTODY

SHIP TO:
 Merit Laboratories, Inc.
 2680 East Lansing Drive
 East Lansing, MI 48823
 Attn: Johanna Murray
 Lab Phone# 517-827-2755

DATE: 12/15/2022
 COC #: _____
 PAGE: 2 OF 7

| | | | |
|--|---------------------------------------|---|-----------------------------------|
| Project Name: Former JB Sims Generating Station, Harbor Island, Grand Haven | Project Contact: Zach McCurley | Bill To: WSP USA Environment & Infrastructure Inc. | Disposal Instructions: LAB |
| Project Number: 3650220203.02.02.3650 | Phone Number: 248-775-9823 | Attn: Saamih Bashir | Shipment Method: FEDEX |
| Project Manager: Saamih Bashir | Purchase Order: C012407104 | 46850 Magellan Dr., Ste 190 | Waybill Number: N/A |
| Sampler Name: Jared Walbert | | Novi, MI 48377 | Waybill Number: N/A |

MATRIX Code W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL SW=SURFACE WATER
 L=LIQUID SD=SEDIMENT SL=SLUDGE DW=DRINKING WATER O=OIL A=AIR WS=WASTE

TURNAROUND TIME REQUIRED: 2 Days 5 Days Standard (10 TAT)
 DELIVERABLES REQUIRED: STD Level II Level III Level IV EDD

| Sample Information | | | | | | Methods for Analysis | | | | | | | | | | RUSH | | | | | | | |
|--------------------|-----------|--------------------|------------|-------|--------|----------------------|------------------------------|---------------------|----------------------|-----------------------------|-------------------------------|--------------------------------------|----------------------|--------|--|------|--|--|---------|---------|---------|--------|--|
| No. | Lab ID | Sample ID | Date | Time | Matrix | # of Bottles | PFAS ASTM D7979 Per Contract | VOCs (Per Contract) | SVOCs (Per Contract) | MI 10 Metals (per Contract) | pH/corrosivity (per Contract) | particle size (sieve and hydrometer) | Total Organic Carbon | MS/MSD | | | | | 24 Hour | 48 Hour | 72 Hour | 5 Days | |
| 1 | 43-199.20 | SW-01-14122022 | 12/14/2022 | 16:00 | SW | 3 | X | | | | | | | | | | | | | | | | |
| 2 | .21 | SW-02-14122022 | 12/14/2022 | 16:25 | SW | 3 | X | | | | | | | | | | | | | | | | |
| 3 | .22 | SW-03-14122022 | 12/14/2022 | 17:00 | SW | 3 | X | | | | | | | | | | | | | | | | |
| 4 | .23 | SW-04-14122022 | 12/14/2022 | 17:05 | SW | 3 | X | | | | | | | | | | | | | | | | |
| 5 | .24 | SW-05-14122022 | 12/14/2022 | 17:30 | SW | 3 | X | | | | | | | | | | | | | | | | |
| 6 | .25 | SW-06-14122022 | 12/14/2022 | 17:50 | SW | 3 | X | | | | | | | | | | | | | | | | |
| 7 | .26 | Equipment Blank-03 | 12/14/2022 | 15:30 | W | 3 | X | | | | | | | | | | | | | | | | |
| 8 | .27 | Field Blank-01 | 12/14/2022 | 15:45 | W | 1 | X | | | | | | | | | | | | | | | | |
| 9 | | | | | | 3 | X | | | | | | | | | | | | | | | | |
| 10 | | | | | | 3 | X | | | | | | | | | | | | | | | | |
| 11 | | | | | | 3 | X | | | | | | | | | | | | | | | | |
| 12 | | | | | | 3 | X | | | | | | | | | | | | | | | | |
| 13 | | | | | | 3 | X | | | | | | | | | | | | | | | | |
| 14 | | | | | | 3 | X | | | | | | | | | | | | | | | | |
| 15 | | | | | | 3 | X | | | | | | | | | | | | | | | | |
| 16 | | | | | | 3 | X | | | | | | | | | | | | | | | | |
| 17 | | | | | | 3 | X | | | | | | | | | | | | | | | | |

| | | | | |
|--|-----------------------|-------------------|----------------------------------|--------|
| Relinquished By/Affiliation: <i>Keith White</i> | Date: 12/15/22 | Time: 1430 | For Lab Use | |
| Received By: <i>Johanna Murray</i> | Date: 12/15/22 | Time: 1434 | Does COC match samples: | Y or N |
| Relinquished By/Affiliation: | Date: | Time: | Broken Container: | Y or N |
| Received By: | Date: | Time: | COC seal intact: | Y or N |
| Relinquished By/Affiliation: | Date: | Time: | Other problems: | Y or N |
| Received By (LAB): | Date: | Time: | WSDOT contacted: | Y or N |
| | | | Date contacted: | |
| | | | Cooler Temperature at receipt: | 3.4 °C |
| | | | NUMBER OF COOLERS SENT: 1 | |
| | | | Comments: X | |

WSP USA Environment & Infrastructure Inc.
 46850 Magellan Drive, Suite 190
 Novi, Michigan 48377
 (248) 926-4008

CHAIN OF CUSTODY

SHIP TO:
 Merit Laboratories, Inc.
 2680 East Lansing Drive
 East Lansing, MI 48823
 Atten: Johanna Murray
 Lab Phone# 517-827-2755

DATE: 12/15/2022
 COC #: _____
 PAGE: 5 OF 7

| | | | |
|--|---------------------------------------|---|-----------------------------------|
| Project Name: Former JB Sims Generating Station, Harbor Island, Grand Haven | Project Contact: Zach McCurley | Bill To: WSP USA Environment & Infrastructure Inc. | Disposal Instructions: LAB |
| Project Number: 3650220203.02.02.3650 | Phone Number: 248-775-9823 | Attn: Saamih Bashir | Shipment Method: FEDEX |
| Project Manager: Saamih Bashir | Purchase Order: C012407104 | Address: 46850 Magellan Dr., Ste 190 Novi, MI 48377 | Waybill Number: N/A |
| Sampler Name: Jared Walbert | | | Waybill Number: N/A |

MATRIX Code W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL SW=SURFACE WATER
 L=LIQUID SD=SEDIMENT SL=SLUDGE DW=DRINKING WATER O=OIL A=AIR WS=WASTE

| | | | | |
|---------------------------------|--------|----------|-----------|-------------------|
| TURNAROUND TIME REQUIRED | 2 Days | 5 Days | X | Standard (10 TAT) |
| DELIVERABLES REQUIRED | STD | Level II | Level III | X Level IV |
| | | | | X EDD |

| Sample Information | | | | | | Methods for Analysis | | | | | | | | | | RUSH | | | | | | | | |
|--------------------|----------|--------------|------------|-------|--------|----------------------|------------------------------|---------------------|----------------------|-----------------------------|-------------------------------|-------------------------------------|----------------------|------------------------------|--------|------|--|--|--|---------|---------|---------|--------|--|
| No. | Lab ID | Sample ID | Date | Time | Matrix | # of Bottles | PFAS ASTM D7979 Per Contract | VOCs (Per Contract) | SVOCs (Per Contract) | MI 10 Metals (per Contract) | pH/corrosivity (per Contract) | particle size (ieve and hydrometer) | Total Organic Carbon | PFAS ASTM D7968 Per Contract | MS/MSD | | | | | 24 Hour | 48 Hour | 72 Hour | 5 Days | |
| 1 | 43499.28 | VAS31-SB-3-5 | 12/12/2022 | 13:00 | S | 4 | | | | | | | X | | | | | | | | | | | |
| 2 | .29 | VAS32-SB-3-5 | 12/12/2022 | 15:00 | S | 4 | | | | | | | X | | | | | | | | | | | |
| 3 | .30 | VAS33-SB-3-5 | 12/13/2022 | 9:00 | S | 4 | | | | | | | X | | | | | | | | | | | |
| 4 | .31 | VAS34-SB-3-5 | 12/13/2022 | 10:45 | S | 4 | | | | | | | X | | | | | | | | | | | |
| 5 | .32 | VAS39-SB-2-5 | 12/14/2022 | 12:40 | S | 4 | | | | | | | X | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | | | | |

| | | | | |
|---|-----------------------|-------------------|---------------------------------------|----------------------------------|
| Relinquished By/Affiliation: <i>Kitt White</i> | Date: 12/15/22 | Time: 1430 | For Lab Use | Comments: X |
| Received By: <i>Johanna Murray</i> | Date: 12/15/22 | Time: 1434 | | |
| Relinquished By/Affiliation: | Date: | Time: | Does COC match samples: Y or N | |
| Received By: | Date: | Time: | Broken Container: Y or N | |
| | | | COC seal intact: Y or N | |
| | | | Other problems: Y or N | |
| | | | WSDOT contacted: Y or N | |
| | | | Date contacted: _____ | |
| Relinquished By/Affiliation: | Date: | Time: | Cooler Temperature at receipt: 3.4 °C | |
| Received By (LAB): | Date: | Time: | | NUMBER OF COOLERS SENT: 1 |

WSP USA Environment & Infrastructure Inc.
 46850 Magellan Drive, Suite 190
 Novi, Michigan 48377
 (248) 926-4008

CHAIN OF CUSTODY

SHIP TO:
 Merit Laboratories, Inc.
 2680 East Lansing Drive
 East Lansing, MI 48823
 Atten: Johanna Murray
 Lab Phone# 517-827-2755

DATE: 12/15/2022
 COC #: _____
 PAGE: 6 OF 7

| | | | |
|--|---------------------------------------|---|-----------------------------------|
| Project Name: Former JB Sims Generating Station, Harbor Island, Grand Haven | Project Contact: Zach McCurley | Bill To: WSP USA Environment & Infrastructure Inc. | Disposal Instructions: LAB |
| Project Number: 3650220203.02.02.3650 | Phone Number: 248-775-9823 | Attn: Saamih Bashir | Shipment Method: FEDEX |
| Project Manager: Saamih Bashir | Purchase Order: C012407104 | 46850 Magellan Dr., Ste 190 | Waybill Number: N/A |
| Sampler Name: Jared Walbert | | Novi, MI 48377 | Waybill Number: N/A |

| | | | | | |
|--|---------------------------------|--------|----------|-------------------------------------|--|
| MATRIX Code W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL SW=SURFACE WATER L=LIQUID SD=SEDIMENT SL=SLUDGE DW=DRINKING WATER O=OIL A=AIR WS=WASTE | TURNAROUND TIME REQUIRED | 2 Days | 5 Days | <input checked="" type="checkbox"/> | Standard (10 TAT) |
| | DELIVERABLES REQUIRED | STD | Level II | Level III | <input checked="" type="checkbox"/> Level IV <input checked="" type="checkbox"/> EDD |

| Sample Information | | | | | | Methods for Analysis | | | | | | | | | | | | RUSH | | | |
|--------------------|----------|-----------------|------------|-------|--------|----------------------|------------------------------|---------------------|----------------------|-----------------------------|-------------------------------|--------------------------------------|----------------------|------------------------------|--------|---------|---------|---------|--------|--|--|
| No. | Lab ID | Sample ID | Date | Time | Matrix | # of Bottles | PFAS ASTM D7979 Per Contract | VOCs (Per Contract) | SVOCs (Per Contract) | MI 10 Metals (per Contract) | pH/corrosivity (per Contract) | particle size (sieve and hydrometer) | Total Organic Carbon | PFAS ASTM D7968 Per Contract | MS/MSD | 24 Hour | 48 Hour | 72 Hour | 5 Days | | |
| 1 | 43499.33 | Sed-01-14122022 | 12/14/2022 | 16:00 | SD | 4 | | | | | | | | X | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | |
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| 11 | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | |

| | | | | | |
|---|-----------------------|-------------------|--------------------------------|--------|----------------------------------|
| Relinquished By/Affiliation: <i>Kate White</i> | Date: 12/15/22 | Time: 1430 | For Lab Use | | Comments: X |
| Received By: <i>Johanna Murray</i> | Date: 12/15/22 | Time: 1434 | Does COC match samples: | Y or N | |
| Relinquished By/Affiliation: | Date: | Time: | Broken Container: | Y or N | |
| Received By: | Date: | Time: | COC seal intact: | Y or N | |
| Relinquished By/Affiliation: | Date: | Time: | Other problems: | Y or N | |
| Received By (LAB): | Date: | Time: | WSDOT contacted: | Y or N | |
| | | | Date contacted: | | |
| | | | Cooler Temperature at receipt: | 34 °C | |
| | | | | | NUMBER OF COOLERS SENT: 1 |



Analytical Laboratory Report

Revised Report

Report ID: S43512.01(03)
Generated on 01/20/2023
Replaces report S43512.01(02) generated on 01/20/2023

Report to

Attention: Saamih Bashir
WSP
45850 Magellan Drive, Suite 190
Novi, MI 48377

Phone: n/a FAX:
Email: Saamih.Bashir@wsp.com

Additional Contacts: Jared Walbert

Report produced by

Merit Laboratories, Inc.
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Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S43512.01-S43512.19
Project: Former JB Sims Generating Station, Harbor Island, GrandHaven
Collected Date(s): 12/12/2022 - 12/15/2022
Submitted Date/Time: 12/15/2022 14:34
Sampled by: Jared Walbert
P.O. #: C012407104

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Maya Murshak
Technical Director



General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

Report Narrative

There is no additional narrative for this analytical report



Laboratory Certifications

| Authority | Certification ID |
|---------------------|------------------|
| Michigan DEQ | #9956 |
| DOD ELAP/ISO 17025 | #69699 |
| WBENC | #2005110032 |
| Ohio VAP | #CL0002 |
| Indiana DOH | #C-MI-07 |
| New York NELAC | #11814 |
| North Carolina DENR | #680 |
| North Carolina DOH | #26702 |
| Alaska CSLAP | #17-001 |
| Pennsylvania DEP | #68-05884 |
| Wisconsin DNR | FID# 399147320 |

Qualifier Descriptions

| Qualifier | Description |
|-----------|---|
| ! | Result is outside of stated limit criteria |
| B | Compound also found in associated method blank |
| E | Concentration exceeds calibration range |
| F | Analysis run outside of holding time |
| G | Estimated result due to extraction run outside of holding time |
| H | Sample submitted and run outside of holding time |
| I | Matrix interference with internal standard |
| J | Estimated value less than reporting limit, but greater than MDL |
| L | Elevated reporting limit due to low sample amount |
| M | Result reported to MDL not RDL |
| O | Analysis performed by outside laboratory. See attached report. |
| R | Preliminary result |
| S | Surrogate recovery outside of control limits |
| T | No correction for total solids |
| X | Elevated reporting limit due to matrix interference |
| Y | Elevated reporting limit due to high target concentration |
| b | Value detected less than reporting limit, but greater than MDL |
| e | Reported value estimated due to interference |
| j | Analyte also found in associated method blank |
| p | Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak. |
| x | Preserved from bulk sample |

Glossary of Abbreviations

| Abbreviation | Description |
|--------------|--|
| RL/RDL | Reporting Limit |
| MDL | Method Detection Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| SW | EPA SW 846 (Soil and Wastewater) Methods |
| E | EPA Methods |
| SM | Standard Methods |
| LN | Linear |
| BR | Branched |



Method Summary

| Method | Version |
|---------------|--|
| E200.8 | EPA Method 200.8 Revision 5.4 |
| E245.1 | EPA Method 245.1 Revision 3.0 |
| N/A | Not Applicable |
| SW3015A | SW 846 Method 3015A Revision 1 February 2007 |
| SW3510C | SW 846 Method 3510C Revision 3 December 1996 |
| SW5030C/8260C | SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003 |
| SW8270D | SW 846 Method 8270D Revision 4 February 2007 |
| SW9045D | SW 846 Method 9045D Revision 4 November 2004 |



Sample Summary (19 samples)

| Sample ID | Sample Tag | Matrix | Collected Date/Time |
|-----------|-----------------|-------------|---------------------|
| S43512.01 | VAS31-3-7 | Groundwater | 12/12/22 14:00 |
| S43512.02 | VAS32-3-7 | Groundwater | 12/12/22 17:00 |
| S43512.03 | VAS33-3-7 | Groundwater | 12/13/22 10:05 |
| S43512.04 | VAS34-3-7 | Groundwater | 12/13/22 11:55 |
| S43512.05 | VAS35-1-5 | Groundwater | 12/13/22 14:30 |
| S43512.06 | DUP-07-13122022 | Groundwater | 12/13/22 00:00 |
| S43512.07 | VAS37-4-8 | Groundwater | 12/14/22 09:50 |
| S43512.08 | VAS38-5-9 | Groundwater | 12/14/22 11:30 |
| S43512.09 | VAS39-1-5 | Groundwater | 12/14/22 14:10 |
| S43512.10 | Trip Blank-04 | Water | 12/14/22 07:00 |
| S43512.11 | MW-34 | Groundwater | 12/15/22 11:55 |
| S43512.12 | MW-33 | Groundwater | 12/15/22 09:45 |
| S43512.13 | VAS-31-SB-3-5 | Soil | 12/12/22 13:00 |
| S43512.14 | VAS-32-SB-3-5 | Soil | 12/12/22 15:00 |
| S43512.15 | VAS-33-SB-3-5 | Soil | 12/13/22 09:00 |
| S43512.16 | VAS-34-SB-3-5 | Soil | 12/13/22 10:45 |
| S43512.17 | VAS-35-SB-3-5 | Soil | 12/13/22 13:25 |
| S43512.18 | VAS-37-SB-4-6 | Soil | 12/13/22 16:40 |
| S43512.19 | VAS-39-SB-2-5 | Soil | 12/14/22 12:40 |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.01

Sample Tag: VAS31-3-7

Collected Date/Time: 12/12/2022 14:00

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 1L Amber | None | Yes | 3.2 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 3.2 | IR |
| 3 | 40ml Glass | HCL | Yes | 3.2 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1 | 12/19/22 23:45 | CTV | |
| pH check for VOCs* | <2 | N/A | 12/20/22 12:30 | BDO | |
| Metal Digestion | Completed | SW3015A | 12/16/22 09:50 | CCM | |
| BNA Extraction | Completed | SW3510C | 12/19/22 10:30 | JWR | |

Metals

Method: E200.8, Run Date: 12/16/22 11:32, Analyst: CCM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|-----------|-------|----------|-----------|-------|
| Arsenic | 0.00186 | 0.002 | 0.000255 | mg/L | 5 | 7440-38-2 | b |
| Barium | 0.134 | 0.005 | 0.000162 | mg/L | 5 | 7440-39-3 | |
| Cadmium | Not detected | 0.0005 | 0.000190 | mg/L | 5 | 7440-43-9 | |
| Chromium | 0.00116 | 0.005 | 0.0000965 | mg/L | 5 | 7440-47-3 | b |
| Copper | 0.00355 | 0.005 | 0.000377 | mg/L | 5 | 7440-50-8 | b |
| Lead | 0.010 | 0.003 | 0.000190 | mg/L | 5 | 7439-92-1 | |
| Selenium | 0.00337 | 0.005 | 0.00209 | mg/L | 5 | 7782-49-2 | b |
| Silver | 0.000184 | 0.0005 | 0.0000675 | mg/L | 5 | 7440-22-4 | b |
| Zinc | 0.021 | 0.005 | 0.000730 | mg/L | 5 | 7440-66-6 | |

Method: E245.1, Run Date: 12/19/22 22:40, Analyst: CTV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|----------|-------|----------|-----------|-------|
| Mercury | Not detected | 0.0002 | 0.000016 | mg/L | 1 | 7439-97-6 | |

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 04:58, Analyst: PL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------------|--------------|----|------|-------|----------|----------|-------|
| Acenaphthene | Not detected | 5 | 0.59 | ug/L | 2 | 83-32-9 | |
| Acenaphthylene | Not detected | 5 | 0.70 | ug/L | 2 | 208-96-8 | |
| Anthracene | Not detected | 5 | 0.71 | ug/L | 2 | 120-12-7 | |
| Benzo(a)anthracene | Not detected | 1 | 0.81 | ug/L | 2 | 56-55-3 | |
| Benzo(b)fluoranthene | Not detected | 1 | 0.78 | ug/L | 2 | 205-99-2 | |
| Benzo(k)fluoranthene | Not detected | 1 | 0.82 | ug/L | 2 | 207-08-9 | |
| Benzo(ghi)perylene | Not detected | 1 | 0.98 | ug/L | 2 | 191-24-2 | |
| Benzo(a)pyrene | Not detected | 1 | 1.0 | ug/L | 2 | 50-32-8 | |
| bis(2-Chloroethoxy)methane | Not detected | 5 | 0.61 | ug/L | 2 | 111-91-1 | |
| bis(2-Chloroethyl)ether | Not detected | 5 | 0.57 | ug/L | 2 | 111-44-4 | |
| bis(2-Chloroisopropyl)ether* | Not detected | 5 | 0.67 | ug/L | 2 | 108-60-1 | |
| bis(2-Ethylhexyl)phthalate | Not detected | 5 | 1.3 | ug/L | 2 | 117-81-7 | |
| 4-Bromophenyl phenyl ether | Not detected | 5 | 0.56 | ug/L | 2 | 101-55-3 | |
| Butyl benzyl phthalate | Not detected | 5 | 1.1 | ug/L | 2 | 85-68-7 | |

b-Value detected less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.01 (continued)

Sample Tag: VAS31-3-7

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 04:58, Analyst: PL (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------------------------|--------------|----|------|-------|----------|------------|-------|
| 4-Chloroaniline | Not detected | 10 | 0.58 | ug/L | 2 | 106-47-8 | |
| 2-Chloronaphthalene | Not detected | 5 | 0.56 | ug/L | 2 | 91-58-7 | |
| 4-Chloro-3-methylphenol | Not detected | 5 | 0.60 | ug/L | 2 | 59-50-7 | |
| 2-Chlorophenol | Not detected | 10 | 0.54 | ug/L | 2 | 95-57-8 | |
| 4-Chlorophenyl phenyl ether | Not detected | 5 | 0.52 | ug/L | 2 | 7005-72-3 | |
| Chrysene | Not detected | 1 | 0.61 | ug/L | 2 | 218-01-9 | |
| 3-, 4-Methylphenol (p,m-Cresol) | Not detected | 20 | 1.1 | ug/L | 2 | 3/4-CRESOL | |
| 2-Methylphenol (o-Cresol) | Not detected | 10 | 0.57 | ug/L | 2 | 95-48-7 | |
| Dibenzo(ah)anthracene | Not detected | 2 | 0.91 | ug/L | 2 | 53-70-3 | |
| Dibenzofuran | Not detected | 4 | 0.54 | ug/L | 2 | 132-64-9 | |
| di-n-Butyl phthalate | Not detected | 5 | 0.64 | ug/L | 2 | 84-74-2 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.50 | ug/L | 2 | 95-50-1 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.54 | ug/L | 2 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.51 | ug/L | 2 | 106-46-7 | |
| 3,3'-Dichlorobenzidine | Not detected | 5 | 1.6 | ug/L | 2 | 91-94-1 | |
| 2,4-Dichlorophenol | Not detected | 10 | 0.62 | ug/L | 2 | 120-83-2 | |
| Diethyl phthalate | Not detected | 5 | 0.72 | ug/L | 2 | 84-66-2 | |
| 2,4-Dimethylphenol | Not detected | 5 | 0.72 | ug/L | 2 | 105-67-9 | |
| Dimethyl phthalate | Not detected | 5 | 0.64 | ug/L | 2 | 131-11-3 | |
| 4,6-Dinitro-2-methylphenol | Not detected | 20 | 0.26 | ug/L | 2 | 534-52-1 | |
| 2,4-Dinitrophenol | Not detected | 25 | 0.18 | ug/L | 2 | 51-28-5 | |
| 2,4-Dinitrotoluene | Not detected | 5 | 0.56 | ug/L | 2 | 121-14-2 | |
| 2,6-Dinitrotoluene | Not detected | 5 | 0.62 | ug/L | 2 | 606-20-2 | |
| 1,2-Diphenylhydrazine* | Not detected | 5 | 0.64 | ug/L | 2 | 122-66-7 | |
| di-n-Octyl phthalate | Not detected | 5 | 1.4 | ug/L | 2 | 117-84-0 | |
| Fluoranthene | Not detected | 1 | 0.69 | ug/L | 2 | 206-44-0 | |
| Fluorene | Not detected | 5 | 0.65 | ug/L | 2 | 86-73-7 | |
| Hexachlorobenzene | Not detected | 5 | 0.65 | ug/L | 2 | 118-74-1 | |
| Hexachlorobutadiene | Not detected | 10 | 0.60 | ug/L | 2 | 87-68-3 | |
| Hexachlorocyclopentadiene* | Not detected | 5 | 0.30 | ug/L | 2 | 77-47-4 | |
| Hexachloroethane | Not detected | 5 | 0.54 | ug/L | 2 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | Not detected | 2 | 0.91 | ug/L | 2 | 193-39-5 | |
| Isophorone | Not detected | 5 | 0.62 | ug/L | 2 | 78-59-1 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.50 | ug/L | 2 | 91-57-6 | |
| Naphthalene | Not detected | 5 | 0.64 | ug/L | 2 | 91-20-3 | |
| 2-Nitroaniline | Not detected | 25 | 0.50 | ug/L | 2 | 88-74-4 | |
| 3-Nitroaniline | Not detected | 25 | 0.48 | ug/L | 2 | 99-09-2 | |
| 4-Nitroaniline | Not detected | 25 | 0.47 | ug/L | 2 | 100-01-6 | |
| Nitrobenzene | Not detected | 5 | 0.81 | ug/L | 2 | 98-95-3 | |
| 2-Nitrophenol | Not detected | 5 | 0.46 | ug/L | 2 | 88-75-5 | |
| 4-Nitrophenol | Not detected | 25 | 0.65 | ug/L | 2 | 100-02-7 | |
| N-Nitrosodiphenylamine | Not detected | 5 | 0.73 | ug/L | 2 | 86-30-6 | |
| N-Nitrosodi-n-propylamine | Not detected | 5 | 0.75 | ug/L | 2 | 621-64-7 | |
| Pentachlorophenol | Not detected | 5 | 0.42 | ug/L | 2 | 87-86-5 | |
| Phenanthrene | Not detected | 2 | 0.73 | ug/L | 2 | 85-01-8 | |
| Phenol | Not detected | 5 | 0.61 | ug/L | 2 | 108-95-2 | |
| Pyrene | Not detected | 5 | 0.85 | ug/L | 2 | 129-00-0 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.66 | ug/L | 2 | 120-82-1 | |
| 2,4,5-Trichlorophenol | Not detected | 5 | 0.66 | ug/L | 2 | 95-95-4 | |
| 2,4,6-Trichlorophenol | Not detected | 4 | 0.56 | ug/L | 2 | 88-06-2 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.01 (continued)

Sample Tag: VAS31-3-7

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/19/22 15:35, Analyst: KAG

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|--------------------------------|--------------|----|------|-------|----------|------------|-------|
| Diethyl ether | Not detected | 10 | 0.50 | ug/L | 1 | 60-29-7 | |
| Acetone | 2.95 | 50 | 0.56 | ug/L | 1 | 67-64-1 | J |
| Methyl iodide | Not detected | 1 | 0.25 | ug/L | 1 | 74-88-4 | |
| Carbon disulfide | Not detected | 5 | 0.24 | ug/L | 1 | 75-15-0 | |
| tert-Methyl butyl ether (MTBE) | Not detected | 5 | 0.19 | ug/L | 1 | 1634-04-4 | |
| Acrylonitrile | Not detected | 2 | 0.57 | ug/L | 1 | 107-13-1 | |
| 2-Butanone (MEK) | Not detected | 25 | 0.26 | ug/L | 1 | 78-93-3 | |
| Dichlorodifluoromethane | Not detected | 5 | 0.50 | ug/L | 1 | 75-71-8 | |
| Chloromethane | Not detected | 5 | 0.26 | ug/L | 1 | 74-87-3 | |
| Vinyl chloride | Not detected | 1 | 0.31 | ug/L | 1 | 75-01-4 | |
| Bromomethane | Not detected | 5 | 0.32 | ug/L | 1 | 74-83-9 | |
| Chloroethane | Not detected | 5 | 0.34 | ug/L | 1 | 75-00-3 | |
| Trichlorofluoromethane | Not detected | 1 | 0.33 | ug/L | 1 | 75-69-4 | |
| 1,1-Dichloroethene | Not detected | 1 | 0.27 | ug/L | 1 | 75-35-4 | |
| Methylene chloride | Not detected | 5 | 0.29 | ug/L | 1 | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | 1 | 0.20 | ug/L | 1 | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | 1 | 0.20 | ug/L | 1 | 75-34-3 | |
| cis-1,2-Dichloroethene | 0.26 | 1 | 0.26 | ug/L | 1 | 156-59-2 | J |
| Tetrahydrofuran* | Not detected | 90 | 1.3 | ug/L | 1 | 109-99-9 | |
| Chloroform | Not detected | 1 | 0.20 | ug/L | 1 | 67-66-3 | |
| Bromochloromethane | Not detected | 1 | 0.38 | ug/L | 1 | 74-97-5 | |
| 1,1,1-Trichloroethane | Not detected | 1 | 0.28 | ug/L | 1 | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | 50 | 0.14 | ug/L | 1 | 108-10-1 | |
| 2-Hexanone | Not detected | 50 | 0.29 | ug/L | 1 | 591-78-6 | |
| Carbon tetrachloride | Not detected | 1 | 0.20 | ug/L | 1 | 56-23-5 | |
| Benzene | Not detected | 1 | 0.20 | ug/L | 1 | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | 1 | 0.16 | ug/L | 1 | 107-06-2 | |
| Trichloroethene | Not detected | 1 | 0.23 | ug/L | 1 | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | 1 | 0.20 | ug/L | 1 | 78-87-5 | |
| Bromodichloromethane | Not detected | 1 | 0.23 | ug/L | 1 | 75-27-4 | |
| Dibromomethane | Not detected | 5 | 0.20 | ug/L | 1 | 74-95-3 | |
| cis-1,3-Dichloropropene | Not detected | 1 | 0.19 | ug/L | 1 | 10061-01-5 | |
| Toluene | Not detected | 1 | 0.25 | ug/L | 1 | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | 1 | 0.25 | ug/L | 1 | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | 1 | 0.28 | ug/L | 1 | 79-00-5 | |
| Tetrachloroethene | Not detected | 1 | 0.20 | ug/L | 1 | 127-18-4 | |
| trans-1,4-Dichloro-2-butene | Not detected | 1 | 0.20 | ug/L | 1 | 110-57-6 | |
| Dibromochloromethane | Not detected | 5 | 0.24 | ug/L | 1 | 124-48-1 | |
| 1,2-Dibromoethane | Not detected | 1 | 0.30 | ug/L | 1 | 106-93-4 | |
| Chlorobenzene | 0.28 | 1 | 0.17 | ug/L | 1 | 108-90-7 | J |
| 1,1,1,2-Tetrachloroethane | Not detected | 1 | 0.24 | ug/L | 1 | 630-20-6 | |
| Ethylbenzene | Not detected | 1 | 0.26 | ug/L | 1 | 100-41-4 | |
| p,m-Xylene* | Not detected | 2 | 0.41 | ug/L | 1 | | |
| o-Xylene | Not detected | 1 | 0.25 | ug/L | 1 | 95-47-6 | |
| Styrene | Not detected | 1 | 0.18 | ug/L | 1 | 100-42-5 | |
| Isopropylbenzene | Not detected | 5 | 0.25 | ug/L | 1 | 98-82-8 | |
| Bromoform | Not detected | 1 | 0.22 | ug/L | 1 | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | 1 | 0.18 | ug/L | 1 | 79-34-5 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.01 (continued)

Sample Tag: VAS31-3-7

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/19/22 15:35, Analyst: KAG (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------------------|--------------|----|-------|-------|----------|----------|-------|
| 1,2,3-Trichloropropane | Not detected | 1 | 0.33 | ug/L | 1 | 96-18-4 | |
| n-Propylbenzene | Not detected | 1 | 0.23 | ug/L | 1 | 103-65-1 | |
| Bromobenzene | Not detected | 1 | 0.27 | ug/L | 1 | 108-86-1 | |
| 1,3,5-Trimethylbenzene | Not detected | 1 | 0.26 | ug/L | 1 | 108-67-8 | |
| tert-Butylbenzene | Not detected | 1 | 0.18 | ug/L | 1 | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | 1 | 0.22 | ug/L | 1 | 95-63-6 | |
| sec-Butylbenzene | Not detected | 1 | 0.25 | ug/L | 1 | 135-98-8 | |
| p-Isopropyltoluene | Not detected | 5 | 0.21 | ug/L | 1 | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.24 | ug/L | 1 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.23 | ug/L | 1 | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.28 | ug/L | 1 | 95-50-1 | |
| 1,2,3-Trimethylbenzene | Not detected | 1 | 0.061 | ug/L | 1 | 526-73-8 | |
| n-Butylbenzene | Not detected | 1 | 0.22 | ug/L | 1 | 104-51-8 | |
| Hexachloroethane | Not detected | 5 | 0.21 | ug/L | 1 | 67-72-1 | |
| 1,2-Dibromo-3-chloropropane | Not detected | 5 | 0.47 | ug/L | 1 | 96-12-8 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.19 | ug/L | 1 | 120-82-1 | |
| 1,2,3-Trichlorobenzene | Not detected | 5 | 0.20 | ug/L | 1 | 87-61-6 | |
| Naphthalene | Not detected | 5 | 0.21 | ug/L | 1 | 91-20-3 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.16 | ug/L | 1 | 91-57-6 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.02

Sample Tag: VAS32-3-7

Collected Date/Time: 12/12/2022 17:00

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 1L Amber | None | Yes | 3.2 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 3.2 | IR |
| 3 | 40ml Glass | HCL | Yes | 3.2 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1 | 12/19/22 23:45 | CTV | |
| pH check for VOCs* | <2 | N/A | 12/20/22 12:30 | BDO | |
| Metal Digestion | Completed | SW3015A | 12/16/22 09:50 | CCM | |
| BNA Extraction | Completed | SW3510C | 12/19/22 10:30 | JWR | |

Metals

Method: E200.8, Run Date: 12/16/22 11:34, Analyst: CCM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|-----------|-------|----------|-----------|-------|
| Arsenic | 0.002 | 0.002 | 0.000255 | mg/L | 5 | 7440-38-2 | |
| Barium | 0.970 | 0.005 | 0.000162 | mg/L | 5 | 7440-39-3 | |
| Cadmium | 0.000442 | 0.0005 | 0.000190 | mg/L | 5 | 7440-43-9 | b |
| Chromium | 0.00153 | 0.005 | 0.0000965 | mg/L | 5 | 7440-47-3 | b |
| Copper | 0.006 | 0.005 | 0.000377 | mg/L | 5 | 7440-50-8 | |
| Lead | 0.009 | 0.003 | 0.000190 | mg/L | 5 | 7439-92-1 | |
| Selenium | Not detected | 0.005 | 0.00209 | mg/L | 5 | 7782-49-2 | |
| Silver | 0.000076 | 0.0005 | 0.0000675 | mg/L | 5 | 7440-22-4 | b |
| Zinc | 0.100 | 0.005 | 0.000730 | mg/L | 5 | 7440-66-6 | |

Method: E245.1, Run Date: 12/19/22 22:44, Analyst: CTV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|----------|-------|----------|-----------|-------|
| Mercury | Not detected | 0.0002 | 0.000016 | mg/L | 1 | 7439-97-6 | |

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 05:29, Analyst: PL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------------|--------------|----|------|-------|----------|----------|-------|
| Acenaphthene | Not detected | 5 | 0.58 | ug/L | 2 | 83-32-9 | |
| Acenaphthylene | Not detected | 5 | 0.69 | ug/L | 2 | 208-96-8 | |
| Anthracene | Not detected | 5 | 0.71 | ug/L | 2 | 120-12-7 | |
| Benzo(a)anthracene | Not detected | 1 | 0.80 | ug/L | 2 | 56-55-3 | |
| Benzo(b)fluoranthene | Not detected | 1 | 0.77 | ug/L | 2 | 205-99-2 | |
| Benzo(k)fluoranthene | Not detected | 1 | 0.81 | ug/L | 2 | 207-08-9 | |
| Benzo(ghi)perylene | Not detected | 1 | 0.97 | ug/L | 2 | 191-24-2 | |
| Benzo(a)pyrene | Not detected | 1 | 0.99 | ug/L | 2 | 50-32-8 | |
| bis(2-Chloroethoxy)methane | Not detected | 5 | 0.60 | ug/L | 2 | 111-91-1 | |
| bis(2-Chloroethyl)ether | Not detected | 5 | 0.57 | ug/L | 2 | 111-44-4 | |
| bis(2-Chloroisopropyl)ether* | Not detected | 5 | 0.67 | ug/L | 2 | 108-60-1 | |
| bis(2-Ethylhexyl)phthalate | Not detected | 5 | 1.3 | ug/L | 2 | 117-81-7 | |
| 4-Bromophenyl phenyl ether | Not detected | 5 | 0.55 | ug/L | 2 | 101-55-3 | |
| Butyl benzyl phthalate | Not detected | 5 | 1.0 | ug/L | 2 | 85-68-7 | |

b-Value detected less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.02 (continued)

Sample Tag: VAS32-3-7

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 05:29, Analyst: PL (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------------------------|--------------|----|------|-------|----------|------------|-------|
| 4-Chloroaniline | Not detected | 10 | 0.57 | ug/L | 2 | 106-47-8 | |
| 2-Chloronaphthalene | Not detected | 5 | 0.55 | ug/L | 2 | 91-58-7 | |
| 4-Chloro-3-methylphenol | Not detected | 5 | 0.60 | ug/L | 2 | 59-50-7 | |
| 2-Chlorophenol | Not detected | 10 | 0.53 | ug/L | 2 | 95-57-8 | |
| 4-Chlorophenyl phenyl ether | Not detected | 5 | 0.51 | ug/L | 2 | 7005-72-3 | |
| Chrysene | Not detected | 1 | 0.60 | ug/L | 2 | 218-01-9 | |
| 3-, 4-Methylphenol (p,m-Cresol) | Not detected | 20 | 1.1 | ug/L | 2 | 3/4-CRESOL | |
| 2-Methylphenol (o-Cresol) | Not detected | 10 | 0.57 | ug/L | 2 | 95-48-7 | |
| Dibenzo(ah)anthracene | Not detected | 2 | 0.90 | ug/L | 2 | 53-70-3 | |
| Dibenzofuran | Not detected | 4 | 0.54 | ug/L | 2 | 132-64-9 | |
| di-n-Butyl phthalate | Not detected | 5 | 0.64 | ug/L | 2 | 84-74-2 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.50 | ug/L | 2 | 95-50-1 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.54 | ug/L | 2 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.51 | ug/L | 2 | 106-46-7 | |
| 3,3'-Dichlorobenzidine | Not detected | 5 | 1.6 | ug/L | 2 | 91-94-1 | |
| 2,4-Dichlorophenol | Not detected | 10 | 0.61 | ug/L | 2 | 120-83-2 | |
| Diethyl phthalate | Not detected | 5 | 0.72 | ug/L | 2 | 84-66-2 | |
| 2,4-Dimethylphenol | Not detected | 5 | 0.71 | ug/L | 2 | 105-67-9 | |
| Dimethyl phthalate | Not detected | 5 | 0.63 | ug/L | 2 | 131-11-3 | |
| 4,6-Dinitro-2-methylphenol | Not detected | 20 | 0.26 | ug/L | 2 | 534-52-1 | |
| 2,4-Dinitrophenol | Not detected | 25 | 0.18 | ug/L | 2 | 51-28-5 | |
| 2,4-Dinitrotoluene | Not detected | 5 | 0.56 | ug/L | 2 | 121-14-2 | |
| 2,6-Dinitrotoluene | Not detected | 5 | 0.61 | ug/L | 2 | 606-20-2 | |
| 1,2-Diphenylhydrazine* | Not detected | 5 | 0.63 | ug/L | 2 | 122-66-7 | |
| di-n-Octyl phthalate | Not detected | 5 | 1.4 | ug/L | 2 | 117-84-0 | |
| Fluoranthene | Not detected | 1 | 0.68 | ug/L | 2 | 206-44-0 | |
| Fluorene | Not detected | 5 | 0.64 | ug/L | 2 | 86-73-7 | |
| Hexachlorobenzene | Not detected | 5 | 0.65 | ug/L | 2 | 118-74-1 | |
| Hexachlorobutadiene | Not detected | 10 | 0.59 | ug/L | 2 | 87-68-3 | |
| Hexachlorocyclopentadiene* | Not detected | 5 | 0.30 | ug/L | 2 | 77-47-4 | |
| Hexachloroethane | Not detected | 5 | 0.54 | ug/L | 2 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | Not detected | 2 | 0.90 | ug/L | 2 | 193-39-5 | |
| Isophorone | Not detected | 5 | 0.62 | ug/L | 2 | 78-59-1 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.50 | ug/L | 2 | 91-57-6 | |
| Naphthalene | Not detected | 5 | 0.63 | ug/L | 2 | 91-20-3 | |
| 2-Nitroaniline | Not detected | 25 | 0.50 | ug/L | 2 | 88-74-4 | |
| 3-Nitroaniline | Not detected | 25 | 0.48 | ug/L | 2 | 99-09-2 | |
| 4-Nitroaniline | Not detected | 25 | 0.47 | ug/L | 2 | 100-01-6 | |
| Nitrobenzene | Not detected | 5 | 0.81 | ug/L | 2 | 98-95-3 | |
| 2-Nitrophenol | Not detected | 5 | 0.46 | ug/L | 2 | 88-75-5 | |
| 4-Nitrophenol | Not detected | 25 | 0.64 | ug/L | 2 | 100-02-7 | |
| N-Nitrosodiphenylamine | Not detected | 5 | 0.72 | ug/L | 2 | 86-30-6 | |
| N-Nitrosodi-n-propylamine | Not detected | 5 | 0.74 | ug/L | 2 | 621-64-7 | |
| Pentachlorophenol | Not detected | 5 | 0.42 | ug/L | 2 | 87-86-5 | |
| Phenanthrene | Not detected | 2 | 0.72 | ug/L | 2 | 85-01-8 | |
| Phenol | Not detected | 5 | 0.60 | ug/L | 2 | 108-95-2 | |
| Pyrene | Not detected | 5 | 0.84 | ug/L | 2 | 129-00-0 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.65 | ug/L | 2 | 120-82-1 | |
| 2,4,5-Trichlorophenol | Not detected | 5 | 0.66 | ug/L | 2 | 95-95-4 | |
| 2,4,6-Trichlorophenol | Not detected | 4 | 0.55 | ug/L | 2 | 88-06-2 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.02 (continued)

Sample Tag: VAS32-3-7

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/19/22 15:59, Analyst: KAG

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|--------------------------------|--------------|----|------|-------|----------|------------|-------|
| Diethyl ether | 6.34 | 10 | 0.50 | ug/L | 1 | 60-29-7 | J |
| Acetone | 2.54 | 50 | 0.56 | ug/L | 1 | 67-64-1 | J |
| Methyl iodide | Not detected | 1 | 0.25 | ug/L | 1 | 74-88-4 | |
| Carbon disulfide | Not detected | 5 | 0.24 | ug/L | 1 | 75-15-0 | |
| tert-Methyl butyl ether (MTBE) | Not detected | 5 | 0.19 | ug/L | 1 | 1634-04-4 | |
| Acrylonitrile | Not detected | 2 | 0.57 | ug/L | 1 | 107-13-1 | |
| 2-Butanone (MEK) | Not detected | 25 | 0.26 | ug/L | 1 | 78-93-3 | |
| Dichlorodifluoromethane | Not detected | 5 | 0.50 | ug/L | 1 | 75-71-8 | |
| Chloromethane | Not detected | 5 | 0.26 | ug/L | 1 | 74-87-3 | |
| Vinyl chloride | 0.38 | 1 | 0.31 | ug/L | 1 | 75-01-4 | J |
| Bromomethane | Not detected | 5 | 0.32 | ug/L | 1 | 74-83-9 | |
| Chloroethane | Not detected | 5 | 0.34 | ug/L | 1 | 75-00-3 | |
| Trichlorofluoromethane | Not detected | 1 | 0.33 | ug/L | 1 | 75-69-4 | |
| 1,1-Dichloroethene | Not detected | 1 | 0.27 | ug/L | 1 | 75-35-4 | |
| Methylene chloride | Not detected | 5 | 0.29 | ug/L | 1 | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | 1 | 0.20 | ug/L | 1 | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | 1 | 0.20 | ug/L | 1 | 75-34-3 | |
| cis-1,2-Dichloroethene | 1 | 1 | 0.26 | ug/L | 1 | 156-59-2 | |
| Tetrahydrofuran* | Not detected | 90 | 1.3 | ug/L | 1 | 109-99-9 | |
| Chloroform | Not detected | 1 | 0.20 | ug/L | 1 | 67-66-3 | |
| Bromochloromethane | Not detected | 1 | 0.38 | ug/L | 1 | 74-97-5 | |
| 1,1,1-Trichloroethane | Not detected | 1 | 0.28 | ug/L | 1 | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | 50 | 0.14 | ug/L | 1 | 108-10-1 | |
| 2-Hexanone | Not detected | 50 | 0.29 | ug/L | 1 | 591-78-6 | |
| Carbon tetrachloride | Not detected | 1 | 0.20 | ug/L | 1 | 56-23-5 | |
| Benzene | Not detected | 1 | 0.20 | ug/L | 1 | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | 1 | 0.16 | ug/L | 1 | 107-06-2 | |
| Trichloroethene | Not detected | 1 | 0.23 | ug/L | 1 | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | 1 | 0.20 | ug/L | 1 | 78-87-5 | |
| Bromodichloromethane | Not detected | 1 | 0.23 | ug/L | 1 | 75-27-4 | |
| Dibromomethane | Not detected | 5 | 0.20 | ug/L | 1 | 74-95-3 | |
| cis-1,3-Dichloropropene | Not detected | 1 | 0.19 | ug/L | 1 | 10061-01-5 | |
| Toluene | Not detected | 1 | 0.25 | ug/L | 1 | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | 1 | 0.25 | ug/L | 1 | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | 1 | 0.28 | ug/L | 1 | 79-00-5 | |
| Tetrachloroethene | Not detected | 1 | 0.20 | ug/L | 1 | 127-18-4 | |
| trans-1,4-Dichloro-2-butene | Not detected | 1 | 0.20 | ug/L | 1 | 110-57-6 | |
| Dibromochloromethane | Not detected | 5 | 0.24 | ug/L | 1 | 124-48-1 | |
| 1,2-Dibromoethane | Not detected | 1 | 0.30 | ug/L | 1 | 106-93-4 | |
| Chlorobenzene | Not detected | 1 | 0.17 | ug/L | 1 | 108-90-7 | |
| 1,1,1,2-Tetrachloroethane | Not detected | 1 | 0.24 | ug/L | 1 | 630-20-6 | |
| Ethylbenzene | Not detected | 1 | 0.26 | ug/L | 1 | 100-41-4 | |
| p,m-Xylene* | Not detected | 2 | 0.41 | ug/L | 1 | | |
| o-Xylene | Not detected | 1 | 0.25 | ug/L | 1 | 95-47-6 | |
| Styrene | Not detected | 1 | 0.18 | ug/L | 1 | 100-42-5 | |
| Isopropylbenzene | Not detected | 5 | 0.25 | ug/L | 1 | 98-82-8 | |
| Bromoform | Not detected | 1 | 0.22 | ug/L | 1 | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | 1 | 0.18 | ug/L | 1 | 79-34-5 | |

J-Estimated value less than reporting limit, but greater than MDL



Lab Sample ID: S43512.02 (continued)

Sample Tag: VAS32-3-7

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/19/22 15:59, Analyst: KAG (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------------------|--------------|----|-------|-------|----------|----------|-------|
| 1,2,3-Trichloropropane | Not detected | 1 | 0.33 | ug/L | 1 | 96-18-4 | |
| n-Propylbenzene | Not detected | 1 | 0.23 | ug/L | 1 | 103-65-1 | |
| Bromobenzene | Not detected | 1 | 0.27 | ug/L | 1 | 108-86-1 | |
| 1,3,5-Trimethylbenzene | Not detected | 1 | 0.26 | ug/L | 1 | 108-67-8 | |
| tert-Butylbenzene | Not detected | 1 | 0.18 | ug/L | 1 | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | 1 | 0.22 | ug/L | 1 | 95-63-6 | |
| sec-Butylbenzene | Not detected | 1 | 0.25 | ug/L | 1 | 135-98-8 | |
| p-Isopropyltoluene | Not detected | 5 | 0.21 | ug/L | 1 | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.24 | ug/L | 1 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.23 | ug/L | 1 | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.28 | ug/L | 1 | 95-50-1 | |
| 1,2,3-Trimethylbenzene | Not detected | 1 | 0.061 | ug/L | 1 | 526-73-8 | |
| n-Butylbenzene | Not detected | 1 | 0.22 | ug/L | 1 | 104-51-8 | |
| Hexachloroethane | Not detected | 5 | 0.21 | ug/L | 1 | 67-72-1 | |
| 1,2-Dibromo-3-chloropropane | Not detected | 5 | 0.47 | ug/L | 1 | 96-12-8 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.19 | ug/L | 1 | 120-82-1 | |
| 1,2,3-Trichlorobenzene | Not detected | 5 | 0.20 | ug/L | 1 | 87-61-6 | |
| Naphthalene | Not detected | 5 | 0.21 | ug/L | 1 | 91-20-3 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.16 | ug/L | 1 | 91-57-6 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.03

Sample Tag: VAS33-3-7

Collected Date/Time: 12/13/2022 10:05

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 1L Amber | None | Yes | 3.2 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 3.2 | IR |
| 3 | 40ml Glass | HCL | Yes | 3.2 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1 | 12/19/22 23:45 | CTV | |
| pH check for VOCs* | <2 | N/A | 12/20/22 12:30 | BDO | |
| Metal Digestion | Completed | SW3015A | 12/16/22 09:50 | CCM | |
| BNA Extraction | Completed | SW3510C | 12/19/22 10:30 | JWR | |

Metals

Method: E200.8, Run Date: 12/16/22 11:36, Analyst: CCM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|----------|--------|-----------|-------|----------|-----------|-------|
| Arsenic | 0.005 | 0.002 | 0.000255 | mg/L | 5 | 7440-38-2 | |
| Barium | 0.947 | 0.005 | 0.000162 | mg/L | 5 | 7440-39-3 | |
| Cadmium | 0.0122 | 0.0005 | 0.000190 | mg/L | 5 | 7440-43-9 | |
| Chromium | 0.041 | 0.005 | 0.0000965 | mg/L | 5 | 7440-47-3 | |
| Copper | 0.030 | 0.005 | 0.000377 | mg/L | 5 | 7440-50-8 | |
| Lead | 0.119 | 0.003 | 0.000190 | mg/L | 5 | 7439-92-1 | |
| Selenium | 0.00460 | 0.005 | 0.00209 | mg/L | 5 | 7782-49-2 | b |
| Silver | 0.000434 | 0.0005 | 0.0000675 | mg/L | 5 | 7440-22-4 | b |
| Zinc | 0.240 | 0.005 | 0.000730 | mg/L | 5 | 7440-66-6 | |

Method: E245.1, Run Date: 12/19/22 22:48, Analyst: CTV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|----------|-------|----------|-----------|-------|
| Mercury | Not detected | 0.0002 | 0.000016 | mg/L | 1 | 7439-97-6 | |

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 05:59, Analyst: PL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------------|--------------|----|------|-------|----------|----------|-------|
| Acenaphthene | Not detected | 5 | 0.60 | ug/L | 2 | 83-32-9 | |
| Acenaphthylene | Not detected | 5 | 0.70 | ug/L | 2 | 208-96-8 | |
| Anthracene | Not detected | 5 | 0.72 | ug/L | 2 | 120-12-7 | |
| Benzo(a)anthracene | Not detected | 1 | 0.82 | ug/L | 2 | 56-55-3 | |
| Benzo(b)fluoranthene | Not detected | 1 | 0.79 | ug/L | 2 | 205-99-2 | |
| Benzo(k)fluoranthene | Not detected | 1 | 0.83 | ug/L | 2 | 207-08-9 | |
| Benzo(ghi)perylene | Not detected | 1 | 0.99 | ug/L | 2 | 191-24-2 | |
| Benzo(a)pyrene | Not detected | 1 | 1.0 | ug/L | 2 | 50-32-8 | |
| bis(2-Chloroethoxy)methane | Not detected | 5 | 0.62 | ug/L | 2 | 111-91-1 | |
| bis(2-Chloroethyl)ether | Not detected | 5 | 0.58 | ug/L | 2 | 111-44-4 | |
| bis(2-Chloroisopropyl)ether* | Not detected | 5 | 0.68 | ug/L | 2 | 108-60-1 | |
| bis(2-Ethylhexyl)phthalate | Not detected | 5 | 1.4 | ug/L | 2 | 117-81-7 | |
| 4-Bromophenyl phenyl ether | Not detected | 5 | 0.56 | ug/L | 2 | 101-55-3 | |
| Butyl benzyl phthalate | Not detected | 5 | 1.1 | ug/L | 2 | 85-68-7 | |

b-Value detected less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.03 (continued)

Sample Tag: VAS33-3-7

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 05:59, Analyst: PL (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------------------------|--------------|----|------|-------|----------|------------|-------|
| 4-Chloroaniline | Not detected | 10 | 0.58 | ug/L | 2 | 106-47-8 | |
| 2-Chloronaphthalene | Not detected | 5 | 0.57 | ug/L | 2 | 91-58-7 | |
| 4-Chloro-3-methylphenol | Not detected | 5 | 0.61 | ug/L | 2 | 59-50-7 | |
| 2-Chlorophenol | Not detected | 10 | 0.54 | ug/L | 2 | 95-57-8 | |
| 4-Chlorophenyl phenyl ether | Not detected | 5 | 0.52 | ug/L | 2 | 7005-72-3 | |
| Chrysene | Not detected | 1 | 0.62 | ug/L | 2 | 218-01-9 | |
| 3-, 4-Methylphenol (p,m-Cresol) | Not detected | 20 | 1.1 | ug/L | 2 | 3/4-CRESOL | |
| 2-Methylphenol (o-Cresol) | Not detected | 10 | 0.58 | ug/L | 2 | 95-48-7 | |
| Dibenzo(ah)anthracene | Not detected | 2 | 0.92 | ug/L | 2 | 53-70-3 | |
| Dibenzofuran | Not detected | 4 | 0.55 | ug/L | 2 | 132-64-9 | |
| di-n-Butyl phthalate | Not detected | 5 | 0.65 | ug/L | 2 | 84-74-2 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.51 | ug/L | 2 | 95-50-1 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.55 | ug/L | 2 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.52 | ug/L | 2 | 106-46-7 | |
| 3,3'-Dichlorobenzidine | Not detected | 5 | 1.6 | ug/L | 2 | 91-94-1 | |
| 2,4-Dichlorophenol | Not detected | 10 | 0.63 | ug/L | 2 | 120-83-2 | |
| Diethyl phthalate | Not detected | 5 | 0.73 | ug/L | 2 | 84-66-2 | |
| 2,4-Dimethylphenol | Not detected | 5 | 0.73 | ug/L | 2 | 105-67-9 | |
| Dimethyl phthalate | Not detected | 5 | 0.65 | ug/L | 2 | 131-11-3 | |
| 4,6-Dinitro-2-methylphenol | Not detected | 20 | 0.26 | ug/L | 2 | 534-52-1 | |
| 2,4-Dinitrophenol | Not detected | 25 | 0.18 | ug/L | 2 | 51-28-5 | |
| 2,4-Dinitrotoluene | Not detected | 5 | 0.57 | ug/L | 2 | 121-14-2 | |
| 2,6-Dinitrotoluene | Not detected | 5 | 0.63 | ug/L | 2 | 606-20-2 | |
| 1,2-Diphenylhydrazine* | Not detected | 5 | 0.64 | ug/L | 2 | 122-66-7 | |
| di-n-Octyl phthalate | Not detected | 5 | 1.4 | ug/L | 2 | 117-84-0 | |
| Fluoranthene | Not detected | 1 | 0.70 | ug/L | 2 | 206-44-0 | |
| Fluorene | Not detected | 5 | 0.65 | ug/L | 2 | 86-73-7 | |
| Hexachlorobenzene | Not detected | 5 | 0.66 | ug/L | 2 | 118-74-1 | |
| Hexachlorobutadiene | Not detected | 10 | 0.61 | ug/L | 2 | 87-68-3 | |
| Hexachlorocyclopentadiene* | Not detected | 5 | 0.31 | ug/L | 2 | 77-47-4 | |
| Hexachloroethane | Not detected | 5 | 0.55 | ug/L | 2 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | Not detected | 2 | 0.92 | ug/L | 2 | 193-39-5 | |
| Isophorone | Not detected | 5 | 0.63 | ug/L | 2 | 78-59-1 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.51 | ug/L | 2 | 91-57-6 | |
| Naphthalene | Not detected | 5 | 0.65 | ug/L | 2 | 91-20-3 | |
| 2-Nitroaniline | Not detected | 25 | 0.51 | ug/L | 2 | 88-74-4 | |
| 3-Nitroaniline | Not detected | 25 | 0.49 | ug/L | 2 | 99-09-2 | |
| 4-Nitroaniline | Not detected | 25 | 0.48 | ug/L | 2 | 100-01-6 | |
| Nitrobenzene | Not detected | 5 | 0.82 | ug/L | 2 | 98-95-3 | |
| 2-Nitrophenol | Not detected | 5 | 0.47 | ug/L | 2 | 88-75-5 | |
| 4-Nitrophenol | Not detected | 25 | 0.65 | ug/L | 2 | 100-02-7 | |
| N-Nitrosodiphenylamine | Not detected | 5 | 0.74 | ug/L | 2 | 86-30-6 | |
| N-Nitrosodi-n-propylamine | Not detected | 5 | 0.76 | ug/L | 2 | 621-64-7 | |
| Pentachlorophenol | Not detected | 5 | 0.43 | ug/L | 2 | 87-86-5 | |
| Phenanthrene | Not detected | 2 | 0.74 | ug/L | 2 | 85-01-8 | |
| Phenol | Not detected | 5 | 0.62 | ug/L | 2 | 108-95-2 | |
| Pyrene | Not detected | 5 | 0.86 | ug/L | 2 | 129-00-0 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.66 | ug/L | 2 | 120-82-1 | |
| 2,4,5-Trichlorophenol | Not detected | 5 | 0.67 | ug/L | 2 | 95-95-4 | |
| 2,4,6-Trichlorophenol | Not detected | 4 | 0.57 | ug/L | 2 | 88-06-2 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.03 (continued)

Sample Tag: VAS33-3-7

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/19/22 16:22, Analyst: KAG

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|--------------------------------|--------------|----|------|-------|----------|------------|-------|
| Diethyl ether | Not detected | 10 | 0.50 | ug/L | 1 | 60-29-7 | |
| Acetone | 2.34 | 50 | 0.56 | ug/L | 1 | 67-64-1 | J |
| Methyl iodide | Not detected | 1 | 0.25 | ug/L | 1 | 74-88-4 | |
| Carbon disulfide | Not detected | 5 | 0.24 | ug/L | 1 | 75-15-0 | |
| tert-Methyl butyl ether (MTBE) | Not detected | 5 | 0.19 | ug/L | 1 | 1634-04-4 | |
| Acrylonitrile | Not detected | 2 | 0.57 | ug/L | 1 | 107-13-1 | |
| 2-Butanone (MEK) | Not detected | 25 | 0.26 | ug/L | 1 | 78-93-3 | |
| Dichlorodifluoromethane | Not detected | 5 | 0.50 | ug/L | 1 | 75-71-8 | |
| Chloromethane | Not detected | 5 | 0.26 | ug/L | 1 | 74-87-3 | |
| Vinyl chloride | Not detected | 1 | 0.31 | ug/L | 1 | 75-01-4 | |
| Bromomethane | Not detected | 5 | 0.32 | ug/L | 1 | 74-83-9 | |
| Chloroethane | Not detected | 5 | 0.34 | ug/L | 1 | 75-00-3 | |
| Trichlorofluoromethane | Not detected | 1 | 0.33 | ug/L | 1 | 75-69-4 | |
| 1,1-Dichloroethene | Not detected | 1 | 0.27 | ug/L | 1 | 75-35-4 | |
| Methylene chloride | Not detected | 5 | 0.29 | ug/L | 1 | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | 1 | 0.20 | ug/L | 1 | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | 1 | 0.20 | ug/L | 1 | 75-34-3 | |
| cis-1,2-Dichloroethene | 0.38 | 1 | 0.26 | ug/L | 1 | 156-59-2 | J |
| Tetrahydrofuran* | 32.0 | 90 | 1.3 | ug/L | 1 | 109-99-9 | J |
| Chloroform | Not detected | 1 | 0.20 | ug/L | 1 | 67-66-3 | |
| Bromochloromethane | Not detected | 1 | 0.38 | ug/L | 1 | 74-97-5 | |
| 1,1,1-Trichloroethane | Not detected | 1 | 0.28 | ug/L | 1 | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | 50 | 0.14 | ug/L | 1 | 108-10-1 | |
| 2-Hexanone | Not detected | 50 | 0.29 | ug/L | 1 | 591-78-6 | |
| Carbon tetrachloride | Not detected | 1 | 0.20 | ug/L | 1 | 56-23-5 | |
| Benzene | 0.52 | 1 | 0.20 | ug/L | 1 | 71-43-2 | J |
| 1,2-Dichloroethane | Not detected | 1 | 0.16 | ug/L | 1 | 107-06-2 | |
| Trichloroethene | 0.32 | 1 | 0.23 | ug/L | 1 | 79-01-6 | J |
| 1,2-Dichloropropane | Not detected | 1 | 0.20 | ug/L | 1 | 78-87-5 | |
| Bromodichloromethane | Not detected | 1 | 0.23 | ug/L | 1 | 75-27-4 | |
| Dibromomethane | Not detected | 5 | 0.20 | ug/L | 1 | 74-95-3 | |
| cis-1,3-Dichloropropene | Not detected | 1 | 0.19 | ug/L | 1 | 10061-01-5 | |
| Toluene | Not detected | 1 | 0.25 | ug/L | 1 | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | 1 | 0.25 | ug/L | 1 | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | 1 | 0.28 | ug/L | 1 | 79-00-5 | |
| Tetrachloroethene | Not detected | 1 | 0.20 | ug/L | 1 | 127-18-4 | |
| trans-1,4-Dichloro-2-butene | Not detected | 1 | 0.20 | ug/L | 1 | 110-57-6 | |
| Dibromochloromethane | Not detected | 5 | 0.24 | ug/L | 1 | 124-48-1 | |
| 1,2-Dibromoethane | Not detected | 1 | 0.30 | ug/L | 1 | 106-93-4 | |
| Chlorobenzene | Not detected | 1 | 0.17 | ug/L | 1 | 108-90-7 | |
| 1,1,1,2-Tetrachloroethane | Not detected | 1 | 0.24 | ug/L | 1 | 630-20-6 | |
| Ethylbenzene | Not detected | 1 | 0.26 | ug/L | 1 | 100-41-4 | |
| p,m-Xylene* | Not detected | 2 | 0.41 | ug/L | 1 | | |
| o-Xylene | 0.42 | 1 | 0.25 | ug/L | 1 | 95-47-6 | J |
| Styrene | Not detected | 1 | 0.18 | ug/L | 1 | 100-42-5 | |
| Isopropylbenzene | 0.35 | 5 | 0.25 | ug/L | 1 | 98-82-8 | J |
| Bromoform | Not detected | 1 | 0.22 | ug/L | 1 | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | 1 | 0.18 | ug/L | 1 | 79-34-5 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.03 (continued)

Sample Tag: VAS33-3-7

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/19/22 16:22, Analyst: KAG (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------------------|--------------|----|-------|-------|----------|----------|-------|
| 1,2,3-Trichloropropane | Not detected | 1 | 0.33 | ug/L | 1 | 96-18-4 | |
| n-Propylbenzene | Not detected | 1 | 0.23 | ug/L | 1 | 103-65-1 | |
| Bromobenzene | Not detected | 1 | 0.27 | ug/L | 1 | 108-86-1 | |
| 1,3,5-Trimethylbenzene | Not detected | 1 | 0.26 | ug/L | 1 | 108-67-8 | |
| tert-Butylbenzene | Not detected | 1 | 0.18 | ug/L | 1 | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | 1 | 0.22 | ug/L | 1 | 95-63-6 | |
| sec-Butylbenzene | Not detected | 1 | 0.25 | ug/L | 1 | 135-98-8 | |
| p-Isopropyltoluene | Not detected | 5 | 0.21 | ug/L | 1 | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.24 | ug/L | 1 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.23 | ug/L | 1 | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.28 | ug/L | 1 | 95-50-1 | |
| 1,2,3-Trimethylbenzene | 0.150 | 1 | 0.061 | ug/L | 1 | 526-73-8 | J |
| n-Butylbenzene | Not detected | 1 | 0.22 | ug/L | 1 | 104-51-8 | |
| Hexachloroethane | Not detected | 5 | 0.21 | ug/L | 1 | 67-72-1 | |
| 1,2-Dibromo-3-chloropropane | Not detected | 5 | 0.47 | ug/L | 1 | 96-12-8 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.19 | ug/L | 1 | 120-82-1 | |
| 1,2,3-Trichlorobenzene | Not detected | 5 | 0.20 | ug/L | 1 | 87-61-6 | |
| Naphthalene | Not detected | 5 | 0.21 | ug/L | 1 | 91-20-3 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.16 | ug/L | 1 | 91-57-6 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.04

Sample Tag: VAS34-3-7

Collected Date/Time: 12/13/2022 11:55

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 1L Amber | None | Yes | 3.2 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 3.2 | IR |
| 3 | 40ml Glass | HCL | Yes | 3.2 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1 | 12/19/22 23:45 | CTV | |
| pH check for VOCs* | <2 | N/A | 12/20/22 12:30 | BDO | |
| Metal Digestion | Completed | SW3015A | 12/16/22 09:50 | CCM | |
| BNA Extraction | Completed | SW3510C | 12/19/22 10:30 | JWR | |

Metals

Method: E200.8, Run Date: 12/16/22 11:38, Analyst: CCM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|----------|--------|-----------|-------|----------|-----------|-------|
| Arsenic | 0.114 | 0.002 | 0.000255 | mg/L | 5 | 7440-38-2 | |
| Barium | 0.760 | 0.005 | 0.000162 | mg/L | 5 | 7440-39-3 | |
| Cadmium | 0.0010 | 0.0005 | 0.000190 | mg/L | 5 | 7440-43-9 | |
| Chromium | 0.006 | 0.005 | 0.0000965 | mg/L | 5 | 7440-47-3 | |
| Copper | 0.016 | 0.005 | 0.000377 | mg/L | 5 | 7440-50-8 | |
| Lead | 0.332 | 0.003 | 0.000190 | mg/L | 5 | 7439-92-1 | |
| Selenium | 0.00234 | 0.005 | 0.00209 | mg/L | 5 | 7782-49-2 | b |
| Silver | 0.000156 | 0.0005 | 0.0000675 | mg/L | 5 | 7440-22-4 | b |
| Zinc | 0.655 | 0.005 | 0.000730 | mg/L | 5 | 7440-66-6 | |

Method: E245.1, Run Date: 12/19/22 22:52, Analyst: CTV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|----------|-------|----------|-----------|-------|
| Mercury | Not detected | 0.0002 | 0.000016 | mg/L | 1 | 7439-97-6 | |

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 06:29, Analyst: PL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------------|--------------|----|------|-------|----------|----------|-------|
| Acenaphthene | Not detected | 5 | 0.59 | ug/L | 2 | 83-32-9 | |
| Acenaphthylene | Not detected | 5 | 0.70 | ug/L | 2 | 208-96-8 | |
| Anthracene | Not detected | 5 | 0.71 | ug/L | 2 | 120-12-7 | |
| Benzo(a)anthracene | Not detected | 1 | 0.81 | ug/L | 2 | 56-55-3 | |
| Benzo(b)fluoranthene | Not detected | 1 | 0.78 | ug/L | 2 | 205-99-2 | |
| Benzo(k)fluoranthene | Not detected | 1 | 0.82 | ug/L | 2 | 207-08-9 | |
| Benzo(ghi)perylene | Not detected | 1 | 0.98 | ug/L | 2 | 191-24-2 | |
| Benzo(a)pyrene | Not detected | 1 | 1.0 | ug/L | 2 | 50-32-8 | |
| bis(2-Chloroethoxy)methane | Not detected | 5 | 0.61 | ug/L | 2 | 111-91-1 | |
| bis(2-Chloroethyl)ether | Not detected | 5 | 0.57 | ug/L | 2 | 111-44-4 | |
| bis(2-Chloroisopropyl)ether* | Not detected | 5 | 0.67 | ug/L | 2 | 108-60-1 | |
| bis(2-Ethylhexyl)phthalate | Not detected | 5 | 1.3 | ug/L | 2 | 117-81-7 | |
| 4-Bromophenyl phenyl ether | Not detected | 5 | 0.56 | ug/L | 2 | 101-55-3 | |
| Butyl benzyl phthalate | Not detected | 5 | 1.1 | ug/L | 2 | 85-68-7 | |

b-Value detected less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.04 (continued)

Sample Tag: VAS34-3-7

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 06:29, Analyst: PL (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------------------------|--------------|----|------|-------|----------|------------|-------|
| 4-Chloroaniline | Not detected | 10 | 0.58 | ug/L | 2 | 106-47-8 | |
| 2-Chloronaphthalene | Not detected | 5 | 0.56 | ug/L | 2 | 91-58-7 | |
| 4-Chloro-3-methylphenol | Not detected | 5 | 0.60 | ug/L | 2 | 59-50-7 | |
| 2-Chlorophenol | Not detected | 10 | 0.54 | ug/L | 2 | 95-57-8 | |
| 4-Chlorophenyl phenyl ether | Not detected | 5 | 0.52 | ug/L | 2 | 7005-72-3 | |
| Chrysene | Not detected | 1 | 0.61 | ug/L | 2 | 218-01-9 | |
| 3-, 4-Methylphenol (p,m-Cresol) | Not detected | 20 | 1.1 | ug/L | 2 | 3/4-CRESOL | |
| 2-Methylphenol (o-Cresol) | Not detected | 10 | 0.57 | ug/L | 2 | 95-48-7 | |
| Dibenzo(ah)anthracene | Not detected | 2 | 0.91 | ug/L | 2 | 53-70-3 | |
| Dibenzofuran | Not detected | 4 | 0.54 | ug/L | 2 | 132-64-9 | |
| di-n-Butyl phthalate | Not detected | 5 | 0.64 | ug/L | 2 | 84-74-2 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.50 | ug/L | 2 | 95-50-1 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.54 | ug/L | 2 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.51 | ug/L | 2 | 106-46-7 | |
| 3,3'-Dichlorobenzidine | Not detected | 5 | 1.6 | ug/L | 2 | 91-94-1 | |
| 2,4-Dichlorophenol | Not detected | 10 | 0.62 | ug/L | 2 | 120-83-2 | |
| Diethyl phthalate | Not detected | 5 | 0.72 | ug/L | 2 | 84-66-2 | |
| 2,4-Dimethylphenol | Not detected | 5 | 0.72 | ug/L | 2 | 105-67-9 | |
| Dimethyl phthalate | Not detected | 5 | 0.64 | ug/L | 2 | 131-11-3 | |
| 4,6-Dinitro-2-methylphenol | Not detected | 20 | 0.26 | ug/L | 2 | 534-52-1 | |
| 2,4-Dinitrophenol | Not detected | 25 | 0.18 | ug/L | 2 | 51-28-5 | |
| 2,4-Dinitrotoluene | Not detected | 5 | 0.56 | ug/L | 2 | 121-14-2 | |
| 2,6-Dinitrotoluene | Not detected | 5 | 0.62 | ug/L | 2 | 606-20-2 | |
| 1,2-Diphenylhydrazine* | Not detected | 5 | 0.64 | ug/L | 2 | 122-66-7 | |
| di-n-Octyl phthalate | Not detected | 5 | 1.4 | ug/L | 2 | 117-84-0 | |
| Fluoranthene | Not detected | 1 | 0.69 | ug/L | 2 | 206-44-0 | |
| Fluorene | Not detected | 5 | 0.65 | ug/L | 2 | 86-73-7 | |
| Hexachlorobenzene | Not detected | 5 | 0.65 | ug/L | 2 | 118-74-1 | |
| Hexachlorobutadiene | Not detected | 10 | 0.60 | ug/L | 2 | 87-68-3 | |
| Hexachlorocyclopentadiene* | Not detected | 5 | 0.30 | ug/L | 2 | 77-47-4 | |
| Hexachloroethane | Not detected | 5 | 0.54 | ug/L | 2 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | Not detected | 2 | 0.91 | ug/L | 2 | 193-39-5 | |
| Isophorone | Not detected | 5 | 0.62 | ug/L | 2 | 78-59-1 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.50 | ug/L | 2 | 91-57-6 | |
| Naphthalene | Not detected | 5 | 0.64 | ug/L | 2 | 91-20-3 | |
| 2-Nitroaniline | Not detected | 25 | 0.50 | ug/L | 2 | 88-74-4 | |
| 3-Nitroaniline | Not detected | 25 | 0.48 | ug/L | 2 | 99-09-2 | |
| 4-Nitroaniline | Not detected | 25 | 0.47 | ug/L | 2 | 100-01-6 | |
| Nitrobenzene | Not detected | 5 | 0.81 | ug/L | 2 | 98-95-3 | |
| 2-Nitrophenol | Not detected | 5 | 0.46 | ug/L | 2 | 88-75-5 | |
| 4-Nitrophenol | Not detected | 25 | 0.65 | ug/L | 2 | 100-02-7 | |
| N-Nitrosodiphenylamine | Not detected | 5 | 0.73 | ug/L | 2 | 86-30-6 | |
| N-Nitrosodi-n-propylamine | Not detected | 5 | 0.75 | ug/L | 2 | 621-64-7 | |
| Pentachlorophenol | Not detected | 5 | 0.42 | ug/L | 2 | 87-86-5 | |
| Phenanthrene | Not detected | 2 | 0.73 | ug/L | 2 | 85-01-8 | |
| Phenol | Not detected | 5 | 0.61 | ug/L | 2 | 108-95-2 | |
| Pyrene | Not detected | 5 | 0.85 | ug/L | 2 | 129-00-0 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.66 | ug/L | 2 | 120-82-1 | |
| 2,4,5-Trichlorophenol | Not detected | 5 | 0.66 | ug/L | 2 | 95-95-4 | |
| 2,4,6-Trichlorophenol | Not detected | 4 | 0.56 | ug/L | 2 | 88-06-2 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.04 (continued)

Sample Tag: VAS34-3-7

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/19/22 16:45, Analyst: KAG

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|--------------------------------|--------------|----|------|-------|----------|------------|-------|
| Diethyl ether | 1.47 | 10 | 0.50 | ug/L | 1 | 60-29-7 | J |
| Acetone | 2.99 | 50 | 0.56 | ug/L | 1 | 67-64-1 | J |
| Methyl iodide | Not detected | 1 | 0.25 | ug/L | 1 | 74-88-4 | |
| Carbon disulfide | Not detected | 5 | 0.24 | ug/L | 1 | 75-15-0 | |
| tert-Methyl butyl ether (MTBE) | Not detected | 5 | 0.19 | ug/L | 1 | 1634-04-4 | |
| Acrylonitrile | Not detected | 2 | 0.57 | ug/L | 1 | 107-13-1 | |
| 2-Butanone (MEK) | Not detected | 25 | 0.26 | ug/L | 1 | 78-93-3 | |
| Dichlorodifluoromethane | Not detected | 5 | 0.50 | ug/L | 1 | 75-71-8 | |
| Chloromethane | Not detected | 5 | 0.26 | ug/L | 1 | 74-87-3 | |
| Vinyl chloride | Not detected | 1 | 0.31 | ug/L | 1 | 75-01-4 | |
| Bromomethane | Not detected | 5 | 0.32 | ug/L | 1 | 74-83-9 | |
| Chloroethane | Not detected | 5 | 0.34 | ug/L | 1 | 75-00-3 | |
| Trichlorofluoromethane | Not detected | 1 | 0.33 | ug/L | 1 | 75-69-4 | |
| 1,1-Dichloroethene | Not detected | 1 | 0.27 | ug/L | 1 | 75-35-4 | |
| Methylene chloride | Not detected | 5 | 0.29 | ug/L | 1 | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | 1 | 0.20 | ug/L | 1 | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | 1 | 0.20 | ug/L | 1 | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | 1 | 0.26 | ug/L | 1 | 156-59-2 | |
| Tetrahydrofuran* | Not detected | 90 | 1.3 | ug/L | 1 | 109-99-9 | |
| Chloroform | Not detected | 1 | 0.20 | ug/L | 1 | 67-66-3 | |
| Bromochloromethane | Not detected | 1 | 0.38 | ug/L | 1 | 74-97-5 | |
| 1,1,1-Trichloroethane | Not detected | 1 | 0.28 | ug/L | 1 | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | 50 | 0.14 | ug/L | 1 | 108-10-1 | |
| 2-Hexanone | Not detected | 50 | 0.29 | ug/L | 1 | 591-78-6 | |
| Carbon tetrachloride | Not detected | 1 | 0.20 | ug/L | 1 | 56-23-5 | |
| Benzene | Not detected | 1 | 0.20 | ug/L | 1 | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | 1 | 0.16 | ug/L | 1 | 107-06-2 | |
| Trichloroethene | Not detected | 1 | 0.23 | ug/L | 1 | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | 1 | 0.20 | ug/L | 1 | 78-87-5 | |
| Bromodichloromethane | Not detected | 1 | 0.23 | ug/L | 1 | 75-27-4 | |
| Dibromomethane | Not detected | 5 | 0.20 | ug/L | 1 | 74-95-3 | |
| cis-1,3-Dichloropropene | Not detected | 1 | 0.19 | ug/L | 1 | 10061-01-5 | |
| Toluene | Not detected | 1 | 0.25 | ug/L | 1 | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | 1 | 0.25 | ug/L | 1 | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | 1 | 0.28 | ug/L | 1 | 79-00-5 | |
| Tetrachloroethene | Not detected | 1 | 0.20 | ug/L | 1 | 127-18-4 | |
| trans-1,4-Dichloro-2-butene | Not detected | 1 | 0.20 | ug/L | 1 | 110-57-6 | |
| Dibromochloromethane | Not detected | 5 | 0.24 | ug/L | 1 | 124-48-1 | |
| 1,2-Dibromoethane | Not detected | 1 | 0.30 | ug/L | 1 | 106-93-4 | |
| Chlorobenzene | Not detected | 1 | 0.17 | ug/L | 1 | 108-90-7 | |
| 1,1,1,2-Tetrachloroethane | Not detected | 1 | 0.24 | ug/L | 1 | 630-20-6 | |
| Ethylbenzene | Not detected | 1 | 0.26 | ug/L | 1 | 100-41-4 | |
| p,m-Xylene* | Not detected | 2 | 0.41 | ug/L | 1 | | |
| o-Xylene | Not detected | 1 | 0.25 | ug/L | 1 | 95-47-6 | |
| Styrene | Not detected | 1 | 0.18 | ug/L | 1 | 100-42-5 | |
| Isopropylbenzene | Not detected | 5 | 0.25 | ug/L | 1 | 98-82-8 | |
| Bromoform | Not detected | 1 | 0.22 | ug/L | 1 | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | 1 | 0.18 | ug/L | 1 | 79-34-5 | |

J-Estimated value less than reporting limit, but greater than MDL



Lab Sample ID: S43512.04 (continued)

Sample Tag: VAS34-3-7

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/19/22 16:45, Analyst: KAG (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------------------|--------------|----|-------|-------|----------|----------|-------|
| 1,2,3-Trichloropropane | Not detected | 1 | 0.33 | ug/L | 1 | 96-18-4 | |
| n-Propylbenzene | Not detected | 1 | 0.23 | ug/L | 1 | 103-65-1 | |
| Bromobenzene | Not detected | 1 | 0.27 | ug/L | 1 | 108-86-1 | |
| 1,3,5-Trimethylbenzene | Not detected | 1 | 0.26 | ug/L | 1 | 108-67-8 | |
| tert-Butylbenzene | Not detected | 1 | 0.18 | ug/L | 1 | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | 1 | 0.22 | ug/L | 1 | 95-63-6 | |
| sec-Butylbenzene | Not detected | 1 | 0.25 | ug/L | 1 | 135-98-8 | |
| p-Isopropyltoluene | Not detected | 5 | 0.21 | ug/L | 1 | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.24 | ug/L | 1 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.23 | ug/L | 1 | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.28 | ug/L | 1 | 95-50-1 | |
| 1,2,3-Trimethylbenzene | Not detected | 1 | 0.061 | ug/L | 1 | 526-73-8 | |
| n-Butylbenzene | Not detected | 1 | 0.22 | ug/L | 1 | 104-51-8 | |
| Hexachloroethane | Not detected | 5 | 0.21 | ug/L | 1 | 67-72-1 | |
| 1,2-Dibromo-3-chloropropane | Not detected | 5 | 0.47 | ug/L | 1 | 96-12-8 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.19 | ug/L | 1 | 120-82-1 | |
| 1,2,3-Trichlorobenzene | Not detected | 5 | 0.20 | ug/L | 1 | 87-61-6 | |
| Naphthalene | Not detected | 5 | 0.21 | ug/L | 1 | 91-20-3 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.16 | ug/L | 1 | 91-57-6 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.05

Sample Tag: VAS35-1-5

Collected Date/Time: 12/13/2022 14:30

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 1L Amber | None | Yes | 3.2 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 3.2 | IR |
| 3 | 40ml Glass | HCL | Yes | 3.2 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1 | 12/19/22 23:45 | CTV | |
| pH check for VOCs* | <2 | N/A | 12/20/22 12:30 | BDO | |
| Metal Digestion | Completed | SW3015A | 12/16/22 09:50 | CCM | |
| BNA Extraction | Completed | SW3510C | 12/19/22 10:30 | JWR | |

Metals

Method: E200.8, Run Date: 12/16/22 11:40, Analyst: CCM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|-----------|-------|----------|-----------|-------|
| Arsenic | 0.003 | 0.002 | 0.000255 | mg/L | 5 | 7440-38-2 | |
| Barium | 1.03 | 0.005 | 0.000162 | mg/L | 5 | 7440-39-3 | |
| Cadmium | 0.0007 | 0.0005 | 0.000190 | mg/L | 5 | 7440-43-9 | |
| Chromium | 0.00252 | 0.005 | 0.0000965 | mg/L | 5 | 7440-47-3 | b |
| Copper | 0.007 | 0.005 | 0.000377 | mg/L | 5 | 7440-50-8 | |
| Lead | 0.020 | 0.003 | 0.000190 | mg/L | 5 | 7439-92-1 | |
| Selenium | Not detected | 0.005 | 0.00209 | mg/L | 5 | 7782-49-2 | |
| Silver | 0.000098 | 0.0005 | 0.0000675 | mg/L | 5 | 7440-22-4 | b |
| Zinc | 0.124 | 0.005 | 0.000730 | mg/L | 5 | 7440-66-6 | |

Method: E245.1, Run Date: 12/19/22 23:04, Analyst: CTV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|----------|-------|----------|-----------|-------|
| Mercury | Not detected | 0.0002 | 0.000016 | mg/L | 1 | 7439-97-6 | |

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 07:00, Analyst: PL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------------|--------------|----|------|-------|----------|----------|-------|
| Acenaphthene | Not detected | 5 | 0.58 | ug/L | 2 | 83-32-9 | |
| Acenaphthylene | Not detected | 5 | 0.68 | ug/L | 2 | 208-96-8 | |
| Anthracene | Not detected | 5 | 0.70 | ug/L | 2 | 120-12-7 | |
| Benzo(a)anthracene | Not detected | 1 | 0.79 | ug/L | 2 | 56-55-3 | |
| Benzo(b)fluoranthene | Not detected | 1 | 0.77 | ug/L | 2 | 205-99-2 | |
| Benzo(k)fluoranthene | Not detected | 1 | 0.81 | ug/L | 2 | 207-08-9 | |
| Benzo(ghi)perylene | Not detected | 1 | 0.96 | ug/L | 2 | 191-24-2 | |
| Benzo(a)pyrene | Not detected | 1 | 0.98 | ug/L | 2 | 50-32-8 | |
| bis(2-Chloroethoxy)methane | Not detected | 5 | 0.60 | ug/L | 2 | 111-91-1 | |
| bis(2-Chloroethyl)ether | Not detected | 5 | 0.56 | ug/L | 2 | 111-44-4 | |
| bis(2-Chloroisopropyl)ether* | Not detected | 5 | 0.66 | ug/L | 2 | 108-60-1 | |
| bis(2-Ethylhexyl)phthalate | Not detected | 5 | 1.3 | ug/L | 2 | 117-81-7 | |
| 4-Bromophenyl phenyl ether | Not detected | 5 | 0.54 | ug/L | 2 | 101-55-3 | |
| Butyl benzyl phthalate | Not detected | 5 | 1.0 | ug/L | 2 | 85-68-7 | |

b-Value detected less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.05 (continued)

Sample Tag: VAS35-1-5

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 07:00, Analyst: PL (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------------------------|--------------|----|------|-------|----------|------------|-------|
| 4-Chloroaniline | Not detected | 10 | 0.57 | ug/L | 2 | 106-47-8 | |
| 2-Chloronaphthalene | Not detected | 5 | 0.55 | ug/L | 2 | 91-58-7 | |
| 4-Chloro-3-methylphenol | Not detected | 5 | 0.59 | ug/L | 2 | 59-50-7 | |
| 2-Chlorophenol | Not detected | 10 | 0.53 | ug/L | 2 | 95-57-8 | |
| 4-Chlorophenyl phenyl ether | Not detected | 5 | 0.51 | ug/L | 2 | 7005-72-3 | |
| Chrysene | Not detected | 1 | 0.60 | ug/L | 2 | 218-01-9 | |
| 3-, 4-Methylphenol (p,m-Cresol) | Not detected | 20 | 1.1 | ug/L | 2 | 3/4-CRESOL | |
| 2-Methylphenol (o-Cresol) | Not detected | 10 | 0.56 | ug/L | 2 | 95-48-7 | |
| Dibenzo(ah)anthracene | Not detected | 2 | 0.89 | ug/L | 2 | 53-70-3 | |
| Dibenzofuran | Not detected | 4 | 0.53 | ug/L | 2 | 132-64-9 | |
| di-n-Butyl phthalate | Not detected | 5 | 0.63 | ug/L | 2 | 84-74-2 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.49 | ug/L | 2 | 95-50-1 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.53 | ug/L | 2 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.50 | ug/L | 2 | 106-46-7 | |
| 3,3'-Dichlorobenzidine | Not detected | 5 | 1.6 | ug/L | 2 | 91-94-1 | |
| 2,4-Dichlorophenol | Not detected | 10 | 0.61 | ug/L | 2 | 120-83-2 | |
| Diethyl phthalate | Not detected | 5 | 0.71 | ug/L | 2 | 84-66-2 | |
| 2,4-Dimethylphenol | Not detected | 5 | 0.71 | ug/L | 2 | 105-67-9 | |
| Dimethyl phthalate | Not detected | 5 | 0.63 | ug/L | 2 | 131-11-3 | |
| 4,6-Dinitro-2-methylphenol | Not detected | 20 | 0.26 | ug/L | 2 | 534-52-1 | |
| 2,4-Dinitrophenol | Not detected | 25 | 0.17 | ug/L | 2 | 51-28-5 | |
| 2,4-Dinitrotoluene | Not detected | 5 | 0.55 | ug/L | 2 | 121-14-2 | |
| 2,6-Dinitrotoluene | Not detected | 5 | 0.61 | ug/L | 2 | 606-20-2 | |
| 1,2-Diphenylhydrazine* | Not detected | 5 | 0.62 | ug/L | 2 | 122-66-7 | |
| di-n-Octyl phthalate | Not detected | 5 | 1.4 | ug/L | 2 | 117-84-0 | |
| Fluoranthene | Not detected | 1 | 0.68 | ug/L | 2 | 206-44-0 | |
| Fluorene | Not detected | 5 | 0.63 | ug/L | 2 | 86-73-7 | |
| Hexachlorobenzene | Not detected | 5 | 0.64 | ug/L | 2 | 118-74-1 | |
| Hexachlorobutadiene | Not detected | 10 | 0.59 | ug/L | 2 | 87-68-3 | |
| Hexachlorocyclopentadiene* | Not detected | 5 | 0.30 | ug/L | 2 | 77-47-4 | |
| Hexachloroethane | Not detected | 5 | 0.53 | ug/L | 2 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | Not detected | 2 | 0.89 | ug/L | 2 | 193-39-5 | |
| Isophorone | Not detected | 5 | 0.61 | ug/L | 2 | 78-59-1 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.49 | ug/L | 2 | 91-57-6 | |
| Naphthalene | Not detected | 5 | 0.63 | ug/L | 2 | 91-20-3 | |
| 2-Nitroaniline | Not detected | 25 | 0.49 | ug/L | 2 | 88-74-4 | |
| 3-Nitroaniline | Not detected | 25 | 0.47 | ug/L | 2 | 99-09-2 | |
| 4-Nitroaniline | Not detected | 25 | 0.47 | ug/L | 2 | 100-01-6 | |
| Nitrobenzene | Not detected | 5 | 0.80 | ug/L | 2 | 98-95-3 | |
| 2-Nitrophenol | Not detected | 5 | 0.45 | ug/L | 2 | 88-75-5 | |
| 4-Nitrophenol | Not detected | 25 | 0.63 | ug/L | 2 | 100-02-7 | |
| N-Nitrosodiphenylamine | Not detected | 5 | 0.71 | ug/L | 2 | 86-30-6 | |
| N-Nitrosodi-n-propylamine | Not detected | 5 | 0.73 | ug/L | 2 | 621-64-7 | |
| Pentachlorophenol | Not detected | 5 | 0.42 | ug/L | 2 | 87-86-5 | |
| Phenanthrene | Not detected | 2 | 0.71 | ug/L | 2 | 85-01-8 | |
| Phenol | Not detected | 5 | 0.60 | ug/L | 2 | 108-95-2 | |
| Pyrene | Not detected | 5 | 0.83 | ug/L | 2 | 129-00-0 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.64 | ug/L | 2 | 120-82-1 | |
| 2,4,5-Trichlorophenol | Not detected | 5 | 0.65 | ug/L | 2 | 95-95-4 | |
| 2,4,6-Trichlorophenol | Not detected | 4 | 0.55 | ug/L | 2 | 88-06-2 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.05 (continued)

Sample Tag: VAS35-1-5

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/19/22 17:09, Analyst: KAG

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|--------------------------------|--------------|----|------|-------|----------|------------|-------|
| Diethyl ether | Not detected | 10 | 0.50 | ug/L | 1 | 60-29-7 | |
| Acetone | 2.60 | 50 | 0.56 | ug/L | 1 | 67-64-1 | J |
| Methyl iodide | Not detected | 1 | 0.25 | ug/L | 1 | 74-88-4 | |
| Carbon disulfide | Not detected | 5 | 0.24 | ug/L | 1 | 75-15-0 | |
| tert-Methyl butyl ether (MTBE) | Not detected | 5 | 0.19 | ug/L | 1 | 1634-04-4 | |
| Acrylonitrile | Not detected | 2 | 0.57 | ug/L | 1 | 107-13-1 | |
| 2-Butanone (MEK) | Not detected | 25 | 0.26 | ug/L | 1 | 78-93-3 | |
| Dichlorodifluoromethane | Not detected | 5 | 0.50 | ug/L | 1 | 75-71-8 | |
| Chloromethane | Not detected | 5 | 0.26 | ug/L | 1 | 74-87-3 | |
| Vinyl chloride | Not detected | 1 | 0.31 | ug/L | 1 | 75-01-4 | |
| Bromomethane | Not detected | 5 | 0.32 | ug/L | 1 | 74-83-9 | |
| Chloroethane | Not detected | 5 | 0.34 | ug/L | 1 | 75-00-3 | |
| Trichlorofluoromethane | Not detected | 1 | 0.33 | ug/L | 1 | 75-69-4 | |
| 1,1-Dichloroethene | Not detected | 1 | 0.27 | ug/L | 1 | 75-35-4 | |
| Methylene chloride | Not detected | 5 | 0.29 | ug/L | 1 | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | 1 | 0.20 | ug/L | 1 | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | 1 | 0.20 | ug/L | 1 | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | 1 | 0.26 | ug/L | 1 | 156-59-2 | |
| Tetrahydrofuran* | 2.1 | 90 | 1.3 | ug/L | 1 | 109-99-9 | J |
| Chloroform | 0.57 | 1 | 0.20 | ug/L | 1 | 67-66-3 | J |
| Bromochloromethane | Not detected | 1 | 0.38 | ug/L | 1 | 74-97-5 | |
| 1,1,1-Trichloroethane | Not detected | 1 | 0.28 | ug/L | 1 | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | 50 | 0.14 | ug/L | 1 | 108-10-1 | |
| 2-Hexanone | Not detected | 50 | 0.29 | ug/L | 1 | 591-78-6 | |
| Carbon tetrachloride | Not detected | 1 | 0.20 | ug/L | 1 | 56-23-5 | |
| Benzene | Not detected | 1 | 0.20 | ug/L | 1 | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | 1 | 0.16 | ug/L | 1 | 107-06-2 | |
| Trichloroethene | Not detected | 1 | 0.23 | ug/L | 1 | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | 1 | 0.20 | ug/L | 1 | 78-87-5 | |
| Bromodichloromethane | Not detected | 1 | 0.23 | ug/L | 1 | 75-27-4 | |
| Dibromomethane | Not detected | 5 | 0.20 | ug/L | 1 | 74-95-3 | |
| cis-1,3-Dichloropropene | Not detected | 1 | 0.19 | ug/L | 1 | 10061-01-5 | |
| Toluene | Not detected | 1 | 0.25 | ug/L | 1 | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | 1 | 0.25 | ug/L | 1 | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | 1 | 0.28 | ug/L | 1 | 79-00-5 | |
| Tetrachloroethene | Not detected | 1 | 0.20 | ug/L | 1 | 127-18-4 | |
| trans-1,4-Dichloro-2-butene | Not detected | 1 | 0.20 | ug/L | 1 | 110-57-6 | |
| Dibromochloromethane | Not detected | 5 | 0.24 | ug/L | 1 | 124-48-1 | |
| 1,2-Dibromoethane | Not detected | 1 | 0.30 | ug/L | 1 | 106-93-4 | |
| Chlorobenzene | Not detected | 1 | 0.17 | ug/L | 1 | 108-90-7 | |
| 1,1,1,2-Tetrachloroethane | Not detected | 1 | 0.24 | ug/L | 1 | 630-20-6 | |
| Ethylbenzene | Not detected | 1 | 0.26 | ug/L | 1 | 100-41-4 | |
| p,m-Xylene* | Not detected | 2 | 0.41 | ug/L | 1 | | |
| o-Xylene | Not detected | 1 | 0.25 | ug/L | 1 | 95-47-6 | |
| Styrene | Not detected | 1 | 0.18 | ug/L | 1 | 100-42-5 | |
| Isopropylbenzene | Not detected | 5 | 0.25 | ug/L | 1 | 98-82-8 | |
| Bromoform | Not detected | 1 | 0.22 | ug/L | 1 | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | 1 | 0.18 | ug/L | 1 | 79-34-5 | |

J-Estimated value less than reporting limit, but greater than MDL



Lab Sample ID: S43512.05 (continued)

Sample Tag: VAS35-1-5

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/19/22 17:09, Analyst: KAG (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------------------|--------------|----|-------|-------|----------|----------|-------|
| 1,2,3-Trichloropropane | Not detected | 1 | 0.33 | ug/L | 1 | 96-18-4 | |
| n-Propylbenzene | Not detected | 1 | 0.23 | ug/L | 1 | 103-65-1 | |
| Bromobenzene | Not detected | 1 | 0.27 | ug/L | 1 | 108-86-1 | |
| 1,3,5-Trimethylbenzene | Not detected | 1 | 0.26 | ug/L | 1 | 108-67-8 | |
| tert-Butylbenzene | Not detected | 1 | 0.18 | ug/L | 1 | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | 1 | 0.22 | ug/L | 1 | 95-63-6 | |
| sec-Butylbenzene | Not detected | 1 | 0.25 | ug/L | 1 | 135-98-8 | |
| p-Isopropyltoluene | Not detected | 5 | 0.21 | ug/L | 1 | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.24 | ug/L | 1 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.23 | ug/L | 1 | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.28 | ug/L | 1 | 95-50-1 | |
| 1,2,3-Trimethylbenzene | Not detected | 1 | 0.061 | ug/L | 1 | 526-73-8 | |
| n-Butylbenzene | Not detected | 1 | 0.22 | ug/L | 1 | 104-51-8 | |
| Hexachloroethane | Not detected | 5 | 0.21 | ug/L | 1 | 67-72-1 | |
| 1,2-Dibromo-3-chloropropane | Not detected | 5 | 0.47 | ug/L | 1 | 96-12-8 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.19 | ug/L | 1 | 120-82-1 | |
| 1,2,3-Trichlorobenzene | Not detected | 5 | 0.20 | ug/L | 1 | 87-61-6 | |
| Naphthalene | Not detected | 5 | 0.21 | ug/L | 1 | 91-20-3 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.16 | ug/L | 1 | 91-57-6 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.06

Sample Tag: DUP-07-13122022

Collected Date/Time: 12/13/2022 00:00

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 1L Amber | None | Yes | 3.2 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 3.2 | IR |
| 3 | 40ml Glass | HCL | Yes | 3.2 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1 | 12/19/22 23:45 | CTV | |
| pH check for VOCs* | <2 | N/A | 12/20/22 12:30 | BDO | |
| Metal Digestion | Completed | SW3015A | 12/16/22 09:50 | CCM | |
| BNA Extraction | Completed | SW3510C | 12/19/22 10:30 | JWR | |

Metals

Method: E200.8, Run Date: 12/16/22 11:42, Analyst: CCM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|-----------|-------|----------|-----------|-------|
| Arsenic | 0.003 | 0.002 | 0.000255 | mg/L | 5 | 7440-38-2 | |
| Barium | 1.03 | 0.005 | 0.000162 | mg/L | 5 | 7440-39-3 | |
| Cadmium | 0.0007 | 0.0005 | 0.000190 | mg/L | 5 | 7440-43-9 | |
| Chromium | 0.00245 | 0.005 | 0.0000965 | mg/L | 5 | 7440-47-3 | b |
| Copper | 0.007 | 0.005 | 0.000377 | mg/L | 5 | 7440-50-8 | |
| Lead | 0.021 | 0.003 | 0.000190 | mg/L | 5 | 7439-92-1 | |
| Selenium | Not detected | 0.005 | 0.00209 | mg/L | 5 | 7782-49-2 | |
| Silver | Not detected | 0.0005 | 0.0000675 | mg/L | 5 | 7440-22-4 | |
| Zinc | 0.122 | 0.005 | 0.000730 | mg/L | 5 | 7440-66-6 | |

Method: E245.1, Run Date: 12/19/22 23:07, Analyst: CTV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|----------|-------|----------|-----------|-------|
| Mercury | Not detected | 0.0002 | 0.000016 | mg/L | 1 | 7439-97-6 | |

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 07:30, Analyst: PL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------------|--------------|----|------|-------|----------|----------|-------|
| Acenaphthene | Not detected | 5 | 0.58 | ug/L | 2 | 83-32-9 | |
| Acenaphthylene | Not detected | 5 | 0.68 | ug/L | 2 | 208-96-8 | |
| Anthracene | Not detected | 5 | 0.70 | ug/L | 2 | 120-12-7 | |
| Benzo(a)anthracene | Not detected | 1 | 0.79 | ug/L | 2 | 56-55-3 | |
| Benzo(b)fluoranthene | Not detected | 1 | 0.77 | ug/L | 2 | 205-99-2 | |
| Benzo(k)fluoranthene | Not detected | 1 | 0.81 | ug/L | 2 | 207-08-9 | |
| Benzo(ghi)perylene | Not detected | 1 | 0.96 | ug/L | 2 | 191-24-2 | |
| Benzo(a)pyrene | Not detected | 1 | 0.98 | ug/L | 2 | 50-32-8 | |
| bis(2-Chloroethoxy)methane | Not detected | 5 | 0.60 | ug/L | 2 | 111-91-1 | |
| bis(2-Chloroethyl)ether | Not detected | 5 | 0.56 | ug/L | 2 | 111-44-4 | |
| bis(2-Chloroisopropyl)ether* | Not detected | 5 | 0.66 | ug/L | 2 | 108-60-1 | |
| bis(2-Ethylhexyl)phthalate | Not detected | 5 | 1.3 | ug/L | 2 | 117-81-7 | |
| 4-Bromophenyl phenyl ether | Not detected | 5 | 0.54 | ug/L | 2 | 101-55-3 | |
| Butyl benzyl phthalate | Not detected | 5 | 1.0 | ug/L | 2 | 85-68-7 | |

b-Value detected less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.06 (continued)

Sample Tag: DUP-07-13122022

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 07:30, Analyst: PL (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------------------------|--------------|----|------|-------|----------|------------|-------|
| 4-Chloroaniline | Not detected | 10 | 0.57 | ug/L | 2 | 106-47-8 | |
| 2-Chloronaphthalene | Not detected | 5 | 0.55 | ug/L | 2 | 91-58-7 | |
| 4-Chloro-3-methylphenol | Not detected | 5 | 0.59 | ug/L | 2 | 59-50-7 | |
| 2-Chlorophenol | Not detected | 10 | 0.53 | ug/L | 2 | 95-57-8 | |
| 4-Chlorophenyl phenyl ether | Not detected | 5 | 0.51 | ug/L | 2 | 7005-72-3 | |
| Chrysene | Not detected | 1 | 0.60 | ug/L | 2 | 218-01-9 | |
| 3-, 4-Methylphenol (p,m-Cresol) | Not detected | 20 | 1.1 | ug/L | 2 | 3/4-CRESOL | |
| 2-Methylphenol (o-Cresol) | Not detected | 10 | 0.56 | ug/L | 2 | 95-48-7 | |
| Dibenzo(ah)anthracene | Not detected | 2 | 0.89 | ug/L | 2 | 53-70-3 | |
| Dibenzofuran | Not detected | 4 | 0.53 | ug/L | 2 | 132-64-9 | |
| di-n-Butyl phthalate | Not detected | 5 | 0.63 | ug/L | 2 | 84-74-2 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.49 | ug/L | 2 | 95-50-1 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.53 | ug/L | 2 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.50 | ug/L | 2 | 106-46-7 | |
| 3,3'-Dichlorobenzidine | Not detected | 5 | 1.6 | ug/L | 2 | 91-94-1 | |
| 2,4-Dichlorophenol | Not detected | 10 | 0.61 | ug/L | 2 | 120-83-2 | |
| Diethyl phthalate | Not detected | 5 | 0.71 | ug/L | 2 | 84-66-2 | |
| 2,4-Dimethylphenol | Not detected | 5 | 0.71 | ug/L | 2 | 105-67-9 | |
| Dimethyl phthalate | Not detected | 5 | 0.63 | ug/L | 2 | 131-11-3 | |
| 4,6-Dinitro-2-methylphenol | Not detected | 20 | 0.26 | ug/L | 2 | 534-52-1 | |
| 2,4-Dinitrophenol | Not detected | 25 | 0.17 | ug/L | 2 | 51-28-5 | |
| 2,4-Dinitrotoluene | Not detected | 5 | 0.55 | ug/L | 2 | 121-14-2 | |
| 2,6-Dinitrotoluene | Not detected | 5 | 0.61 | ug/L | 2 | 606-20-2 | |
| 1,2-Diphenylhydrazine* | Not detected | 5 | 0.62 | ug/L | 2 | 122-66-7 | |
| di-n-Octyl phthalate | Not detected | 5 | 1.4 | ug/L | 2 | 117-84-0 | |
| Fluoranthene | Not detected | 1 | 0.68 | ug/L | 2 | 206-44-0 | |
| Fluorene | Not detected | 5 | 0.63 | ug/L | 2 | 86-73-7 | |
| Hexachlorobenzene | Not detected | 5 | 0.64 | ug/L | 2 | 118-74-1 | |
| Hexachlorobutadiene | Not detected | 10 | 0.59 | ug/L | 2 | 87-68-3 | |
| Hexachlorocyclopentadiene* | Not detected | 5 | 0.30 | ug/L | 2 | 77-47-4 | |
| Hexachloroethane | Not detected | 5 | 0.53 | ug/L | 2 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | Not detected | 2 | 0.89 | ug/L | 2 | 193-39-5 | |
| Isophorone | Not detected | 5 | 0.61 | ug/L | 2 | 78-59-1 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.49 | ug/L | 2 | 91-57-6 | |
| Naphthalene | Not detected | 5 | 0.63 | ug/L | 2 | 91-20-3 | |
| 2-Nitroaniline | Not detected | 25 | 0.49 | ug/L | 2 | 88-74-4 | |
| 3-Nitroaniline | Not detected | 25 | 0.47 | ug/L | 2 | 99-09-2 | |
| 4-Nitroaniline | Not detected | 25 | 0.47 | ug/L | 2 | 100-01-6 | |
| Nitrobenzene | Not detected | 5 | 0.80 | ug/L | 2 | 98-95-3 | |
| 2-Nitrophenol | Not detected | 5 | 0.45 | ug/L | 2 | 88-75-5 | |
| 4-Nitrophenol | Not detected | 25 | 0.63 | ug/L | 2 | 100-02-7 | |
| N-Nitrosodiphenylamine | Not detected | 5 | 0.71 | ug/L | 2 | 86-30-6 | |
| N-Nitrosodi-n-propylamine | Not detected | 5 | 0.73 | ug/L | 2 | 621-64-7 | |
| Pentachlorophenol | Not detected | 5 | 0.42 | ug/L | 2 | 87-86-5 | |
| Phenanthrene | Not detected | 2 | 0.71 | ug/L | 2 | 85-01-8 | |
| Phenol | Not detected | 5 | 0.60 | ug/L | 2 | 108-95-2 | |
| Pyrene | Not detected | 5 | 0.83 | ug/L | 2 | 129-00-0 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.64 | ug/L | 2 | 120-82-1 | |
| 2,4,5-Trichlorophenol | Not detected | 5 | 0.65 | ug/L | 2 | 95-95-4 | |
| 2,4,6-Trichlorophenol | Not detected | 4 | 0.55 | ug/L | 2 | 88-06-2 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.06 (continued)

Sample Tag: DUP-07-13122022

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/19/22 17:32, Analyst: KAG

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|--------------------------------|--------------|----|------|-------|----------|------------|-------|
| Diethyl ether | Not detected | 10 | 0.50 | ug/L | 1 | 60-29-7 | |
| Acetone | 2.96 | 50 | 0.56 | ug/L | 1 | 67-64-1 | J |
| Methyl iodide | Not detected | 1 | 0.25 | ug/L | 1 | 74-88-4 | |
| Carbon disulfide | Not detected | 5 | 0.24 | ug/L | 1 | 75-15-0 | |
| tert-Methyl butyl ether (MTBE) | Not detected | 5 | 0.19 | ug/L | 1 | 1634-04-4 | |
| Acrylonitrile | Not detected | 2 | 0.57 | ug/L | 1 | 107-13-1 | |
| 2-Butanone (MEK) | Not detected | 25 | 0.26 | ug/L | 1 | 78-93-3 | |
| Dichlorodifluoromethane | Not detected | 5 | 0.50 | ug/L | 1 | 75-71-8 | |
| Chloromethane | Not detected | 5 | 0.26 | ug/L | 1 | 74-87-3 | |
| Vinyl chloride | Not detected | 1 | 0.31 | ug/L | 1 | 75-01-4 | |
| Bromomethane | Not detected | 5 | 0.32 | ug/L | 1 | 74-83-9 | |
| Chloroethane | Not detected | 5 | 0.34 | ug/L | 1 | 75-00-3 | |
| Trichlorofluoromethane | Not detected | 1 | 0.33 | ug/L | 1 | 75-69-4 | |
| 1,1-Dichloroethene | Not detected | 1 | 0.27 | ug/L | 1 | 75-35-4 | |
| Methylene chloride | Not detected | 5 | 0.29 | ug/L | 1 | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | 1 | 0.20 | ug/L | 1 | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | 1 | 0.20 | ug/L | 1 | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | 1 | 0.26 | ug/L | 1 | 156-59-2 | |
| Tetrahydrofuran* | 2.0 | 90 | 1.3 | ug/L | 1 | 109-99-9 | J |
| Chloroform | 0.58 | 1 | 0.20 | ug/L | 1 | 67-66-3 | J |
| Bromochloromethane | Not detected | 1 | 0.38 | ug/L | 1 | 74-97-5 | |
| 1,1,1-Trichloroethane | Not detected | 1 | 0.28 | ug/L | 1 | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | 50 | 0.14 | ug/L | 1 | 108-10-1 | |
| 2-Hexanone | Not detected | 50 | 0.29 | ug/L | 1 | 591-78-6 | |
| Carbon tetrachloride | Not detected | 1 | 0.20 | ug/L | 1 | 56-23-5 | |
| Benzene | Not detected | 1 | 0.20 | ug/L | 1 | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | 1 | 0.16 | ug/L | 1 | 107-06-2 | |
| Trichloroethene | Not detected | 1 | 0.23 | ug/L | 1 | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | 1 | 0.20 | ug/L | 1 | 78-87-5 | |
| Bromodichloromethane | Not detected | 1 | 0.23 | ug/L | 1 | 75-27-4 | |
| Dibromomethane | Not detected | 5 | 0.20 | ug/L | 1 | 74-95-3 | |
| cis-1,3-Dichloropropene | Not detected | 1 | 0.19 | ug/L | 1 | 10061-01-5 | |
| Toluene | Not detected | 1 | 0.25 | ug/L | 1 | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | 1 | 0.25 | ug/L | 1 | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | 1 | 0.28 | ug/L | 1 | 79-00-5 | |
| Tetrachloroethene | Not detected | 1 | 0.20 | ug/L | 1 | 127-18-4 | |
| trans-1,4-Dichloro-2-butene | Not detected | 1 | 0.20 | ug/L | 1 | 110-57-6 | |
| Dibromochloromethane | Not detected | 5 | 0.24 | ug/L | 1 | 124-48-1 | |
| 1,2-Dibromoethane | Not detected | 1 | 0.30 | ug/L | 1 | 106-93-4 | |
| Chlorobenzene | Not detected | 1 | 0.17 | ug/L | 1 | 108-90-7 | |
| 1,1,1,2-Tetrachloroethane | Not detected | 1 | 0.24 | ug/L | 1 | 630-20-6 | |
| Ethylbenzene | Not detected | 1 | 0.26 | ug/L | 1 | 100-41-4 | |
| p,m-Xylene* | Not detected | 2 | 0.41 | ug/L | 1 | | |
| o-Xylene | Not detected | 1 | 0.25 | ug/L | 1 | 95-47-6 | |
| Styrene | Not detected | 1 | 0.18 | ug/L | 1 | 100-42-5 | |
| Isopropylbenzene | Not detected | 5 | 0.25 | ug/L | 1 | 98-82-8 | |
| Bromoform | Not detected | 1 | 0.22 | ug/L | 1 | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | 1 | 0.18 | ug/L | 1 | 79-34-5 | |

J-Estimated value less than reporting limit, but greater than MDL



Lab Sample ID: S43512.06 (continued)

Sample Tag: DUP-07-13122022

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/19/22 17:32, Analyst: KAG (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------------------|--------------|----|-------|-------|----------|----------|-------|
| 1,2,3-Trichloropropane | Not detected | 1 | 0.33 | ug/L | 1 | 96-18-4 | |
| n-Propylbenzene | Not detected | 1 | 0.23 | ug/L | 1 | 103-65-1 | |
| Bromobenzene | Not detected | 1 | 0.27 | ug/L | 1 | 108-86-1 | |
| 1,3,5-Trimethylbenzene | Not detected | 1 | 0.26 | ug/L | 1 | 108-67-8 | |
| tert-Butylbenzene | Not detected | 1 | 0.18 | ug/L | 1 | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | 1 | 0.22 | ug/L | 1 | 95-63-6 | |
| sec-Butylbenzene | Not detected | 1 | 0.25 | ug/L | 1 | 135-98-8 | |
| p-Isopropyltoluene | Not detected | 5 | 0.21 | ug/L | 1 | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.24 | ug/L | 1 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.23 | ug/L | 1 | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.28 | ug/L | 1 | 95-50-1 | |
| 1,2,3-Trimethylbenzene | Not detected | 1 | 0.061 | ug/L | 1 | 526-73-8 | |
| n-Butylbenzene | Not detected | 1 | 0.22 | ug/L | 1 | 104-51-8 | |
| Hexachloroethane | Not detected | 5 | 0.21 | ug/L | 1 | 67-72-1 | |
| 1,2-Dibromo-3-chloropropane | Not detected | 5 | 0.47 | ug/L | 1 | 96-12-8 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.19 | ug/L | 1 | 120-82-1 | |
| 1,2,3-Trichlorobenzene | Not detected | 5 | 0.20 | ug/L | 1 | 87-61-6 | |
| Naphthalene | Not detected | 5 | 0.21 | ug/L | 1 | 91-20-3 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.16 | ug/L | 1 | 91-57-6 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.07

Sample Tag: VAS37-4-8

Collected Date/Time: 12/14/2022 09:50

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 1L Amber | None | Yes | 3.2 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 3.2 | IR |
| 3 | 40ml Glass | HCL | Yes | 3.2 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1 | 12/19/22 23:45 | CTV | |
| pH check for VOCs* | <2 | N/A | 12/20/22 12:30 | BDO | |
| Metal Digestion | Completed | SW3015A | 12/16/22 09:50 | CCM | |
| BNA Extraction | Completed | SW3510C | 12/20/22 12:00 | JWR | |

Metals

Method: E200.8, Run Date: 12/16/22 11:44, Analyst: CCM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|-----------|-------|----------|-----------|-------|
| Arsenic | 0.004 | 0.002 | 0.000255 | mg/L | 5 | 7440-38-2 | |
| Barium | 0.659 | 0.005 | 0.000162 | mg/L | 5 | 7440-39-3 | |
| Cadmium | 0.0083 | 0.0005 | 0.000190 | mg/L | 5 | 7440-43-9 | |
| Chromium | 0.023 | 0.005 | 0.0000965 | mg/L | 5 | 7440-47-3 | |
| Copper | 0.017 | 0.005 | 0.000377 | mg/L | 5 | 7440-50-8 | |
| Lead | 0.041 | 0.003 | 0.000190 | mg/L | 5 | 7439-92-1 | |
| Selenium | Not detected | 0.005 | 0.00209 | mg/L | 5 | 7782-49-2 | |
| Silver | 0.000075 | 0.0005 | 0.0000675 | mg/L | 5 | 7440-22-4 | b |
| Zinc | 0.102 | 0.005 | 0.000730 | mg/L | 5 | 7440-66-6 | |

Method: E245.1, Run Date: 12/19/22 23:11, Analyst: CTV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|----------|-------|----------|-----------|-------|
| Mercury | Not detected | 0.0002 | 0.000016 | mg/L | 1 | 7439-97-6 | |

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 20:21, Analyst: JGH

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------------|--------------|----|------|-------|----------|----------|-------|
| Acenaphthene | Not detected | 5 | 0.58 | ug/L | 2 | 83-32-9 | |
| Acenaphthylene | Not detected | 5 | 0.69 | ug/L | 2 | 208-96-8 | |
| Anthracene | Not detected | 5 | 0.70 | ug/L | 2 | 120-12-7 | |
| Benzo(a)anthracene | Not detected | 1 | 0.80 | ug/L | 2 | 56-55-3 | |
| Benzo(b)fluoranthene | Not detected | 1 | 0.77 | ug/L | 2 | 205-99-2 | |
| Benzo(k)fluoranthene | Not detected | 1 | 0.81 | ug/L | 2 | 207-08-9 | |
| Benzo(ghi)perylene | Not detected | 1 | 0.97 | ug/L | 2 | 191-24-2 | |
| Benzo(a)pyrene | Not detected | 1 | 0.99 | ug/L | 2 | 50-32-8 | |
| bis(2-Chloroethoxy)methane | Not detected | 5 | 0.60 | ug/L | 2 | 111-91-1 | |
| bis(2-Chloroethyl)ether | Not detected | 5 | 0.57 | ug/L | 2 | 111-44-4 | |
| bis(2-Chloroisopropyl)ether* | Not detected | 5 | 0.67 | ug/L | 2 | 108-60-1 | |
| bis(2-Ethylhexyl)phthalate | Not detected | 5 | 1.3 | ug/L | 2 | 117-81-7 | |
| 4-Bromophenyl phenyl ether | Not detected | 5 | 0.55 | ug/L | 2 | 101-55-3 | |
| Butyl benzyl phthalate | Not detected | 5 | 1.0 | ug/L | 2 | 85-68-7 | |

b-Value detected less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.07 (continued)

Sample Tag: VAS37-4-8

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 20:21, Analyst: JGH (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------------------------|--------------|----|------|-------|----------|------------|-------|
| 4-Chloroaniline | Not detected | 10 | 0.57 | ug/L | 2 | 106-47-8 | |
| 2-Chloronaphthalene | Not detected | 5 | 0.55 | ug/L | 2 | 91-58-7 | |
| 4-Chloro-3-methylphenol | Not detected | 5 | 0.60 | ug/L | 2 | 59-50-7 | |
| 2-Chlorophenol | Not detected | 10 | 0.53 | ug/L | 2 | 95-57-8 | |
| 4-Chlorophenyl phenyl ether | Not detected | 5 | 0.51 | ug/L | 2 | 7005-72-3 | |
| Chrysene | Not detected | 1 | 0.60 | ug/L | 2 | 218-01-9 | |
| 3-, 4-Methylphenol (p,m-Cresol) | Not detected | 20 | 1.1 | ug/L | 2 | 3/4-CRESOL | |
| 2-Methylphenol (o-Cresol) | Not detected | 10 | 0.57 | ug/L | 2 | 95-48-7 | |
| Dibenzo(ah)anthracene | Not detected | 2 | 0.90 | ug/L | 2 | 53-70-3 | |
| Dibenzofuran | Not detected | 4 | 0.54 | ug/L | 2 | 132-64-9 | |
| di-n-Butyl phthalate | Not detected | 5 | 0.64 | ug/L | 2 | 84-74-2 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.50 | ug/L | 2 | 95-50-1 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.54 | ug/L | 2 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.50 | ug/L | 2 | 106-46-7 | |
| 3,3'-Dichlorobenzidine | Not detected | 5 | 1.6 | ug/L | 2 | 91-94-1 | |
| 2,4-Dichlorophenol | Not detected | 10 | 0.61 | ug/L | 2 | 120-83-2 | |
| Diethyl phthalate | Not detected | 5 | 0.72 | ug/L | 2 | 84-66-2 | |
| 2,4-Dimethylphenol | Not detected | 5 | 0.71 | ug/L | 2 | 105-67-9 | |
| Dimethyl phthalate | Not detected | 5 | 0.63 | ug/L | 2 | 131-11-3 | |
| 4,6-Dinitro-2-methylphenol | Not detected | 20 | 0.26 | ug/L | 2 | 534-52-1 | |
| 2,4-Dinitrophenol | Not detected | 25 | 0.18 | ug/L | 2 | 51-28-5 | |
| 2,4-Dinitrotoluene | Not detected | 5 | 0.56 | ug/L | 2 | 121-14-2 | |
| 2,6-Dinitrotoluene | Not detected | 5 | 0.61 | ug/L | 2 | 606-20-2 | |
| 1,2-Diphenylhydrazine* | Not detected | 5 | 0.63 | ug/L | 2 | 122-66-7 | |
| di-n-Octyl phthalate | Not detected | 5 | 1.4 | ug/L | 2 | 117-84-0 | |
| Fluoranthene | Not detected | 1 | 0.68 | ug/L | 2 | 206-44-0 | |
| Fluorene | Not detected | 5 | 0.64 | ug/L | 2 | 86-73-7 | |
| Hexachlorobenzene | Not detected | 5 | 0.64 | ug/L | 2 | 118-74-1 | |
| Hexachlorobutadiene | Not detected | 10 | 0.59 | ug/L | 2 | 87-68-3 | |
| Hexachlorocyclopentadiene* | Not detected | 5 | 0.30 | ug/L | 2 | 77-47-4 | |
| Hexachloroethane | Not detected | 5 | 0.54 | ug/L | 2 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | Not detected | 2 | 0.90 | ug/L | 2 | 193-39-5 | |
| Isophorone | Not detected | 5 | 0.62 | ug/L | 2 | 78-59-1 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.50 | ug/L | 2 | 91-57-6 | |
| Naphthalene | Not detected | 5 | 0.63 | ug/L | 2 | 91-20-3 | |
| 2-Nitroaniline | Not detected | 25 | 0.50 | ug/L | 2 | 88-74-4 | |
| 3-Nitroaniline | Not detected | 25 | 0.48 | ug/L | 2 | 99-09-2 | |
| 4-Nitroaniline | Not detected | 25 | 0.47 | ug/L | 2 | 100-01-6 | |
| Nitrobenzene | Not detected | 5 | 0.81 | ug/L | 2 | 98-95-3 | |
| 2-Nitrophenol | Not detected | 5 | 0.46 | ug/L | 2 | 88-75-5 | |
| 4-Nitrophenol | Not detected | 25 | 0.64 | ug/L | 2 | 100-02-7 | |
| N-Nitrosodiphenylamine | Not detected | 5 | 0.72 | ug/L | 2 | 86-30-6 | |
| N-Nitrosodi-n-propylamine | Not detected | 5 | 0.74 | ug/L | 2 | 621-64-7 | |
| Pentachlorophenol | Not detected | 5 | 0.42 | ug/L | 2 | 87-86-5 | |
| Phenanthrene | Not detected | 2 | 0.72 | ug/L | 2 | 85-01-8 | |
| Phenol | Not detected | 5 | 0.60 | ug/L | 2 | 108-95-2 | |
| Pyrene | Not detected | 5 | 0.84 | ug/L | 2 | 129-00-0 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.65 | ug/L | 2 | 120-82-1 | |
| 2,4,5-Trichlorophenol | Not detected | 5 | 0.66 | ug/L | 2 | 95-95-4 | |
| 2,4,6-Trichlorophenol | Not detected | 4 | 0.55 | ug/L | 2 | 88-06-2 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.07 (continued)

Sample Tag: VAS37-4-8

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/19/22 17:56, Analyst: KAG

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|--------------------------------|--------------|----|------|-------|----------|------------|-------|
| Diethyl ether | Not detected | 10 | 0.50 | ug/L | 1 | 60-29-7 | |
| Acetone | 1.53 | 50 | 0.56 | ug/L | 1 | 67-64-1 | J |
| Methyl iodide | Not detected | 1 | 0.25 | ug/L | 1 | 74-88-4 | |
| Carbon disulfide | Not detected | 5 | 0.24 | ug/L | 1 | 75-15-0 | |
| tert-Methyl butyl ether (MTBE) | Not detected | 5 | 0.19 | ug/L | 1 | 1634-04-4 | |
| Acrylonitrile | Not detected | 2 | 0.57 | ug/L | 1 | 107-13-1 | |
| 2-Butanone (MEK) | Not detected | 25 | 0.26 | ug/L | 1 | 78-93-3 | |
| Dichlorodifluoromethane | Not detected | 5 | 0.50 | ug/L | 1 | 75-71-8 | |
| Chloromethane | Not detected | 5 | 0.26 | ug/L | 1 | 74-87-3 | |
| Vinyl chloride | Not detected | 1 | 0.31 | ug/L | 1 | 75-01-4 | |
| Bromomethane | Not detected | 5 | 0.32 | ug/L | 1 | 74-83-9 | |
| Chloroethane | Not detected | 5 | 0.34 | ug/L | 1 | 75-00-3 | |
| Trichlorofluoromethane | Not detected | 1 | 0.33 | ug/L | 1 | 75-69-4 | |
| 1,1-Dichloroethene | Not detected | 1 | 0.27 | ug/L | 1 | 75-35-4 | |
| Methylene chloride | Not detected | 5 | 0.29 | ug/L | 1 | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | 1 | 0.20 | ug/L | 1 | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | 1 | 0.20 | ug/L | 1 | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | 1 | 0.26 | ug/L | 1 | 156-59-2 | |
| Tetrahydrofuran* | 1.9 | 90 | 1.3 | ug/L | 1 | 109-99-9 | J |
| Chloroform | Not detected | 1 | 0.20 | ug/L | 1 | 67-66-3 | |
| Bromochloromethane | Not detected | 1 | 0.38 | ug/L | 1 | 74-97-5 | |
| 1,1,1-Trichloroethane | Not detected | 1 | 0.28 | ug/L | 1 | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | 50 | 0.14 | ug/L | 1 | 108-10-1 | |
| 2-Hexanone | Not detected | 50 | 0.29 | ug/L | 1 | 591-78-6 | |
| Carbon tetrachloride | Not detected | 1 | 0.20 | ug/L | 1 | 56-23-5 | |
| Benzene | Not detected | 1 | 0.20 | ug/L | 1 | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | 1 | 0.16 | ug/L | 1 | 107-06-2 | |
| Trichloroethene | Not detected | 1 | 0.23 | ug/L | 1 | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | 1 | 0.20 | ug/L | 1 | 78-87-5 | |
| Bromodichloromethane | Not detected | 1 | 0.23 | ug/L | 1 | 75-27-4 | |
| Dibromomethane | Not detected | 5 | 0.20 | ug/L | 1 | 74-95-3 | |
| cis-1,3-Dichloropropene | Not detected | 1 | 0.19 | ug/L | 1 | 10061-01-5 | |
| Toluene | 1 | 1 | 0.25 | ug/L | 1 | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | 1 | 0.25 | ug/L | 1 | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | 1 | 0.28 | ug/L | 1 | 79-00-5 | |
| Tetrachloroethene | Not detected | 1 | 0.20 | ug/L | 1 | 127-18-4 | |
| trans-1,4-Dichloro-2-butene | Not detected | 1 | 0.20 | ug/L | 1 | 110-57-6 | |
| Dibromochloromethane | Not detected | 5 | 0.24 | ug/L | 1 | 124-48-1 | |
| 1,2-Dibromoethane | Not detected | 1 | 0.30 | ug/L | 1 | 106-93-4 | |
| Chlorobenzene | 1 | 1 | 0.17 | ug/L | 1 | 108-90-7 | |
| 1,1,1,2-Tetrachloroethane | Not detected | 1 | 0.24 | ug/L | 1 | 630-20-6 | |
| Ethylbenzene | Not detected | 1 | 0.26 | ug/L | 1 | 100-41-4 | |
| p,m-Xylene* | 0.69 | 2 | 0.41 | ug/L | 1 | | J |
| o-Xylene | 0.30 | 1 | 0.25 | ug/L | 1 | 95-47-6 | J |
| Styrene | Not detected | 1 | 0.18 | ug/L | 1 | 100-42-5 | |
| Isopropylbenzene | Not detected | 5 | 0.25 | ug/L | 1 | 98-82-8 | |
| Bromoform | Not detected | 1 | 0.22 | ug/L | 1 | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | 1 | 0.18 | ug/L | 1 | 79-34-5 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.07 (continued)

Sample Tag: VAS37-4-8

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/19/22 17:56, Analyst: KAG (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------------------|--------------|----|-------|-------|----------|----------|-------|
| 1,2,3-Trichloropropane | Not detected | 1 | 0.33 | ug/L | 1 | 96-18-4 | |
| n-Propylbenzene | Not detected | 1 | 0.23 | ug/L | 1 | 103-65-1 | |
| Bromobenzene | Not detected | 1 | 0.27 | ug/L | 1 | 108-86-1 | |
| 1,3,5-Trimethylbenzene | 0.30 | 1 | 0.26 | ug/L | 1 | 108-67-8 | J |
| tert-Butylbenzene | Not detected | 1 | 0.18 | ug/L | 1 | 98-06-6 | |
| 1,2,4-Trimethylbenzene | 1 | 1 | 0.22 | ug/L | 1 | 95-63-6 | |
| sec-Butylbenzene | Not detected | 1 | 0.25 | ug/L | 1 | 135-98-8 | |
| p-Isopropyltoluene | Not detected | 5 | 0.21 | ug/L | 1 | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.24 | ug/L | 1 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.23 | ug/L | 1 | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.28 | ug/L | 1 | 95-50-1 | |
| 1,2,3-Trimethylbenzene | 0.390 | 1 | 0.061 | ug/L | 1 | 526-73-8 | J |
| n-Butylbenzene | Not detected | 1 | 0.22 | ug/L | 1 | 104-51-8 | |
| Hexachloroethane | Not detected | 5 | 0.21 | ug/L | 1 | 67-72-1 | |
| 1,2-Dibromo-3-chloropropane | Not detected | 5 | 0.47 | ug/L | 1 | 96-12-8 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.19 | ug/L | 1 | 120-82-1 | |
| 1,2,3-Trichlorobenzene | Not detected | 5 | 0.20 | ug/L | 1 | 87-61-6 | |
| Naphthalene | Not detected | 5 | 0.21 | ug/L | 1 | 91-20-3 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.16 | ug/L | 1 | 91-57-6 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.08

Sample Tag: VAS38-5-9

Collected Date/Time: 12/14/2022 11:30

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 1L Amber | None | Yes | 3.2 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 3.2 | IR |
| 3 | 40ml Glass | HCL | Yes | 3.2 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1 | 12/19/22 23:45 | CTV | |
| pH check for VOCs* | <2 | N/A | 12/20/22 12:30 | BDO | |
| Metal Digestion | Completed | SW3015A | 12/16/22 09:50 | CCM | |
| BNA Extraction | Completed | SW3510C | 12/20/22 12:00 | JWR | |

Metals

Method: E200.8, Run Date: 12/16/22 11:46, Analyst: CCM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|-----------|-------|----------|-----------|-------|
| Arsenic | 0.00171 | 0.002 | 0.000255 | mg/L | 5 | 7440-38-2 | b |
| Barium | 0.594 | 0.005 | 0.000162 | mg/L | 5 | 7440-39-3 | |
| Cadmium | Not detected | 0.0005 | 0.000190 | mg/L | 5 | 7440-43-9 | |
| Chromium | 0.000340 | 0.005 | 0.0000965 | mg/L | 5 | 7440-47-3 | b |
| Copper | 0.00313 | 0.005 | 0.000377 | mg/L | 5 | 7440-50-8 | b |
| Lead | 0.014 | 0.003 | 0.000190 | mg/L | 5 | 7439-92-1 | |
| Selenium | 0.00215 | 0.005 | 0.00209 | mg/L | 5 | 7782-49-2 | b |
| Silver | Not detected | 0.0005 | 0.0000675 | mg/L | 5 | 7440-22-4 | |
| Zinc | 0.009 | 0.005 | 0.000730 | mg/L | 5 | 7440-66-6 | |

Method: E245.1, Run Date: 12/19/22 23:15, Analyst: CTV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|----------|-------|----------|-----------|-------|
| Mercury | Not detected | 0.0002 | 0.000016 | mg/L | 1 | 7439-97-6 | |

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 20:52, Analyst: JGH

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------------|--------------|----|------|-------|----------|----------|-------|
| Acenaphthene | Not detected | 5 | 0.58 | ug/L | 2 | 83-32-9 | |
| Acenaphthylene | Not detected | 5 | 0.68 | ug/L | 2 | 208-96-8 | |
| Anthracene | Not detected | 5 | 0.70 | ug/L | 2 | 120-12-7 | |
| Benzo(a)anthracene | Not detected | 1 | 0.79 | ug/L | 2 | 56-55-3 | |
| Benzo(b)fluoranthene | Not detected | 1 | 0.77 | ug/L | 2 | 205-99-2 | |
| Benzo(k)fluoranthene | Not detected | 1 | 0.81 | ug/L | 2 | 207-08-9 | |
| Benzo(ghi)perylene | Not detected | 1 | 0.96 | ug/L | 2 | 191-24-2 | |
| Benzo(a)pyrene | Not detected | 1 | 0.98 | ug/L | 2 | 50-32-8 | |
| bis(2-Chloroethoxy)methane | Not detected | 5 | 0.60 | ug/L | 2 | 111-91-1 | |
| bis(2-Chloroethyl)ether | Not detected | 5 | 0.56 | ug/L | 2 | 111-44-4 | |
| bis(2-Chloroisopropyl)ether* | Not detected | 5 | 0.66 | ug/L | 2 | 108-60-1 | |
| bis(2-Ethylhexyl)phthalate | Not detected | 5 | 1.3 | ug/L | 2 | 117-81-7 | |
| 4-Bromophenyl phenyl ether | Not detected | 5 | 0.54 | ug/L | 2 | 101-55-3 | |
| Butyl benzyl phthalate | Not detected | 5 | 1.0 | ug/L | 2 | 85-68-7 | |

b-Value detected less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.08 (continued)

Sample Tag: VAS38-5-9

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 20:52, Analyst: JGH (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------------------------|--------------|----|------|-------|----------|------------|-------|
| 4-Chloroaniline | Not detected | 10 | 0.57 | ug/L | 2 | 106-47-8 | |
| 2-Chloronaphthalene | Not detected | 5 | 0.55 | ug/L | 2 | 91-58-7 | |
| 4-Chloro-3-methylphenol | Not detected | 5 | 0.59 | ug/L | 2 | 59-50-7 | |
| 2-Chlorophenol | Not detected | 10 | 0.53 | ug/L | 2 | 95-57-8 | |
| 4-Chlorophenyl phenyl ether | Not detected | 5 | 0.51 | ug/L | 2 | 7005-72-3 | |
| Chrysene | Not detected | 1 | 0.60 | ug/L | 2 | 218-01-9 | |
| 3-, 4-Methylphenol (p,m-Cresol) | Not detected | 20 | 1.1 | ug/L | 2 | 3/4-CRESOL | |
| 2-Methylphenol (o-Cresol) | Not detected | 10 | 0.56 | ug/L | 2 | 95-48-7 | |
| Dibenzo(ah)anthracene | Not detected | 2 | 0.89 | ug/L | 2 | 53-70-3 | |
| Dibenzofuran | Not detected | 4 | 0.53 | ug/L | 2 | 132-64-9 | |
| di-n-Butyl phthalate | Not detected | 5 | 0.63 | ug/L | 2 | 84-74-2 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.49 | ug/L | 2 | 95-50-1 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.53 | ug/L | 2 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.50 | ug/L | 2 | 106-46-7 | |
| 3,3'-Dichlorobenzidine | Not detected | 5 | 1.6 | ug/L | 2 | 91-94-1 | |
| 2,4-Dichlorophenol | Not detected | 10 | 0.61 | ug/L | 2 | 120-83-2 | |
| Diethyl phthalate | Not detected | 5 | 0.71 | ug/L | 2 | 84-66-2 | |
| 2,4-Dimethylphenol | Not detected | 5 | 0.71 | ug/L | 2 | 105-67-9 | |
| Dimethyl phthalate | Not detected | 5 | 0.63 | ug/L | 2 | 131-11-3 | |
| 4,6-Dinitro-2-methylphenol | Not detected | 20 | 0.26 | ug/L | 2 | 534-52-1 | |
| 2,4-Dinitrophenol | Not detected | 25 | 0.17 | ug/L | 2 | 51-28-5 | |
| 2,4-Dinitrotoluene | Not detected | 5 | 0.55 | ug/L | 2 | 121-14-2 | |
| 2,6-Dinitrotoluene | Not detected | 5 | 0.61 | ug/L | 2 | 606-20-2 | |
| 1,2-Diphenylhydrazine* | Not detected | 5 | 0.62 | ug/L | 2 | 122-66-7 | |
| di-n-Octyl phthalate | Not detected | 5 | 1.4 | ug/L | 2 | 117-84-0 | |
| Fluoranthene | Not detected | 1 | 0.68 | ug/L | 2 | 206-44-0 | |
| Fluorene | Not detected | 5 | 0.63 | ug/L | 2 | 86-73-7 | |
| Hexachlorobenzene | Not detected | 5 | 0.64 | ug/L | 2 | 118-74-1 | |
| Hexachlorobutadiene | Not detected | 10 | 0.59 | ug/L | 2 | 87-68-3 | |
| Hexachlorocyclopentadiene* | Not detected | 5 | 0.30 | ug/L | 2 | 77-47-4 | |
| Hexachloroethane | Not detected | 5 | 0.53 | ug/L | 2 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | Not detected | 2 | 0.89 | ug/L | 2 | 193-39-5 | |
| Isophorone | Not detected | 5 | 0.61 | ug/L | 2 | 78-59-1 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.49 | ug/L | 2 | 91-57-6 | |
| Naphthalene | Not detected | 5 | 0.63 | ug/L | 2 | 91-20-3 | |
| 2-Nitroaniline | Not detected | 25 | 0.49 | ug/L | 2 | 88-74-4 | |
| 3-Nitroaniline | Not detected | 25 | 0.47 | ug/L | 2 | 99-09-2 | |
| 4-Nitroaniline | Not detected | 25 | 0.47 | ug/L | 2 | 100-01-6 | |
| Nitrobenzene | Not detected | 5 | 0.80 | ug/L | 2 | 98-95-3 | |
| 2-Nitrophenol | Not detected | 5 | 0.45 | ug/L | 2 | 88-75-5 | |
| 4-Nitrophenol | Not detected | 25 | 0.63 | ug/L | 2 | 100-02-7 | |
| N-Nitrosodiphenylamine | Not detected | 5 | 0.71 | ug/L | 2 | 86-30-6 | |
| N-Nitrosodi-n-propylamine | Not detected | 5 | 0.73 | ug/L | 2 | 621-64-7 | |
| Pentachlorophenol | Not detected | 5 | 0.42 | ug/L | 2 | 87-86-5 | |
| Phenanthrene | Not detected | 2 | 0.71 | ug/L | 2 | 85-01-8 | |
| Phenol | Not detected | 5 | 0.60 | ug/L | 2 | 108-95-2 | |
| Pyrene | Not detected | 5 | 0.83 | ug/L | 2 | 129-00-0 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.64 | ug/L | 2 | 120-82-1 | |
| 2,4,5-Trichlorophenol | Not detected | 5 | 0.65 | ug/L | 2 | 95-95-4 | |
| 2,4,6-Trichlorophenol | Not detected | 4 | 0.55 | ug/L | 2 | 88-06-2 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.08 (continued)

Sample Tag: VAS38-5-9

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/19/22 18:19, Analyst: KAG

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|--------------------------------|--------------|----|------|-------|----------|------------|-------|
| Diethyl ether | Not detected | 10 | 0.50 | ug/L | 1 | 60-29-7 | |
| Acetone | 3.03 | 50 | 0.56 | ug/L | 1 | 67-64-1 | J |
| Methyl iodide | Not detected | 1 | 0.25 | ug/L | 1 | 74-88-4 | |
| Carbon disulfide | Not detected | 5 | 0.24 | ug/L | 1 | 75-15-0 | |
| tert-Methyl butyl ether (MTBE) | Not detected | 5 | 0.19 | ug/L | 1 | 1634-04-4 | |
| Acrylonitrile | Not detected | 2 | 0.57 | ug/L | 1 | 107-13-1 | |
| 2-Butanone (MEK) | Not detected | 25 | 0.26 | ug/L | 1 | 78-93-3 | |
| Dichlorodifluoromethane | Not detected | 5 | 0.50 | ug/L | 1 | 75-71-8 | |
| Chloromethane | Not detected | 5 | 0.26 | ug/L | 1 | 74-87-3 | |
| Vinyl chloride | Not detected | 1 | 0.31 | ug/L | 1 | 75-01-4 | |
| Bromomethane | Not detected | 5 | 0.32 | ug/L | 1 | 74-83-9 | |
| Chloroethane | Not detected | 5 | 0.34 | ug/L | 1 | 75-00-3 | |
| Trichlorofluoromethane | Not detected | 1 | 0.33 | ug/L | 1 | 75-69-4 | |
| 1,1-Dichloroethene | Not detected | 1 | 0.27 | ug/L | 1 | 75-35-4 | |
| Methylene chloride | Not detected | 5 | 0.29 | ug/L | 1 | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | 1 | 0.20 | ug/L | 1 | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | 1 | 0.20 | ug/L | 1 | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | 1 | 0.26 | ug/L | 1 | 156-59-2 | |
| Tetrahydrofuran* | Not detected | 90 | 1.3 | ug/L | 1 | 109-99-9 | |
| Chloroform | Not detected | 1 | 0.20 | ug/L | 1 | 67-66-3 | |
| Bromochloromethane | Not detected | 1 | 0.38 | ug/L | 1 | 74-97-5 | |
| 1,1,1-Trichloroethane | Not detected | 1 | 0.28 | ug/L | 1 | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | 50 | 0.14 | ug/L | 1 | 108-10-1 | |
| 2-Hexanone | Not detected | 50 | 0.29 | ug/L | 1 | 591-78-6 | |
| Carbon tetrachloride | Not detected | 1 | 0.20 | ug/L | 1 | 56-23-5 | |
| Benzene | Not detected | 1 | 0.20 | ug/L | 1 | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | 1 | 0.16 | ug/L | 1 | 107-06-2 | |
| Trichloroethene | Not detected | 1 | 0.23 | ug/L | 1 | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | 1 | 0.20 | ug/L | 1 | 78-87-5 | |
| Bromodichloromethane | Not detected | 1 | 0.23 | ug/L | 1 | 75-27-4 | |
| Dibromomethane | Not detected | 5 | 0.20 | ug/L | 1 | 74-95-3 | |
| cis-1,3-Dichloropropene | Not detected | 1 | 0.19 | ug/L | 1 | 10061-01-5 | |
| Toluene | Not detected | 1 | 0.25 | ug/L | 1 | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | 1 | 0.25 | ug/L | 1 | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | 1 | 0.28 | ug/L | 1 | 79-00-5 | |
| Tetrachloroethene | Not detected | 1 | 0.20 | ug/L | 1 | 127-18-4 | |
| trans-1,4-Dichloro-2-butene | Not detected | 1 | 0.20 | ug/L | 1 | 110-57-6 | |
| Dibromochloromethane | Not detected | 5 | 0.24 | ug/L | 1 | 124-48-1 | |
| 1,2-Dibromoethane | Not detected | 1 | 0.30 | ug/L | 1 | 106-93-4 | |
| Chlorobenzene | 0.53 | 1 | 0.17 | ug/L | 1 | 108-90-7 | J |
| 1,1,1,2-Tetrachloroethane | Not detected | 1 | 0.24 | ug/L | 1 | 630-20-6 | |
| Ethylbenzene | Not detected | 1 | 0.26 | ug/L | 1 | 100-41-4 | |
| p,m-Xylene* | Not detected | 2 | 0.41 | ug/L | 1 | | |
| o-Xylene | Not detected | 1 | 0.25 | ug/L | 1 | 95-47-6 | |
| Styrene | Not detected | 1 | 0.18 | ug/L | 1 | 100-42-5 | |
| Isopropylbenzene | Not detected | 5 | 0.25 | ug/L | 1 | 98-82-8 | |
| Bromoform | Not detected | 1 | 0.22 | ug/L | 1 | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | 1 | 0.18 | ug/L | 1 | 79-34-5 | |

J-Estimated value less than reporting limit, but greater than MDL



Lab Sample ID: S43512.08 (continued)

Sample Tag: VAS38-5-9

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/19/22 18:19, Analyst: KAG (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------------------|--------------|----|-------|-------|----------|----------|-------|
| 1,2,3-Trichloropropane | Not detected | 1 | 0.33 | ug/L | 1 | 96-18-4 | |
| n-Propylbenzene | Not detected | 1 | 0.23 | ug/L | 1 | 103-65-1 | |
| Bromobenzene | Not detected | 1 | 0.27 | ug/L | 1 | 108-86-1 | |
| 1,3,5-Trimethylbenzene | Not detected | 1 | 0.26 | ug/L | 1 | 108-67-8 | |
| tert-Butylbenzene | Not detected | 1 | 0.18 | ug/L | 1 | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | 1 | 0.22 | ug/L | 1 | 95-63-6 | |
| sec-Butylbenzene | Not detected | 1 | 0.25 | ug/L | 1 | 135-98-8 | |
| p-Isopropyltoluene | Not detected | 5 | 0.21 | ug/L | 1 | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.24 | ug/L | 1 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.23 | ug/L | 1 | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.28 | ug/L | 1 | 95-50-1 | |
| 1,2,3-Trimethylbenzene | Not detected | 1 | 0.061 | ug/L | 1 | 526-73-8 | |
| n-Butylbenzene | Not detected | 1 | 0.22 | ug/L | 1 | 104-51-8 | |
| Hexachloroethane | Not detected | 5 | 0.21 | ug/L | 1 | 67-72-1 | |
| 1,2-Dibromo-3-chloropropane | Not detected | 5 | 0.47 | ug/L | 1 | 96-12-8 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.19 | ug/L | 1 | 120-82-1 | |
| 1,2,3-Trichlorobenzene | Not detected | 5 | 0.20 | ug/L | 1 | 87-61-6 | |
| Naphthalene | Not detected | 5 | 0.21 | ug/L | 1 | 91-20-3 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.16 | ug/L | 1 | 91-57-6 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.09

Sample Tag: VAS39-1-5

Collected Date/Time: 12/14/2022 14:10

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 1L Amber | None | Yes | 3.2 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 3.2 | IR |
| 3 | 40ml Glass | HCL | Yes | 3.2 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1 | 12/19/22 23:45 | CTV | |
| pH check for VOCs* | <2 | N/A | 12/20/22 12:30 | BDO | |
| Metal Digestion | Completed | SW3015A | 12/16/22 11:45 | CCM | |
| BNA Extraction | Completed | SW3510C | 12/20/22 12:00 | JWR | |

Metals

Method: E200.8, Run Date: 12/16/22 13:33, Analyst: CCM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|-----------|-------|----------|-----------|-------|
| Arsenic | 0.003 | 0.002 | 0.000255 | mg/L | 5 | 7440-38-2 | |
| Barium | 0.784 | 0.005 | 0.000162 | mg/L | 5 | 7440-39-3 | |
| Cadmium | 0.000334 | 0.0005 | 0.000190 | mg/L | 5 | 7440-43-9 | b |
| Chromium | 0.00401 | 0.005 | 0.0000965 | mg/L | 5 | 7440-47-3 | b |
| Copper | 0.016 | 0.005 | 0.000377 | mg/L | 5 | 7440-50-8 | |
| Lead | 0.053 | 0.003 | 0.000190 | mg/L | 5 | 7439-92-1 | |
| Selenium | Not detected | 0.005 | 0.00209 | mg/L | 5 | 7782-49-2 | |
| Silver | 0.000159 | 0.0005 | 0.0000675 | mg/L | 5 | 7440-22-4 | b |
| Zinc | 0.119 | 0.005 | 0.000730 | mg/L | 5 | 7440-66-6 | |

Method: E245.1, Run Date: 12/19/22 23:19, Analyst: CTV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|----------|-------|----------|-----------|-------|
| Mercury | Not detected | 0.0002 | 0.000016 | mg/L | 1 | 7439-97-6 | |

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 21:22, Analyst: JGH

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------------|--------------|----|------|-------|----------|----------|-------|
| Acenaphthene | Not detected | 5 | 0.58 | ug/L | 2 | 83-32-9 | |
| Acenaphthylene | Not detected | 5 | 0.69 | ug/L | 2 | 208-96-8 | |
| Anthracene | Not detected | 5 | 0.70 | ug/L | 2 | 120-12-7 | |
| Benzo(a)anthracene | Not detected | 1 | 0.80 | ug/L | 2 | 56-55-3 | |
| Benzo(b)fluoranthene | Not detected | 1 | 0.77 | ug/L | 2 | 205-99-2 | |
| Benzo(k)fluoranthene | Not detected | 1 | 0.81 | ug/L | 2 | 207-08-9 | |
| Benzo(ghi)perylene | Not detected | 1 | 0.97 | ug/L | 2 | 191-24-2 | |
| Benzo(a)pyrene | Not detected | 1 | 0.99 | ug/L | 2 | 50-32-8 | |
| bis(2-Chloroethoxy)methane | Not detected | 5 | 0.60 | ug/L | 2 | 111-91-1 | |
| bis(2-Chloroethyl)ether | Not detected | 5 | 0.57 | ug/L | 2 | 111-44-4 | |
| bis(2-Chloroisopropyl)ether* | Not detected | 5 | 0.67 | ug/L | 2 | 108-60-1 | |
| bis(2-Ethylhexyl)phthalate | Not detected | 5 | 1.3 | ug/L | 2 | 117-81-7 | |
| 4-Bromophenyl phenyl ether | Not detected | 5 | 0.55 | ug/L | 2 | 101-55-3 | |
| Butyl benzyl phthalate | Not detected | 5 | 1.0 | ug/L | 2 | 85-68-7 | |

b-Value detected less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.09 (continued)

Sample Tag: VAS39-1-5

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 21:22, Analyst: JGH (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------------------------|--------------|----|------|-------|----------|------------|-------|
| 4-Chloroaniline | Not detected | 10 | 0.57 | ug/L | 2 | 106-47-8 | |
| 2-Chloronaphthalene | Not detected | 5 | 0.55 | ug/L | 2 | 91-58-7 | |
| 4-Chloro-3-methylphenol | Not detected | 5 | 0.60 | ug/L | 2 | 59-50-7 | |
| 2-Chlorophenol | Not detected | 10 | 0.53 | ug/L | 2 | 95-57-8 | |
| 4-Chlorophenyl phenyl ether | Not detected | 5 | 0.51 | ug/L | 2 | 7005-72-3 | |
| Chrysene | Not detected | 1 | 0.60 | ug/L | 2 | 218-01-9 | |
| 3-, 4-Methylphenol (p,m-Cresol) | Not detected | 20 | 1.1 | ug/L | 2 | 3/4-CRESOL | |
| 2-Methylphenol (o-Cresol) | Not detected | 10 | 0.57 | ug/L | 2 | 95-48-7 | |
| Dibenzo(ah)anthracene | Not detected | 2 | 0.90 | ug/L | 2 | 53-70-3 | |
| Dibenzofuran | Not detected | 4 | 0.54 | ug/L | 2 | 132-64-9 | |
| di-n-Butyl phthalate | Not detected | 5 | 0.64 | ug/L | 2 | 84-74-2 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.50 | ug/L | 2 | 95-50-1 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.54 | ug/L | 2 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.50 | ug/L | 2 | 106-46-7 | |
| 3,3'-Dichlorobenzidine | Not detected | 5 | 1.6 | ug/L | 2 | 91-94-1 | |
| 2,4-Dichlorophenol | Not detected | 10 | 0.61 | ug/L | 2 | 120-83-2 | |
| Diethyl phthalate | Not detected | 5 | 0.72 | ug/L | 2 | 84-66-2 | |
| 2,4-Dimethylphenol | Not detected | 5 | 0.71 | ug/L | 2 | 105-67-9 | |
| Dimethyl phthalate | Not detected | 5 | 0.63 | ug/L | 2 | 131-11-3 | |
| 4,6-Dinitro-2-methylphenol | Not detected | 20 | 0.26 | ug/L | 2 | 534-52-1 | |
| 2,4-Dinitrophenol | Not detected | 25 | 0.18 | ug/L | 2 | 51-28-5 | |
| 2,4-Dinitrotoluene | Not detected | 5 | 0.56 | ug/L | 2 | 121-14-2 | |
| 2,6-Dinitrotoluene | Not detected | 5 | 0.61 | ug/L | 2 | 606-20-2 | |
| 1,2-Diphenylhydrazine* | Not detected | 5 | 0.63 | ug/L | 2 | 122-66-7 | |
| di-n-Octyl phthalate | Not detected | 5 | 1.4 | ug/L | 2 | 117-84-0 | |
| Fluoranthene | Not detected | 1 | 0.68 | ug/L | 2 | 206-44-0 | |
| Fluorene | Not detected | 5 | 0.64 | ug/L | 2 | 86-73-7 | |
| Hexachlorobenzene | Not detected | 5 | 0.64 | ug/L | 2 | 118-74-1 | |
| Hexachlorobutadiene | Not detected | 10 | 0.59 | ug/L | 2 | 87-68-3 | |
| Hexachlorocyclopentadiene* | Not detected | 5 | 0.30 | ug/L | 2 | 77-47-4 | |
| Hexachloroethane | Not detected | 5 | 0.54 | ug/L | 2 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | Not detected | 2 | 0.90 | ug/L | 2 | 193-39-5 | |
| Isophorone | Not detected | 5 | 0.62 | ug/L | 2 | 78-59-1 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.50 | ug/L | 2 | 91-57-6 | |
| Naphthalene | Not detected | 5 | 0.63 | ug/L | 2 | 91-20-3 | |
| 2-Nitroaniline | Not detected | 25 | 0.50 | ug/L | 2 | 88-74-4 | |
| 3-Nitroaniline | Not detected | 25 | 0.48 | ug/L | 2 | 99-09-2 | |
| 4-Nitroaniline | Not detected | 25 | 0.47 | ug/L | 2 | 100-01-6 | |
| Nitrobenzene | Not detected | 5 | 0.81 | ug/L | 2 | 98-95-3 | |
| 2-Nitrophenol | Not detected | 5 | 0.46 | ug/L | 2 | 88-75-5 | |
| 4-Nitrophenol | Not detected | 25 | 0.64 | ug/L | 2 | 100-02-7 | |
| N-Nitrosodiphenylamine | Not detected | 5 | 0.72 | ug/L | 2 | 86-30-6 | |
| N-Nitrosodi-n-propylamine | Not detected | 5 | 0.74 | ug/L | 2 | 621-64-7 | |
| Pentachlorophenol | Not detected | 5 | 0.42 | ug/L | 2 | 87-86-5 | |
| Phenanthrene | Not detected | 2 | 0.72 | ug/L | 2 | 85-01-8 | |
| Phenol | Not detected | 5 | 0.60 | ug/L | 2 | 108-95-2 | |
| Pyrene | Not detected | 5 | 0.84 | ug/L | 2 | 129-00-0 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.65 | ug/L | 2 | 120-82-1 | |
| 2,4,5-Trichlorophenol | Not detected | 5 | 0.66 | ug/L | 2 | 95-95-4 | |
| 2,4,6-Trichlorophenol | Not detected | 4 | 0.55 | ug/L | 2 | 88-06-2 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.09 (continued)

Sample Tag: VAS39-1-5

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/19/22 18:43, Analyst: KAG

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|--------------------------------|--------------|----|------|-------|----------|------------|-------|
| Diethyl ether | Not detected | 10 | 0.50 | ug/L | 1 | 60-29-7 | |
| Acetone | 2.96 | 50 | 0.56 | ug/L | 1 | 67-64-1 | J |
| Methyl iodide | Not detected | 1 | 0.25 | ug/L | 1 | 74-88-4 | |
| Carbon disulfide | Not detected | 5 | 0.24 | ug/L | 1 | 75-15-0 | |
| tert-Methyl butyl ether (MTBE) | Not detected | 5 | 0.19 | ug/L | 1 | 1634-04-4 | |
| Acrylonitrile | Not detected | 2 | 0.57 | ug/L | 1 | 107-13-1 | |
| 2-Butanone (MEK) | Not detected | 25 | 0.26 | ug/L | 1 | 78-93-3 | |
| Dichlorodifluoromethane | Not detected | 5 | 0.50 | ug/L | 1 | 75-71-8 | |
| Chloromethane | Not detected | 5 | 0.26 | ug/L | 1 | 74-87-3 | |
| Vinyl chloride | Not detected | 1 | 0.31 | ug/L | 1 | 75-01-4 | |
| Bromomethane | Not detected | 5 | 0.32 | ug/L | 1 | 74-83-9 | |
| Chloroethane | Not detected | 5 | 0.34 | ug/L | 1 | 75-00-3 | |
| Trichlorofluoromethane | Not detected | 1 | 0.33 | ug/L | 1 | 75-69-4 | |
| 1,1-Dichloroethene | Not detected | 1 | 0.27 | ug/L | 1 | 75-35-4 | |
| Methylene chloride | Not detected | 5 | 0.29 | ug/L | 1 | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | 1 | 0.20 | ug/L | 1 | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | 1 | 0.20 | ug/L | 1 | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | 1 | 0.26 | ug/L | 1 | 156-59-2 | |
| Tetrahydrofuran* | 4.0 | 90 | 1.3 | ug/L | 1 | 109-99-9 | J |
| Chloroform | Not detected | 1 | 0.20 | ug/L | 1 | 67-66-3 | |
| Bromochloromethane | Not detected | 1 | 0.38 | ug/L | 1 | 74-97-5 | |
| 1,1,1-Trichloroethane | Not detected | 1 | 0.28 | ug/L | 1 | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | 50 | 0.14 | ug/L | 1 | 108-10-1 | |
| 2-Hexanone | Not detected | 50 | 0.29 | ug/L | 1 | 591-78-6 | |
| Carbon tetrachloride | Not detected | 1 | 0.20 | ug/L | 1 | 56-23-5 | |
| Benzene | Not detected | 1 | 0.20 | ug/L | 1 | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | 1 | 0.16 | ug/L | 1 | 107-06-2 | |
| Trichloroethene | Not detected | 1 | 0.23 | ug/L | 1 | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | 1 | 0.20 | ug/L | 1 | 78-87-5 | |
| Bromodichloromethane | Not detected | 1 | 0.23 | ug/L | 1 | 75-27-4 | |
| Dibromomethane | Not detected | 5 | 0.20 | ug/L | 1 | 74-95-3 | |
| cis-1,3-Dichloropropene | Not detected | 1 | 0.19 | ug/L | 1 | 10061-01-5 | |
| Toluene | Not detected | 1 | 0.25 | ug/L | 1 | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | 1 | 0.25 | ug/L | 1 | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | 1 | 0.28 | ug/L | 1 | 79-00-5 | |
| Tetrachloroethene | Not detected | 1 | 0.20 | ug/L | 1 | 127-18-4 | |
| trans-1,4-Dichloro-2-butene | Not detected | 1 | 0.20 | ug/L | 1 | 110-57-6 | |
| Dibromochloromethane | Not detected | 5 | 0.24 | ug/L | 1 | 124-48-1 | |
| 1,2-Dibromoethane | Not detected | 1 | 0.30 | ug/L | 1 | 106-93-4 | |
| Chlorobenzene | Not detected | 1 | 0.17 | ug/L | 1 | 108-90-7 | |
| 1,1,1,2-Tetrachloroethane | Not detected | 1 | 0.24 | ug/L | 1 | 630-20-6 | |
| Ethylbenzene | Not detected | 1 | 0.26 | ug/L | 1 | 100-41-4 | |
| p,m-Xylene* | Not detected | 2 | 0.41 | ug/L | 1 | | |
| o-Xylene | Not detected | 1 | 0.25 | ug/L | 1 | 95-47-6 | |
| Styrene | Not detected | 1 | 0.18 | ug/L | 1 | 100-42-5 | |
| Isopropylbenzene | Not detected | 5 | 0.25 | ug/L | 1 | 98-82-8 | |
| Bromoform | Not detected | 1 | 0.22 | ug/L | 1 | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | 1 | 0.18 | ug/L | 1 | 79-34-5 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.09 (continued)

Sample Tag: VAS39-1-5

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/19/22 18:43, Analyst: KAG (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------------------|--------------|----|-------|-------|----------|----------|-------|
| 1,2,3-Trichloropropane | Not detected | 1 | 0.33 | ug/L | 1 | 96-18-4 | |
| n-Propylbenzene | Not detected | 1 | 0.23 | ug/L | 1 | 103-65-1 | |
| Bromobenzene | Not detected | 1 | 0.27 | ug/L | 1 | 108-86-1 | |
| 1,3,5-Trimethylbenzene | Not detected | 1 | 0.26 | ug/L | 1 | 108-67-8 | |
| tert-Butylbenzene | Not detected | 1 | 0.18 | ug/L | 1 | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | 1 | 0.22 | ug/L | 1 | 95-63-6 | |
| sec-Butylbenzene | Not detected | 1 | 0.25 | ug/L | 1 | 135-98-8 | |
| p-Isopropyltoluene | Not detected | 5 | 0.21 | ug/L | 1 | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.24 | ug/L | 1 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.23 | ug/L | 1 | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.28 | ug/L | 1 | 95-50-1 | |
| 1,2,3-Trimethylbenzene | Not detected | 1 | 0.061 | ug/L | 1 | 526-73-8 | |
| n-Butylbenzene | Not detected | 1 | 0.22 | ug/L | 1 | 104-51-8 | |
| Hexachloroethane | Not detected | 5 | 0.21 | ug/L | 1 | 67-72-1 | |
| 1,2-Dibromo-3-chloropropane | Not detected | 5 | 0.47 | ug/L | 1 | 96-12-8 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.19 | ug/L | 1 | 120-82-1 | |
| 1,2,3-Trichlorobenzene | Not detected | 5 | 0.20 | ug/L | 1 | 87-61-6 | |
| Naphthalene | 0.36 | 5 | 0.21 | ug/L | 1 | 91-20-3 | J |
| 2-Methylnaphthalene | Not detected | 5 | 0.16 | ug/L | 1 | 91-57-6 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.10

Sample Tag: Trip Blank-04

Collected Date/Time: 12/14/2022 07:00

Matrix: Water

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|------|-----------------|---------------|-------------------|---------------|
| 1 | n/a | n/a | No | n/a | n/a |

Other / Misc.

Method: , Run Date: 12/16/22 15:35, Analyst: JRM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|--------------|-----------|----|-----|-------|----------|------|-------|
| No Analyses* | Completed | | | | 1 | | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.11

Sample Tag: MW-34

Collected Date/Time: 12/15/2022 11:55

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 1L Amber | None | Yes | 3.2 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 3.2 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|-------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1 | 12/19/22 23:45 | CTV | |
| Metal Digestion | Completed | SW3015A | 12/16/22 09:50 | CCM | |
| BNA Extraction | Completed | SW3510C | 12/20/22 12:00 | JWR | |

Metals

Method: E200.8, Run Date: 12/16/22 11:48, Analyst: CCM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|-----------|-------|----------|-----------|-------|
| Arsenic | 0.002 | 0.002 | 0.000255 | mg/L | 5 | 7440-38-2 | |
| Barium | 0.525 | 0.005 | 0.000162 | mg/L | 5 | 7440-39-3 | |
| Cadmium | Not detected | 0.0005 | 0.000190 | mg/L | 5 | 7440-43-9 | |
| Chromium | 0.021 | 0.005 | 0.0000965 | mg/L | 5 | 7440-47-3 | |
| Copper | 0.00247 | 0.005 | 0.000377 | mg/L | 5 | 7440-50-8 | b |
| Lead | 0.003 | 0.003 | 0.000190 | mg/L | 5 | 7439-92-1 | |
| Selenium | Not detected | 0.005 | 0.00209 | mg/L | 5 | 7782-49-2 | |
| Silver | Not detected | 0.0005 | 0.0000675 | mg/L | 5 | 7440-22-4 | |
| Zinc | 0.005 | 0.005 | 0.000730 | mg/L | 5 | 7440-66-6 | |

Method: E245.1, Run Date: 12/19/22 23:23, Analyst: CTV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|----------|-------|----------|-----------|-------|
| Mercury | Not detected | 0.0002 | 0.000016 | mg/L | 1 | 7439-97-6 | |

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/29/22 10:37, Analyst: JGH

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------------|--------------|----|-----|-------|----------|----------|-------|
| Acenaphthene | 9.4 | 10 | 5.8 | ug/L | 20 | 83-32-9 | JY |
| Acenaphthylene | Not detected | 10 | 6.8 | ug/L | 20 | 208-96-8 | Y |
| Anthracene | Not detected | 10 | 7.0 | ug/L | 20 | 120-12-7 | Y |
| Benzo(a)anthracene | Not detected | 10 | 7.9 | ug/L | 20 | 56-55-3 | Y |
| Benzo(b)fluoranthene | Not detected | 10 | 7.7 | ug/L | 20 | 205-99-2 | Y |
| Benzo(k)fluoranthene | Not detected | 10 | 8.1 | ug/L | 20 | 207-08-9 | Y |
| Benzo(ghi)perylene | Not detected | 10 | 9.6 | ug/L | 20 | 191-24-2 | Y |
| Benzo(a)pyrene | Not detected | 10 | 9.8 | ug/L | 20 | 50-32-8 | Y |
| bis(2-Chloroethoxy)methane | Not detected | 10 | 6.0 | ug/L | 20 | 111-91-1 | Y |
| bis(2-Chloroethyl)ether | Not detected | 10 | 5.6 | ug/L | 20 | 111-44-4 | Y |
| bis(2-Chloroisopropyl)ether* | Not detected | 10 | 6.6 | ug/L | 20 | 108-60-1 | Y |
| bis(2-Ethylhexyl)phthalate | Not detected | 20 | 13 | ug/L | 20 | 117-81-7 | Y |
| 4-Bromophenyl phenyl ether | Not detected | 10 | 5.4 | ug/L | 20 | 101-55-3 | Y |
| Butyl benzyl phthalate | Not detected | 20 | 10 | ug/L | 20 | 85-68-7 | Y |
| 4-Chloroaniline | Not detected | 10 | 5.7 | ug/L | 20 | 106-47-8 | Y |

b-Value detected less than reporting limit, but greater than MDL

J-Estimated value less than reporting limit, but greater than MDL Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.11 (continued)

Sample Tag: MW-34

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/29/22 10:37, Analyst: JGH (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------------------------|--------------|----|-----|-------|----------|------------|-------|
| 2-Chloronaphthalene | Not detected | 10 | 5.5 | ug/L | 20 | 91-58-7 | Y |
| 4-Chloro-3-methylphenol | Not detected | 10 | 5.9 | ug/L | 20 | 59-50-7 | Y |
| 2-Chlorophenol | Not detected | 10 | 5.3 | ug/L | 20 | 95-57-8 | Y |
| 4-Chlorophenyl phenyl ether | Not detected | 10 | 5.1 | ug/L | 20 | 7005-72-3 | Y |
| Chrysene | Not detected | 10 | 6.0 | ug/L | 20 | 218-01-9 | Y |
| 3-, 4-Methylphenol (p,m-Cresol) | 483 | 20 | 11 | ug/L | 20 | 3/4-CRESOL | Y |
| 2-Methylphenol (o-Cresol) | 166 | 10 | 5.6 | ug/L | 20 | 95-48-7 | Y |
| Dibenzo(ah)anthracene | Not detected | 10 | 8.9 | ug/L | 20 | 53-70-3 | Y |
| Dibenzofuran | Not detected | 10 | 5.3 | ug/L | 20 | 132-64-9 | Y |
| di-n-Butyl phthalate | Not detected | 10 | 6.3 | ug/L | 20 | 84-74-2 | Y |
| 1,2-Dichlorobenzene | Not detected | 10 | 4.9 | ug/L | 20 | 95-50-1 | Y |
| 1,3-Dichlorobenzene | Not detected | 10 | 5.3 | ug/L | 20 | 541-73-1 | Y |
| 1,4-Dichlorobenzene | Not detected | 10 | 5.0 | ug/L | 20 | 106-46-7 | Y |
| 3,3'-Dichlorobenzidine | Not detected | 20 | 16 | ug/L | 20 | 91-94-1 | Y |
| 2,4-Dichlorophenol | Not detected | 10 | 6.1 | ug/L | 20 | 120-83-2 | Y |
| Diethyl phthalate | Not detected | 10 | 7.1 | ug/L | 20 | 84-66-2 | Y |
| 2,4-Dimethylphenol | 670 | 10 | 7.1 | ug/L | 20 | 105-67-9 | Y |
| Dimethyl phthalate | Not detected | 10 | 6.3 | ug/L | 20 | 131-11-3 | Y |
| 4,6-Dinitro-2-methylphenol | Not detected | 20 | 2.6 | ug/L | 20 | 534-52-1 | Y |
| 2,4-Dinitrophenol | Not detected | 25 | 1.7 | ug/L | 20 | 51-28-5 | Y |
| 2,4-Dinitrotoluene | Not detected | 10 | 5.5 | ug/L | 20 | 121-14-2 | Y |
| 2,6-Dinitrotoluene | Not detected | 10 | 6.1 | ug/L | 20 | 606-20-2 | Y |
| 1,2-Diphenylhydrazine* | Not detected | 10 | 6.2 | ug/L | 20 | 122-66-7 | Y |
| di-n-Octyl phthalate | Not detected | 20 | 14 | ug/L | 20 | 117-84-0 | Y |
| Fluoranthene | Not detected | 10 | 6.8 | ug/L | 20 | 206-44-0 | Y |
| Fluorene | Not detected | 10 | 6.3 | ug/L | 20 | 86-73-7 | Y |
| Hexachlorobenzene | Not detected | 10 | 6.4 | ug/L | 20 | 118-74-1 | Y |
| Hexachlorobutadiene | Not detected | 10 | 5.9 | ug/L | 20 | 87-68-3 | Y |
| Hexachlorocyclopentadiene* | Not detected | 10 | 3.0 | ug/L | 20 | 77-47-4 | Y |
| Hexachloroethane | Not detected | 10 | 5.3 | ug/L | 20 | 67-72-1 | Y |
| Indeno(1,2,3-cd)pyrene | Not detected | 10 | 8.9 | ug/L | 20 | 193-39-5 | Y |
| Isophorone | Not detected | 10 | 6.1 | ug/L | 20 | 78-59-1 | Y |
| 2-Methylnaphthalene | 10 | 10 | 4.9 | ug/L | 20 | 91-57-6 | Y |
| Naphthalene | 190 | 10 | 6.3 | ug/L | 20 | 91-20-3 | Y |
| 2-Nitroaniline | Not detected | 25 | 4.9 | ug/L | 20 | 88-74-4 | Y |
| 3-Nitroaniline | Not detected | 25 | 4.7 | ug/L | 20 | 99-09-2 | Y |
| 4-Nitroaniline | Not detected | 25 | 4.7 | ug/L | 20 | 100-01-6 | Y |
| Nitrobenzene | Not detected | 10 | 8.0 | ug/L | 20 | 98-95-3 | Y |
| 2-Nitrophenol | Not detected | 10 | 4.5 | ug/L | 20 | 88-75-5 | Y |
| 4-Nitrophenol | Not detected | 25 | 6.3 | ug/L | 20 | 100-02-7 | Y |
| N-Nitrosodiphenylamine | Not detected | 10 | 7.1 | ug/L | 20 | 86-30-6 | Y |
| N-Nitrosodi-n-propylamine | Not detected | 10 | 7.3 | ug/L | 20 | 621-64-7 | Y |
| Pentachlorophenol | Not detected | 10 | 4.2 | ug/L | 20 | 87-86-5 | Y |
| Phenanthrene | Not detected | 10 | 7.1 | ug/L | 20 | 85-01-8 | Y |
| Phenol | 50 | 10 | 6.0 | ug/L | 20 | 108-95-2 | Y |
| Pyrene | Not detected | 10 | 8.3 | ug/L | 20 | 129-00-0 | Y |
| 1,2,4-Trichlorobenzene | Not detected | 10 | 6.4 | ug/L | 20 | 120-82-1 | Y |
| 2,4,5-Trichlorophenol | Not detected | 10 | 6.5 | ug/L | 20 | 95-95-4 | Y |
| 2,4,6-Trichlorophenol | Not detected | 10 | 5.5 | ug/L | 20 | 88-06-2 | Y |

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.12

Sample Tag: MW-33

Collected Date/Time: 12/15/2022 09:45

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 1L Amber | None | Yes | 3.2 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 3.2 | IR |
| 3 | 40ml Glass | HCL | Yes | 3.2 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1 | 12/19/22 23:45 | CTV | |
| pH check for VOCs* | <2 | N/A | 12/20/22 12:30 | BDO | |
| Metal Digestion | Completed | SW3015A | 12/16/22 09:50 | CCM | |
| BNA Extraction | Completed | SW3510C | 12/20/22 12:00 | JWR | |

Metals

Method: E200.8, Run Date: 12/16/22 11:50, Analyst: CCM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|-----------|-------|----------|-----------|-------|
| Arsenic | 0.002 | 0.002 | 0.000255 | mg/L | 5 | 7440-38-2 | |
| Barium | 0.081 | 0.005 | 0.000162 | mg/L | 5 | 7440-39-3 | |
| Cadmium | Not detected | 0.0005 | 0.000190 | mg/L | 5 | 7440-43-9 | |
| Chromium | 0.00241 | 0.005 | 0.0000965 | mg/L | 5 | 7440-47-3 | b |
| Copper | 0.020 | 0.005 | 0.000377 | mg/L | 5 | 7440-50-8 | |
| Lead | Not detected | 0.003 | 0.000190 | mg/L | 5 | 7439-92-1 | |
| Selenium | 0.00345 | 0.005 | 0.00209 | mg/L | 5 | 7782-49-2 | b |
| Silver | Not detected | 0.0005 | 0.0000675 | mg/L | 5 | 7440-22-4 | |
| Zinc | 0.006 | 0.005 | 0.000730 | mg/L | 5 | 7440-66-6 | |

Method: E245.1, Run Date: 12/19/22 23:27, Analyst: CTV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|--------|----------|-------|----------|-----------|-------|
| Mercury | Not detected | 0.0002 | 0.000016 | mg/L | 1 | 7439-97-6 | |

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 22:23, Analyst: JGH

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------------|--------------|----|------|-------|----------|----------|-------|
| Acenaphthene | Not detected | 5 | 0.58 | ug/L | 2 | 83-32-9 | |
| Acenaphthylene | Not detected | 5 | 0.68 | ug/L | 2 | 208-96-8 | |
| Anthracene | Not detected | 5 | 0.70 | ug/L | 2 | 120-12-7 | |
| Benzo(a)anthracene | Not detected | 1 | 0.79 | ug/L | 2 | 56-55-3 | |
| Benzo(b)fluoranthene | Not detected | 1 | 0.77 | ug/L | 2 | 205-99-2 | |
| Benzo(k)fluoranthene | Not detected | 1 | 0.81 | ug/L | 2 | 207-08-9 | |
| Benzo(ghi)perylene | Not detected | 1 | 0.96 | ug/L | 2 | 191-24-2 | |
| Benzo(a)pyrene | Not detected | 1 | 0.98 | ug/L | 2 | 50-32-8 | |
| bis(2-Chloroethoxy)methane | Not detected | 5 | 0.60 | ug/L | 2 | 111-91-1 | |
| bis(2-Chloroethyl)ether | Not detected | 5 | 0.56 | ug/L | 2 | 111-44-4 | |
| bis(2-Chloroisopropyl)ether* | Not detected | 5 | 0.66 | ug/L | 2 | 108-60-1 | |
| bis(2-Ethylhexyl)phthalate | Not detected | 5 | 1.3 | ug/L | 2 | 117-81-7 | |
| 4-Bromophenyl phenyl ether | Not detected | 5 | 0.54 | ug/L | 2 | 101-55-3 | |
| Butyl benzyl phthalate | Not detected | 5 | 1.0 | ug/L | 2 | 85-68-7 | |

b-Value detected less than reporting limit, but greater than MDL



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.12 (continued)

Sample Tag: MW-33

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 12/22/22 22:23, Analyst: JGH (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|---------------------------------|--------------|----|------|-------|----------|------------|-------|
| 4-Chloroaniline | Not detected | 10 | 0.57 | ug/L | 2 | 106-47-8 | |
| 2-Chloronaphthalene | Not detected | 5 | 0.55 | ug/L | 2 | 91-58-7 | |
| 4-Chloro-3-methylphenol | Not detected | 5 | 0.59 | ug/L | 2 | 59-50-7 | |
| 2-Chlorophenol | Not detected | 10 | 0.53 | ug/L | 2 | 95-57-8 | |
| 4-Chlorophenyl phenyl ether | Not detected | 5 | 0.51 | ug/L | 2 | 7005-72-3 | |
| Chrysene | Not detected | 1 | 0.60 | ug/L | 2 | 218-01-9 | |
| 3-, 4-Methylphenol (p,m-Cresol) | Not detected | 20 | 1.1 | ug/L | 2 | 3/4-CRESOL | |
| 2-Methylphenol (o-Cresol) | Not detected | 10 | 0.56 | ug/L | 2 | 95-48-7 | |
| Dibenzo(ah)anthracene | Not detected | 2 | 0.89 | ug/L | 2 | 53-70-3 | |
| Dibenzofuran | Not detected | 4 | 0.53 | ug/L | 2 | 132-64-9 | |
| di-n-Butyl phthalate | Not detected | 5 | 0.63 | ug/L | 2 | 84-74-2 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.49 | ug/L | 2 | 95-50-1 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.53 | ug/L | 2 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.50 | ug/L | 2 | 106-46-7 | |
| 3,3'-Dichlorobenzidine | Not detected | 5 | 1.6 | ug/L | 2 | 91-94-1 | |
| 2,4-Dichlorophenol | Not detected | 10 | 0.61 | ug/L | 2 | 120-83-2 | |
| Diethyl phthalate | Not detected | 5 | 0.71 | ug/L | 2 | 84-66-2 | |
| 2,4-Dimethylphenol | Not detected | 5 | 0.71 | ug/L | 2 | 105-67-9 | |
| Dimethyl phthalate | Not detected | 5 | 0.63 | ug/L | 2 | 131-11-3 | |
| 4,6-Dinitro-2-methylphenol | Not detected | 20 | 0.26 | ug/L | 2 | 534-52-1 | |
| 2,4-Dinitrophenol | Not detected | 25 | 0.17 | ug/L | 2 | 51-28-5 | |
| 2,4-Dinitrotoluene | Not detected | 5 | 0.55 | ug/L | 2 | 121-14-2 | |
| 2,6-Dinitrotoluene | Not detected | 5 | 0.61 | ug/L | 2 | 606-20-2 | |
| 1,2-Diphenylhydrazine* | Not detected | 5 | 0.62 | ug/L | 2 | 122-66-7 | |
| di-n-Octyl phthalate | Not detected | 5 | 1.4 | ug/L | 2 | 117-84-0 | |
| Fluoranthene | Not detected | 1 | 0.68 | ug/L | 2 | 206-44-0 | |
| Fluorene | Not detected | 5 | 0.63 | ug/L | 2 | 86-73-7 | |
| Hexachlorobenzene | Not detected | 5 | 0.64 | ug/L | 2 | 118-74-1 | |
| Hexachlorobutadiene | Not detected | 10 | 0.59 | ug/L | 2 | 87-68-3 | |
| Hexachlorocyclopentadiene* | Not detected | 5 | 0.30 | ug/L | 2 | 77-47-4 | |
| Hexachloroethane | Not detected | 5 | 0.53 | ug/L | 2 | 67-72-1 | |
| Indeno(1,2,3-cd)pyrene | Not detected | 2 | 0.89 | ug/L | 2 | 193-39-5 | |
| Isophorone | Not detected | 5 | 0.61 | ug/L | 2 | 78-59-1 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.49 | ug/L | 2 | 91-57-6 | |
| Naphthalene | Not detected | 5 | 0.63 | ug/L | 2 | 91-20-3 | |
| 2-Nitroaniline | Not detected | 25 | 0.49 | ug/L | 2 | 88-74-4 | |
| 3-Nitroaniline | Not detected | 25 | 0.47 | ug/L | 2 | 99-09-2 | |
| 4-Nitroaniline | Not detected | 25 | 0.47 | ug/L | 2 | 100-01-6 | |
| Nitrobenzene | Not detected | 5 | 0.80 | ug/L | 2 | 98-95-3 | |
| 2-Nitrophenol | Not detected | 5 | 0.45 | ug/L | 2 | 88-75-5 | |
| 4-Nitrophenol | Not detected | 25 | 0.63 | ug/L | 2 | 100-02-7 | |
| N-Nitrosodiphenylamine | Not detected | 5 | 0.71 | ug/L | 2 | 86-30-6 | |
| N-Nitrosodi-n-propylamine | Not detected | 5 | 0.73 | ug/L | 2 | 621-64-7 | |
| Pentachlorophenol | Not detected | 5 | 0.42 | ug/L | 2 | 87-86-5 | |
| Phenanthrene | Not detected | 2 | 0.71 | ug/L | 2 | 85-01-8 | |
| Phenol | Not detected | 5 | 0.60 | ug/L | 2 | 108-95-2 | |
| Pyrene | Not detected | 5 | 0.83 | ug/L | 2 | 129-00-0 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.64 | ug/L | 2 | 120-82-1 | |
| 2,4,5-Trichlorophenol | Not detected | 5 | 0.65 | ug/L | 2 | 95-95-4 | |
| 2,4,6-Trichlorophenol | Not detected | 4 | 0.55 | ug/L | 2 | 88-06-2 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.12 (continued)

Sample Tag: MW-33

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/19/22 19:06, Analyst: KAG

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|--------------------------------|--------------|----|------|-------|----------|------------|-------|
| Diethyl ether | Not detected | 10 | 0.50 | ug/L | 1 | 60-29-7 | |
| Acetone | 5.57 | 50 | 0.56 | ug/L | 1 | 67-64-1 | J |
| Methyl iodide | Not detected | 1 | 0.25 | ug/L | 1 | 74-88-4 | |
| Carbon disulfide | Not detected | 5 | 0.24 | ug/L | 1 | 75-15-0 | |
| tert-Methyl butyl ether (MTBE) | Not detected | 5 | 0.19 | ug/L | 1 | 1634-04-4 | |
| Acrylonitrile | Not detected | 2 | 0.57 | ug/L | 1 | 107-13-1 | |
| 2-Butanone (MEK) | Not detected | 25 | 0.26 | ug/L | 1 | 78-93-3 | |
| Dichlorodifluoromethane | Not detected | 5 | 0.50 | ug/L | 1 | 75-71-8 | |
| Chloromethane | Not detected | 5 | 0.26 | ug/L | 1 | 74-87-3 | |
| Vinyl chloride | Not detected | 1 | 0.31 | ug/L | 1 | 75-01-4 | |
| Bromomethane | Not detected | 5 | 0.32 | ug/L | 1 | 74-83-9 | |
| Chloroethane | Not detected | 5 | 0.34 | ug/L | 1 | 75-00-3 | |
| Trichlorofluoromethane | Not detected | 1 | 0.33 | ug/L | 1 | 75-69-4 | |
| 1,1-Dichloroethene | Not detected | 1 | 0.27 | ug/L | 1 | 75-35-4 | |
| Methylene chloride | Not detected | 5 | 0.29 | ug/L | 1 | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | 1 | 0.20 | ug/L | 1 | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | 1 | 0.20 | ug/L | 1 | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | 1 | 0.26 | ug/L | 1 | 156-59-2 | |
| Tetrahydrofuran* | Not detected | 90 | 1.3 | ug/L | 1 | 109-99-9 | |
| Chloroform | Not detected | 1 | 0.20 | ug/L | 1 | 67-66-3 | |
| Bromochloromethane | Not detected | 1 | 0.38 | ug/L | 1 | 74-97-5 | |
| 1,1,1-Trichloroethane | Not detected | 1 | 0.28 | ug/L | 1 | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | 50 | 0.14 | ug/L | 1 | 108-10-1 | |
| 2-Hexanone | Not detected | 50 | 0.29 | ug/L | 1 | 591-78-6 | |
| Carbon tetrachloride | Not detected | 1 | 0.20 | ug/L | 1 | 56-23-5 | |
| Benzene | Not detected | 1 | 0.20 | ug/L | 1 | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | 1 | 0.16 | ug/L | 1 | 107-06-2 | |
| Trichloroethene | Not detected | 1 | 0.23 | ug/L | 1 | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | 1 | 0.20 | ug/L | 1 | 78-87-5 | |
| Bromodichloromethane | Not detected | 1 | 0.23 | ug/L | 1 | 75-27-4 | |
| Dibromomethane | Not detected | 5 | 0.20 | ug/L | 1 | 74-95-3 | |
| cis-1,3-Dichloropropene | Not detected | 1 | 0.19 | ug/L | 1 | 10061-01-5 | |
| Toluene | Not detected | 1 | 0.25 | ug/L | 1 | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | 1 | 0.25 | ug/L | 1 | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | 1 | 0.28 | ug/L | 1 | 79-00-5 | |
| Tetrachloroethene | Not detected | 1 | 0.20 | ug/L | 1 | 127-18-4 | |
| trans-1,4-Dichloro-2-butene | Not detected | 1 | 0.20 | ug/L | 1 | 110-57-6 | |
| Dibromochloromethane | Not detected | 5 | 0.24 | ug/L | 1 | 124-48-1 | |
| 1,2-Dibromoethane | Not detected | 1 | 0.30 | ug/L | 1 | 106-93-4 | |
| Chlorobenzene | Not detected | 1 | 0.17 | ug/L | 1 | 108-90-7 | |
| 1,1,1,2-Tetrachloroethane | Not detected | 1 | 0.24 | ug/L | 1 | 630-20-6 | |
| Ethylbenzene | Not detected | 1 | 0.26 | ug/L | 1 | 100-41-4 | |
| p,m-Xylene* | Not detected | 2 | 0.41 | ug/L | 1 | | |
| o-Xylene | Not detected | 1 | 0.25 | ug/L | 1 | 95-47-6 | |
| Styrene | Not detected | 1 | 0.18 | ug/L | 1 | 100-42-5 | |
| Isopropylbenzene | Not detected | 5 | 0.25 | ug/L | 1 | 98-82-8 | |
| Bromoform | Not detected | 1 | 0.22 | ug/L | 1 | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | 1 | 0.18 | ug/L | 1 | 79-34-5 | |

J-Estimated value less than reporting limit, but greater than MDL



Lab Sample ID: S43512.12 (continued)

Sample Tag: MW-33

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/19/22 19:06, Analyst: KAG (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------------------|--------------|----|-------|-------|----------|----------|-------|
| 1,2,3-Trichloropropane | Not detected | 1 | 0.33 | ug/L | 1 | 96-18-4 | |
| n-Propylbenzene | Not detected | 1 | 0.23 | ug/L | 1 | 103-65-1 | |
| Bromobenzene | Not detected | 1 | 0.27 | ug/L | 1 | 108-86-1 | |
| 1,3,5-Trimethylbenzene | Not detected | 1 | 0.26 | ug/L | 1 | 108-67-8 | |
| tert-Butylbenzene | Not detected | 1 | 0.18 | ug/L | 1 | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | 1 | 0.22 | ug/L | 1 | 95-63-6 | |
| sec-Butylbenzene | Not detected | 1 | 0.25 | ug/L | 1 | 135-98-8 | |
| p-Isopropyltoluene | Not detected | 5 | 0.21 | ug/L | 1 | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | 1 | 0.24 | ug/L | 1 | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | 1 | 0.23 | ug/L | 1 | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | 1 | 0.28 | ug/L | 1 | 95-50-1 | |
| 1,2,3-Trimethylbenzene | Not detected | 1 | 0.061 | ug/L | 1 | 526-73-8 | |
| n-Butylbenzene | Not detected | 1 | 0.22 | ug/L | 1 | 104-51-8 | |
| Hexachloroethane | Not detected | 5 | 0.21 | ug/L | 1 | 67-72-1 | |
| 1,2-Dibromo-3-chloropropane | Not detected | 5 | 0.47 | ug/L | 1 | 96-12-8 | |
| 1,2,4-Trichlorobenzene | Not detected | 5 | 0.19 | ug/L | 1 | 120-82-1 | |
| 1,2,3-Trichlorobenzene | Not detected | 5 | 0.20 | ug/L | 1 | 87-61-6 | |
| Naphthalene | Not detected | 5 | 0.21 | ug/L | 1 | 91-20-3 | |
| 2-Methylnaphthalene | Not detected | 5 | 0.16 | ug/L | 1 | 91-57-6 | |



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.13

Sample Tag: VAS-31-SB-3-5

Collected Date/Time: 12/12/2022 13:00

Matrix: Soil

COC Reference: 2

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|------------|-----------------|---------------|-------------------|---------------|
| 1 | 32oz Glass | None | Yes | 3.2 | IR |
| 2 | 4oz Glass | None | Yes | 3.2 | IR |

Inorganics

Method: , Run Date: 12/27/22 13:11, Analyst: GEL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|-----------|----|-----|-------|----------|------|-------|
| TOC* | Completed | | | | 1 | | O |

Method: SW9045D, Run Date: 12/20/22 13:17, Analyst: SSM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------|--------|------|------|-----------|----------|------|-------|
| pH/ Corrosivity | 7.65 | 0.01 | 0.01 | STD Units | 1 | | |

Other / Misc.

Method: , Run Date: 01/03/23 12:00, Analyst: GTS

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------|-----------|----|-----|-------|----------|------|-------|
| Misc. Special Project* | Completed | | | | 1 | | O |

O-Analysis performed by outside laboratory. See attached report.



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.14

Sample Tag: VAS-32-SB-3-5

Collected Date/Time: 12/12/2022 15:00

Matrix: Soil

COC Reference: 2

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|------------|-----------------|---------------|-------------------|---------------|
| 1 | 32oz Glass | None | Yes | 3.2 | IR |
| 2 | 4oz Glass | None | Yes | 3.2 | IR |

Inorganics

Method: , Run Date: 12/27/22 13:33, Analyst: GEL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|-----------|----|-----|-------|----------|------|-------|
| TOC* | Completed | | | | 1 | | O |

Method: SW9045D, Run Date: 12/20/22 13:48, Analyst: SSM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------|--------|------|------|-----------|----------|------|-------|
| pH/ Corrosivity | 8.02 | 0.01 | 0.01 | STD Units | 1 | | |

Other / Misc.

Method: , Run Date: 01/03/23 12:00, Analyst: GTS

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------|-----------|----|-----|-------|----------|------|-------|
| Misc. Special Project* | Completed | | | | 1 | | O |

O-Analysis performed by outside laboratory. See attached report.



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.15

Sample Tag: VAS-33-SB-3-5

Collected Date/Time: 12/13/2022 09:00

Matrix: Soil

COC Reference: 2

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|------------|-----------------|---------------|-------------------|---------------|
| 1 | 32oz Glass | None | Yes | 3.2 | IR |
| 2 | 4oz Glass | None | Yes | 3.2 | IR |

Inorganics

Method: , Run Date: 12/27/22 13:55, Analyst: GEL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|-----------|----|-----|-------|----------|------|-------|
| TOC* | Completed | | | | 1 | | O |

Method: SW9045D, Run Date: 12/20/22 14:02, Analyst: SSM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------|--------|------|------|-----------|----------|------|-------|
| pH/ Corrosivity | 8.15 | 0.01 | 0.01 | STD Units | 1 | | |

Other / Misc.

Method: , Run Date: 01/03/23 12:00, Analyst: GTS

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------|-----------|----|-----|-------|----------|------|-------|
| Misc. Special Project* | Completed | | | | 1 | | O |

O-Analysis performed by outside laboratory. See attached report.



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.16

Sample Tag: VAS-34-SB-3-5

Collected Date/Time: 12/13/2022 10:45

Matrix: Soil

COC Reference: 2

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|------------|-----------------|---------------|-------------------|---------------|
| 1 | 32oz Glass | None | Yes | 3.2 | IR |
| 2 | 4oz Glass | None | Yes | 3.2 | IR |

Inorganics

Method: , Run Date: 12/27/22 15:00, Analyst: GEL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|-----------|----|-----|-------|----------|------|-------|
| TOC* | Completed | | | | 1 | | O |

Method: SW9045D, Run Date: 12/20/22 15:42, Analyst: SSM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------|--------|------|------|-----------|----------|------|-------|
| pH/ Corrosivity | 8.03 | 0.01 | 0.01 | STD Units | 1 | | |

Other / Misc.

Method: , Run Date: 01/03/23 12:00, Analyst: GTS

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------|-----------|----|-----|-------|----------|------|-------|
| Misc. Special Project* | Completed | | | | 1 | | O |

O-Analysis performed by outside laboratory. See attached report.



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.17

Sample Tag: VAS-35-SB-3-5

Collected Date/Time: 12/13/2022 13:25

Matrix: Soil

COC Reference: 2

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|------------|-----------------|---------------|-------------------|---------------|
| 1 | 32oz Glass | None | Yes | 3.2 | IR |
| 2 | 4oz Glass | None | Yes | 3.2 | IR |

Inorganics

Method: , Run Date: 12/27/22 15:23, Analyst: GEL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|-----------|----|-----|-------|----------|------|-------|
| TOC* | Completed | | | | 1 | | O |

Method: SW9045D, Run Date: 12/20/22 16:01, Analyst: SSM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------|--------|------|------|-----------|----------|------|-------|
| pH/ Corrosivity | 7.67 | 0.01 | 0.01 | STD Units | 1 | | |

Other / Misc.

Method: , Run Date: 01/03/23 12:00, Analyst: GTS

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------|-----------|----|-----|-------|----------|------|-------|
| Misc. Special Project* | Completed | | | | 1 | | O |

O-Analysis performed by outside laboratory. See attached report.



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.18

Sample Tag: VAS-37-SB-4-6

Collected Date/Time: 12/13/2022 16:40

Matrix: Soil

COC Reference: 2

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|------------|-----------------|---------------|-------------------|---------------|
| 1 | 32oz Glass | None | Yes | 3.2 | IR |
| 2 | 4oz Glass | None | Yes | 3.2 | IR |

Inorganics

Method: , Run Date: 12/27/22 20:07, Analyst: GEL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|-----------|----|-----|-------|----------|------|-------|
| TOC* | Completed | | | | 1 | | O |

Method: SW9045D, Run Date: 12/20/22 16:24, Analyst: SSM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------|--------|------|------|-----------|----------|------|-------|
| pH/ Corrosivity | 8.24 | 0.01 | 0.01 | STD Units | 1 | | |

Other / Misc.

Method: , Run Date: 01/03/23 12:00, Analyst: GTS

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------|-----------|----|-----|-------|----------|------|-------|
| Misc. Special Project* | Completed | | | | 1 | | O |

O-Analysis performed by outside laboratory. See attached report.



Analytical Laboratory Report

Revised Report

Lab Sample ID: S43512.19

Sample Tag: VAS-39-SB-2-5

Collected Date/Time: 12/14/2022 12:40

Matrix: Soil

COC Reference: 2

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|------------|-----------------|---------------|-------------------|---------------|
| 1 | 32oz Glass | None | Yes | 3.2 | IR |
| 2 | 4oz Glass | None | Yes | 3.2 | IR |

Inorganics

Method: , Run Date: 12/27/22 20:28, Analyst: GEL

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|-----------|----|-----|-------|----------|------|-------|
| TOC* | Completed | | | | 1 | | O |

Method: SW9045D, Run Date: 12/20/22 16:48, Analyst: SSM

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------------|--------|------|------|-----------|----------|------|-------|
| pH/ Corrosivity | 7.87 | 0.01 | 0.01 | STD Units | 1 | | |

Other / Misc.

Method: , Run Date: 01/03/23 12:00, Analyst: GTS

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|------------------------|-----------|----|-----|-------|----------|------|-------|
| Misc. Special Project* | Completed | | | | 1 | | O |

O-Analysis performed by outside laboratory. See attached report.

Merit Laboratories Login Checklist

Lab Set ID:S43512

Client:WSP (WSP)

Project: Former JB Sims Generating Station, Harbor Island, GrandHaven

Submitted: 12/15/2022 14:34 Login User: MMC

Attention: Saamih Bashir

Address: WSP

45850 Magellan Drive, Suite 190

Novi, MI 48377

Phone: n/a

FAX:

Email: Saamih.Bashir@wsp.com

| Selection | Description | Note |
|-----------|-------------|------|
|-----------|-------------|------|

Sample Receiving

- | | | | |
|-----|--|--|--------|
| 01. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # | IR 3.2 |
| 02. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun | |
| 03. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped | |
| 04. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box | |
| 05. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked | |

Chain of Custody

- | | | | |
|-----|--|--|------------------------------------|
| 06. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out | |
| 07. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab | |
| 08. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC | Trip blank not included in coolers |
| 09. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to: | GEL and GeoTechnical Testing |

Preservation

- | | | | |
|-----|--|---|--|
| 10. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation | |
| 11. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs) | |
| 12. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab? | |

Bottle Conditions

- | | | | |
|-----|--|---|--|
| 13. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact | |
| 14. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used | |
| 15. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used | |
| 16. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received | |
| 17. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration | |
| 18. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time | |
| 19. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace | |

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S43512 Submitted: 12/15/2022 14:34

Client: WSP (WSP)

Project: Former JB Sims Generating Station, Harbor Island, GrandHaven

Attention: Saamih Bashir

Address: WSP

45850 Magellan Drive, Suite 190
Novi, MI 48377

Initial Preservation Check: 12/15/2022 16:26 MMC

Preservation Recheck (E200.8): 12/16/2022 13:40 MMC

Phone: n/a

FAX:

Email: Saamih.Bashir@wsp.com

| Sample ID | Bottle / Preservation | pH (Orig) | Add ml | pH (New) | Notes |
|-----------|-----------------------|-----------|--------|----------|-----------------|
| S43512.01 | 125ml Plastic HNO3 | <2 | | | |
| S43512.02 | 125ml Plastic HNO3 | <2 | | | |
| S43512.03 | 125ml Plastic HNO3 | <2 | | | |
| S43512.04 | 125ml Plastic HNO3 | <2 | | | |
| S43512.05 | 125ml Plastic HNO3 | <2 | | | |
| S43512.06 | 125ml Plastic HNO3 | <2 | | | |
| S43512.07 | 125ml Plastic HNO3 | <2 | | | |
| S43512.08 | 125ml Plastic HNO3 | <2 | | | |
| S43512.09 | 125ml Plastic HNO3 | <2 | | | |
| S43512.11 | 125ml Plastic HNO3 | 6 | 0.5 | <2 | Lot# 2022042218 |
| S43512.12 | 125ml Plastic HNO3 | 7 | 1.0 | <2 | Lot# 2022042218 |

WSP USA Environment & Infrastructure Inc.
 46850 Magellan Drive, Suite 190
 Novi, Michigan 48377
 (248) 926-4008

CHAIN OF CUSTODY

SHIP TO:
 Merit Laboratories, Inc.
 2680 East Lansing Drive
 East Lansing, MI 48823
 Atten: Johanna Murray
 Lab Phone# 517-827-2755

DATE: 12/15/2022
 COC #:
 PAGE: 3 OF 7

| | | | |
|--|---------------------------------------|---|-----------------------------------|
| Project Name: Former JB Sims Generating Station, Harbor Island, Grand Haven | Project Contact: Zach McCurley | Bill To: WSP USA Environment & Infrastructure Inc. | Disposal Instructions: LAB |
| Project Number: 365022023.02.02.3650 | Phone Number: 248-775-9823 | Attn: Saamih Bashir | Shipment Method: FEDEX |
| Project Manager: Saamih Bashir | Purchase Order: C012407104 | 46850 Magellan Dr., Ste 190 | Waybill Number: N/A |
| Sampler Name: Jared Walbert | | Novi, MI 48377 | Waybill Number: N/A |

MATRIX Code W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL SW=SURFACE WATER
 L=LIQUID SD=SEDIMENT SL=SLUDGE DW=DRINKING WATER O=OIL A=AIR WS=WASTE

TURNAROUND TIME REQUIRED: 2 Days 5 Days Standard (10 TAT)

DELIVERABLES REQUIRED: STD Level II Level III Level IV EDD

| Sample Information | | | | | | Methods for Analysis | | | | | | | | | | RUSH | | | | | | | |
|--------------------|----------|-----------------|------------|-------|--------|----------------------|------------------------------|---------------------|----------------------|-----------------------------|-------------------------------|--------------------------------------|----------------------|--------|--|------|--|--|---------|---------|---------|--------|--|
| No. | Lab ID | Sample ID | Date | Time | Matrix | # of Bottles | PFAS 4.5TMD/979 Per Contract | VOCs (Per Contract) | SVOCs (Per Contract) | MI 10 Metals (per Contract) | pH/corrosivity (per Contract) | particle size (sieve and hydrometer) | Total Organic Carbon | MS/MSD | | | | | 24 Hour | 48 Hour | 72 Hour | 5 Days | |
| 13 | 43512.01 | VAS31-3-7 | 12/12/2022 | 14:00 | GW | 6 | X | X | X | | | | | | | | | | | | | | |
| 14 | .02 | VAS32-3-7 | 12/12/2022 | 17:00 | GW | 6 | X | X | X | | | | | | | | | | | | | | |
| 15 | .03 | VAS33-3-7 | 12/13/2022 | 10:05 | GW | 6 | X | X | X | | | | | | | | | | | | | | |
| 16 | .04 | VAS34-3-7 | 12/13/2022 | 11:55 | GW | 6 | X | X | X | | | | | | | | | | | | | | |
| 17 | .05 | VAS35-1-5 | 12/13/2022 | 14:30 | GW | 6 | X | X | X | | | | | | | | | | | | | | |
| 18 | .06 | DUP-07-13122022 | 12/13/2022 | 0:00 | GW | 6 | X | X | X | | | | | | | | | | | | | | |
| 19 | .07 | VAS37-4-8 | 12/14/2022 | 9:50 | GW | 6 | X | X | X | | | | | | | | | | | | | | |
| 20 | .08 | VAS38-5-9 | 12/14/2022 | 11:30 | GW | 6 | X | X | X | | | | | | | | | | | | | | |
| 21 | .09 | VAS39-1-5 | 12/14/2022 | 14:10 | GW | 6 | X | X | X | | | | | | | | | | | | | | |
| 22 | .10 | Trip Blank -04 | 12/14/2022 | 7:00 | W | 1 | X | | | | | | | | | | | | | | | | |
| 23 | .11 | MW-34 | 12/15/2022 | 11:55 | GW | 3 | | X | X | | | | | | | | | | | | | | |
| 24 | .12 | MW-33 | 12/15/22 | 9:45 | GW | 6 | X | X | X | | | | | | | | | | | | | | |

| | | | | | |
|---|-----------------------|-------------------|--------------------------------|--------|--|
| Relinquished By/Affiliation: <i>Kirk White</i> | Date: 12/15/22 | Time: 1430 | For Lab Use | | Comments: X Trip Blank-04 filled with laboratory certified PFAS free water. |
| Received By: <i>Johanna Murray</i> | Date: 12/15/22 | Time: 7434 | Does COC match samples: | Y or N | |
| Relinquished By/Affiliation: | Date: | Time: | Broken Container: | Y or N | |
| Received By: | Date: | Time: | COC seal intact: | Y or N | |
| Relinquished By/Affiliation: | Date: | Time: | Other problems: | Y or N | |
| Received By (LAB): | Date: | Time: | WSDOT contacted: | Y or N | |
| | | | Date contacted: | | |
| | | | Cooler Temperature at receipt: | 3.2 °C | |
| | | | NUMBER OF COOLERS SENT: 1 | | |

WSP USA Environment & Infrastructure Inc.
 46850 Magellan Drive, Suite 190
 Novi, Michigan 48377
 (248) 926-4008

CHAIN OF CUSTODY

SHIP TO:
 Merit Laboratories, Inc.
 2680 East Lansing Drive
 East Lansing, MI 48823
 Atten: Johanna Murray
 Lab Phone# 517-827-2755

DATE: 12/15/2022
 COC #: _____
 PAGE: 4 OF 7

| | | | |
|--|---------------------------------------|---|-----------------------------------|
| Project Name: Former JB Sims Generating Station, Harbor Island, Grand Haven | Project Contact: Zach McCurley | Bill To: WSP USA Environment & Infrastructure Inc. | Disposal Instructions: LAB |
| Project Number: 3650220203.02.02.3650 | Phone Number: 248-775-9823 | Attn: Saamih Bashir | Shipment Method: FEDEX |
| Project Manager: Saamih Bashir | Purchase Order: C012407104 | 46850 Magellan Dr., Ste 190 | Waybill Number: N/A |
| Sampler Name: Jared Walbert | | Novi, MI 48377 | Waybill Number: N/A |

MATRIX Code W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL SW=SURFACE WATER
 L=LIQUID SD=SEDIMENT SL=SLUDGE DW=DRINKING WATER O=OIL A=AIR WS=WASTE

TURNAROUND TIME REQUIRED: 2 Days 5 Days Standard (10 TAT)

DELIVERABLES REQUIRED: STD Level II Level III Level IV EDD

| Sample Information | | | | | | Methods for Analysis | | | | | | | | | | | RUSH | | | |
|--------------------|----------|--------------|------------|-------|--------|----------------------|------------------------------|---------------------|----------------------|-----------------------------|-------------------------------|--------------------------------------|----------------------|------------------------------|--------|---------|---------|---------|--------|--|
| No. | Lab ID | Sample ID | Date | Time | Matrix | # of Bottles | PFAS ASTM D7979 Per Contract | VOCs (Per Contract) | SVOCS (Per Contract) | MI 10 Metals (per Contract) | pH/corrosivity (per Contract) | particle size (sieve and hydrometer) | Total Organic Carbon | PFAS ASTM D7968 Per Contract | MS/MSD | 24 Hour | 48 Hour | 72 Hour | 5 Days | |
| 1 | 435/2.13 | VAS31-SB-3-5 | 12/12/2022 | 13:00 | S | 2 | | | | | X | X | X | | | | | | | |
| 2 | .14 | VAS32-SB-3-5 | 12/12/2022 | 15:00 | S | 2 | | | | | X | X | X | | | | | | | |
| 3 | .15 | VAS33-SB-3-5 | 12/13/2022 | 9:00 | S | 2 | | | | | X | X | X | | | | | | | |
| 4 | .16 | VAS34-SB-3-5 | 12/13/2022 | 10:45 | S | 2 | | | | | X | X | X | | | | | | | |
| 5 | .17 | VAS35-SB-3-5 | 12/13/2022 | 13:25 | S | 2 | | | | | X | X | X | | | | | | | |
| 6 | .18 | VAS37-SB-4-6 | 12/13/2022 | 16:40 | S | 2 | | | | | X | X | X | | | | | | | |
| 7 | .19 | VAS39-SB-2-5 | 12/14/2022 | 12:40 | S | 2 | | | | | X | X | X | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | |

| | | | | | |
|---|-----------------------|-------------------|--------------------------------|--------|---|
| Relinquished By/Affiliation: <i>Rita White</i> | Date: 12/15/22 | Time: 1430 | For Lab Use | | Comments: X _____ _____ _____ NUMBER OF COOLERS SENT: 1 |
| Received By: <i>Johanna Murray</i> | Date: 12/15/22 | Time: 1434 | Does COC match samples: | Y or N | |
| Relinquished By/Affiliation: | Date: | Time: | Broken Container: | Y or N | |
| Received By: | Date: | Time: | COC seal intact: | Y or N | |
| Relinquished By/Affiliation: | Date: | Time: | Other problems: | Y or N | |
| Received By (LAB): | Date: | Time: | WSDOT contacted: | Y or N | |
| | | | Date contacted: | | |
| | | | Cooler Temperature at receipt: | 3.2 °C | |



December 27, 2022

John Laverty
Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan 48823

Re: Routine Analysis
Work Order: 604807
SDG: S43512

Dear John Laverty:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on December 20, 2022. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 1614.

Sincerely,

Jordan Melton for
Delaney Stone
Project Manager

Purchase Order: GELP20-0018
Enclosures



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Case Narrative

**Receipt Narrative
for
Merit Laboratories, Inc.
SDG: S43512
Work Order: 604807**

December 27, 2022

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary:

Sample receipt: The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on December 20, 2022 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

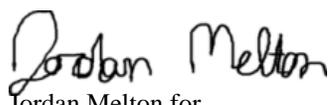
Sample Identification: The laboratory received the following samples:

| <u>Laboratory ID</u> | <u>Client ID</u> |
|-----------------------------|-------------------------|
| 604807001 | S43512.13 |
| 604807002 | S43512.14 |
| 604807003 | S43512.15 |
| 604807004 | S43512.16 |
| 604807005 | S43512.17 |
| 604807006 | S43512.18 |
| 604807007 | S43512.19 |

Case Narrative:

Sample analyses were conducted using methodology as outlined in GEL's Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry.

A handwritten signature in black ink that reads "Jordan Melton". The signature is written in a cursive style with a large initial 'J'.

Jordan Melton for
Delaney Stone
Project Manager

Chain of Custody and Supporting Documentation

Laboratory Certifications

List of current GEL Certifications as of 27 December 2022

| State | Certification |
|---------------------------|------------------------------|
| Alabama | 42200 |
| Alaska | 17-018 |
| Alaska Drinking Water | SC00012 |
| Arkansas | 88-0651 |
| CLIA | 42D0904046 |
| California | 2940 |
| Colorado | SC00012 |
| Connecticut | PH-0169 |
| DoD ELAP/ ISO17025 A2LA | 2567.01 |
| Florida NELAP | E87156 |
| Foreign Soils Permit | P330-15-00283, P330-15-00253 |
| Georgia | SC00012 |
| Georgia SDWA | 967 |
| Hawaii | SC00012 |
| Idaho | SC00012 |
| Illinois NELAP | 200029 |
| Indiana | C-SC-01 |
| Kansas NELAP | E-10332 |
| Kentucky SDWA | 90129 |
| Kentucky Wastewater | 90129 |
| Louisiana Drinking Water | LA024 |
| Louisiana NELAP | 03046 (AI33904) |
| Maine | 2019020 |
| Maryland | 270 |
| Massachusetts | M-SC012 |
| Massachusetts PFAS Approv | Letter |
| Michigan | 9976 |
| Mississippi | SC00012 |
| Nebraska | NE-OS-26-13 |
| Nevada | SC000122023-4 |
| New Hampshire NELAP | 2054 |
| New Jersey NELAP | SC002 |
| New Mexico | SC00012 |
| New York NELAP | 11501 |
| North Carolina | 233 |
| North Carolina SDWA | 45709 |
| North Dakota | R-158 |
| Oklahoma | 2022-160 |
| Pennsylvania NELAP | 68-00485 |
| Puerto Rico | SC00012 |
| S. Carolina Radiochem | 10120002 |
| Sanitation Districts of L | 9255651 |
| South Carolina Chemistry | 10120001 |
| Tennessee | TN 02934 |
| Texas NELAP | T104704235-22-20 |
| Utah NELAP | SC000122022-37 |
| Vermont | VT87156 |
| Virginia NELAP | 460202 |
| Washington | C780 |

General Chem Analysis

Case Narrative

**General Chemistry
Technical Case Narrative
Merit Laboratories, Inc.
SDG #: S43512
Work Order #: 604807**

Product: Carbon, Total Organic

Analytical Method: SW846 9060A Modified

Analytical Procedure: GL-GC-E-062 REV# 21

Analytical Batch: 2359776

Preparation Method: SW846 9060A Modified Prep

Preparation Procedure: GL-GC-E-062 REV# 21

Preparation Batch: 2359774

The following samples were analyzed using the above methods and analytical procedure(s).

| <u>GEL Sample ID#</u> | <u>Client Sample Identification</u> |
|------------------------------|---|
| 604807001 | S43512.13 |
| 604807002 | S43512.14 |
| 604807003 | S43512.15 |
| 604807004 | S43512.16 |
| 604807005 | S43512.17 |
| 604807006 | S43512.18 |
| 604807007 | S43512.19 |
| 1205278002 | Method Blank (MB) |
| 1205278003 | Laboratory Control Sample (LCS) |
| 1205278006 | 604820002(S43587.02) Sample Duplicate (DUP) |
| 1205278007 | 604820002(S43587.02) Post Spike (PS) |

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report for

MERI001 Merit Laboratories, Inc.

Client SDG: S43512 GEL Work Order: 604807

The Qualifiers in this report are defined as follows:

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

* A quality control analyte recovery is outside of specified acceptance criteria

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: 

Name: Aubrey Kingsbury

Date: 17 JAN 2023

Title: Team Leader

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: January 17, 2023

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823

Contact: John Laverty
Project: Routine Analysis

| | | | |
|-------------------|-----------------|------------|-----------|
| Client Sample ID: | S43512.15 | Project: | MERI00120 |
| Sample ID: | 604807003 | Client ID: | MERI001 |
| Matrix: | Solid | | |
| Collect Date: | 13-DEC-22 09:00 | | |
| Receive Date: | 20-DEC-22 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|-----------|--------|-----|------|-------|------|----|---------|----------|------|---------|--------|
| Carbon Analysis | | | | | | | | | | | | |
| SW 9060A Total Organic Carbon "As Received" | | | | | | | | | | | | |
| Total Organic Carbon Average | | 67800 | 568 | 1420 | mg/kg | 2.84 | 1 | TSM | 12/27/22 | 1355 | 2359776 | 1 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---------------------------|---|---------|----------|------|------------|
| SW846 9060A Modified Prep | SW846 9060A Modified Total Organic Carbon | RM3 | 12/21/22 | 1331 | 2359774 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|--------|----------------------|------------------|
| 1 | SW846 9060A Modified | |

Notes:

Column headers are defined as follows:

| | |
|---------------------------------------|--------------------------------|
| DF: Dilution Factor | Lc/LC: Critical Level |
| DL: Detection Limit | PF: Prep Factor |
| MDA: Minimum Detectable Activity | RL: Reporting Limit |
| MDC: Minimum Detectable Concentration | SQL: Sample Quantitation Limit |

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: January 17, 2023

Page 1 of 2

Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan

Contact: John Laverty

Workorder: 604807

| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|------------------------------|-----------|--------|------|-------|-------|------|------|------------|-------|----------|-------|
| Carbon Analysis | | | | | | | | | | | |
| Batch | 2359776 | | | | | | | | | | |
| QC1205278006 | 604820002 | DUP | | | | | | | | | |
| Total Organic Carbon Average | | 25500 | | 24700 | mg/kg | 3.21 | | (0%-16%) | RMJ | 12/27/22 | 21:35 |
| QC1205278003 | LCS | | | | | | | | | | |
| Total Organic Carbon Average | 3870 | | | 4290 | mg/kg | | 111 | (57%-142%) | TSM | 12/27/22 | 10:54 |
| QC1205278002 | MB | | | | | | | | | | |
| Total Organic Carbon Average | | | U | ND | mg/kg | | | | | 12/27/22 | 10:33 |
| QC1205278007 | 604820002 | PS | | | | | | | | | |
| Total Organic Carbon Average | 5000 | 26400 | | 30100 | mg/kg | | N/A | (30%-131%) | RMJ | 12/27/22 | 21:58 |

Notes:

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- H Analytical holding time was exceeded
- < Result is less than value reported
- > Result is greater than value reported
- h Preparation or preservation holding time was exceeded
- R Sample results are rejected
- Z Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
- d 5-day BOD--The 2:1 depletion requirement was not met for this sample
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
- N/A RPD or %Recovery limits do not apply.
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- NI See case narrative

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QC Summary

Workorder: 604807

Page 2 of 2

| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|----------|-----|--------|------|----|-------|------|------|-------|-------|------|------|
| R | | | | | | | | | | | |
| B | | | | | | | | | | | |
| e | | | | | | | | | | | |
| J | | | | | | | | | | | |

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Instrument QC Data Summary

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Report Run On: 17-JAN-2023 05:45

GEL Laboratories LLC

Contract: MERI00120

SDG #: S43512

Carbon Analysis

Method: SW846 9060A Modified

Instrument: O-I Analytical 1030W Carbon Analyzer (TOC368)

Parmname: Total Organic Carbon
Average

Concentration Units:mg/kg

| Sample Type | Run Date | Data File | Result | Nominal | Recovery | Limits | Within Limits |
|-------------|-----------------------------|-------------------|-------------|-------------|------------|-------------------|---------------|
| ICV | 27-DEC-2022 10:13:00 | 122822.csv | 5670 | 5000 | 113 | (80%-120%) | Yes |
| CCV | 27-DEC-2022 14:17:00 | 122822.csv | 5550 | 5000 | 111 | (80%-120%) | Yes |
| CCV | 27-DEC-2022 15:45:00 | 122822.csv | 5280 | 5000 | 106 | (80%-120%) | Yes |
| CCV | 27-DEC-2022 19:45:00 | 122822B.csv | 5490 | 5000 | 110 | (80%-120%) | Yes |
| CCV | 27-DEC-2022 22:55:00 | 122822B.csv | 5390 | 5000 | 108 | (80%-120%) | Yes |

| Sample Type | Run Date | Data File | Result | Limits | Within Limits |
|-------------|-----------------------------|-------------------|------------|------------|---------------|
| ICB | 27-DEC-2022 10:23:00 | 122822.csv | 140 | 500 | Yes |
| CCB | 27-DEC-2022 14:28:00 | 122822.csv | 230 | 500 | Yes |
| CCB | 27-DEC-2022 15:55:00 | 122822.csv | 230 | 500 | Yes |
| CCB | 27-DEC-2022 19:56:00 | 122822B.csv | 140 | 500 | Yes |
| CCB | 27-DEC-2022 23:05:00 | 122822B.csv | 180 | 500 | Yes |

Carbon, Total Organic Raw Data

Prep Logbook

Total Carbon and Total Organic Carbon Analysis Using the OI Analytical 1030S TOC Solids Module

Batch ID: 2359774
Analyst: Ryan Monroe
Method: SW846 9060A Modified Prep
Lab SOP: GL-GC-E-062 REV# 21
Instrument: Ohaus BAL535

| Type | Sample Id | Description | Serial Number | Spike Amount | Spike Units |
|------|------------|-------------------------------|----------------|--------------|-------------|
| LCS | 1205278003 | TOC Stand. Reference LCS Soil | UTC3414673-06a | .1 | g |

| Sample ID | Prep Date | Matrix | Instrument Aliquot (g) | Default Aliquot (g) | Prep Factor (g/g) |
|----------------------------|----------------------|--------|------------------------|---------------------|-------------------|
| 1205278002 MB | 21-DEC-2022 13:31:21 | Solid | 0.1 | 0.1 | 1 |
| 1205278003 LCS | 21-DEC-2022 13:31:21 | Solid | 0.1001 | 0.1 | 0.999 |
| 604780001 | 21-DEC-2022 13:31:21 | Solid | 0.002 | 0.1 | 50 |
| 604801001 | 21-DEC-2022 13:31:21 | Solid | 0.0565 | 0.1 | 1.76991 |
| 1205278004 DUP (604801001) | 21-DEC-2022 13:31:21 | Solid | 0.0562 | 0.1 | 1.77936 |
| 1205278005 PS (604801001) | 21-DEC-2022 13:31:21 | Solid | 0.0562 | 0.1 | 1.77936 |
| 604807001 | 21-DEC-2022 13:31:21 | Solid | 0.0706 | 0.1 | 1.41643 |
| 604807002 | 21-DEC-2022 13:31:21 | Solid | 0.1154 | 0.1 | 0.86655 |
| 604807003 | 21-DEC-2022 13:31:21 | Solid | 0.0352 | 0.1 | 2.84091 |
| 604807004 | 21-DEC-2022 13:31:21 | Solid | 0.0271 | 0.1 | 3.69004 |
| 604807005 | 21-DEC-2022 13:31:21 | Solid | 0.036 | 0.1 | 2.77778 |
| 604807006 | 21-DEC-2022 13:31:21 | Solid | 0.1057 | 0.1 | 0.94607 |
| 604807007 | 21-DEC-2022 13:31:21 | Solid | 0.0403 | 0.1 | 2.48139 |
| 604820001 | 21-DEC-2022 13:31:21 | Solid | 0.1077 | 0.1 | 0.92851 |
| 604820002 | 21-DEC-2022 13:31:21 | Solid | 0.1035 | 0.1 | 0.96618 |
| 1205278006 DUP (604820002) | 21-DEC-2022 13:31:21 | Solid | 0.1036 | 0.1 | 0.96525 |
| 1205278007 PS (604820002) | 21-DEC-2022 13:31:21 | Solid | 0.1029 | 0.1 | 0.97182 |
| 605184001 | 23-DEC-2022 12:40:07 | Solid | 0.1033 | 0.1 | 0.96805 |

| Reagent/Solvent Lot ID | Description | Amount | Comments: |
|------------------------|-------------|--------|---|
| | | | Oven 007 Temperature (38-42C): 41 C Temperature within limits (Y/N)? : Y Thermometer ID: 947148 |

| Sample ID | Batch | Dilution | Analyst | Runtime | Dataset |
|---------------------|-------|----------|-------------|-------------|-------------|
| Wake up | 1 | RM3 | Oct 04 2022 | 12:39:00 PM | 100622a.csv |
| TOC-Std#1-0.050 mgC | 1 | RM3 | Oct 04 2022 | 12:56:00 PM | 100622a.csv |
| TOC-Std#2-0.100 mgC | 1 | RM3 | Oct 04 2022 | 01:14:00 PM | 100622a.csv |
| TOC-Std#3-0.500 mgC | 1 | RM3 | Oct 04 2022 | 01:33:00 PM | 100622a.csv |
| TOC-Std#4-1.000 mgC | 1 | RM3 | Oct 04 2022 | 01:53:00 PM | 100622a.csv |
| TOC-Std#5-2.000 mgC | 1 | RM3 | Oct 04 2022 | 02:12:00 PM | 100622a.csv |
| TOC-Std#6-4.000 mgC | 1 | RM3 | Oct 04 2022 | 02:35:00 PM | 100622a.csv |
| ICV 0.5 mgC | 1 | RM3 | Oct 04 2022 | 03:33:00 PM | 100622a.csv |
| ICB | 1 | RM3 | Oct 04 2022 | 03:43:00 PM | 100622a.csv |

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 151 Graham Rd
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 77845
 USA

Sample Results

Spl #: 1 Sample ID : Wake up Type : Sample Date: 2022/10/04
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: RANGE Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 12:39 pm | - | - | - | - | 1,444 | 0.000 | 0.000 | 0.000 |
| 2 | 12:42 pm | - | - | - | - | 1,409 | 0.000 | 0.000 | 0.000 |
| 3 | 12:46 pm | - | - | - | - | 1,467 | 0.000 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 1,440 | 0.000 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 29 | | | |
| % RSD. | | | | | | 2.00 | | | |

Spl #: 2 Sample ID : TOC-Std#1-0.050 mgC Type : Std Date: 2022/10/04
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 12:56 pm | - | - | - | - | 2,923 | 0.050 | 0.000 | 0.000 |
| 2 | 12:59 pm | - | - | - | - | 3,006 | 0.050 | 0.000 | 0.000 |
| 3 | 1:02 pm | - | - | - | - | 2,929 | 0.050 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 2,953 | 0.050 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 46 | | | |
| % RSD. | | | | | | 1.56 | | | |

Spl #: 3 Sample ID : TOC-Std#2-0.100 mgC Type : Std Date: 2022/10/04
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 1:14 pm | - | - | - | - | 5,578 | 0.100 | 0.000 | 0.000 |
| 2 | 1:17 pm | - | - | - | - | 5,542 | 0.100 | 0.000 | 0.000 |
| 3 | 1:20 pm | - | - | - | - | 5,752 | 0.100 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 5,624 | 0.100 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 112 | | | |
| % RSD. | | | | | | 1.99 | | | |

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Spl #: 4 Sample ID : TOC-Std#3-0.500 mgC Type : Std Date: 2022/10/04
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 1:33 pm | - | - | - | - | 25,139 | 0.500 | 0.000 | 0.000 |
| 2 | 1:37 pm | - | - | - | - | 24,869 | 0.500 | 0.000 | 0.000 |
| 3 | 1:40 pm | - | - | - | - | 25,118 | 0.500 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 25,042 | 0.500 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 150 | | | |
| % RSD. | | | | | | 0.60 | | | |

Spl #: 5 Sample ID : TOC-Std#4-1.000 mgC Type : Std Date: 2022/10/04
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 1:53 pm | - | - | - | - | 49,432 | 1.000 | 0.000 | 0.000 |
| 2 | 1:56 pm | - | - | - | - | 50,196 | 1.000 | 0.000 | 0.000 |
| 3 | 2:00 pm | - | - | - | - | 50,006 | 1.000 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 49,878 | 1.000 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 398 | | | |
| % RSD. | | | | | | 0.80 | | | |

Spl #: 6 Sample ID : TOC-Std#5-2.000 mgC Type : Std Date: 2022/10/04
 Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 2:12 pm | - | - | - | - | 110,336 | 2.000 | 0.000 | 0.000 |
| 2 | 2:16 pm | - | - | - | - | 108,017 | 2.000 | 0.000 | 0.000 |
| 3 | 2:19 pm | - | - | - | - | 106,604 | 2.000 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 108,319 | 2.000 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 1,885 | | | |
| % RSD. | | | | | | 1.74 | | | |

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Spl #: 7 Sample ID : TOC-Std#6-4.000 mgC Type : Std Date: 2022/10/04
Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 2:35 pm | - | - | - | - | 214,337 | 4.000 | 0.000 | 0.000 |
| 2 | 2:38 pm | - | - | - | - | 210,223 | 4.000 | 0.000 | 0.000 |
| 3 | 2:42 pm | - | - | - | - | 204,340 | 4.000 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 209,633 | 4.000 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 5,024 | | | |
| % RSD. | | | | | | 2.40 | | | |

Spl #: 8 Sample ID : ICV 0.5 mgC Type : Chk Standar Date: 2022/10/04
Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 3:33 pm | - | - | - | - | 27,199 | 0.521 | n/a | n/a |
| Avg. | | - | - | - | - | 27,199 | 0.521 | n/a | n/a |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 9 Sample ID : ICB Type : Sample Date: 2022/10/04
Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Pass Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 3:43 pm | - | - | - | - | 862 | 0.022 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 862 | 0.022 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

| Sample ID | Batch | Dilution | Analyst | Runtime | Dataset |
|-------------|---------|----------|---------|----------------------|---------------|
| Wake Up | | 1 | TSM | Dec 27 2022 10:02:00 | AM 122822.csv |
| ICV 0.5 mgC | | 1 | TSM | Dec 27 2022 10:13:00 | AM 122822.csv |
| ICB | | 1 | TSM | Dec 27 2022 10:23:00 | AM 122822.csv |
| 1205278002 | 2359776 | 1 | TSM | Dec 27 2022 10:33:00 | AM 122822.csv |
| 1205278003 | 2359776 | 1 | TSM | Dec 27 2022 10:54:00 | AM 122822.csv |
| 604801001 | 2359776 | 1 | TSM | Dec 27 2022 11:16:00 | AM 122822.csv |
| 1205278004 | 2359776 | 1 | TSM | Dec 27 2022 11:38:00 | AM 122822.csv |
| 1205278005 | 2359776 | 1 | TSM | Dec 27 2022 12:00:00 | PM 122822.csv |
| 604801001 | 2359776 | 1 | TSM | Dec 27 2022 12:24:00 | PM 122822.csv |
| 604780001 | 2359776 | 1 | TSM | Dec 27 2022 12:46:00 | PM 122822.csv |
| 604807001 | 2359776 | 1 | TSM | Dec 27 2022 01:11:00 | PM 122822.csv |
| 604807002 | 2359776 | 1 | TSM | Dec 27 2022 01:33:00 | PM 122822.csv |
| 604807003 | 2359776 | 1 | TSM | Dec 27 2022 01:55:00 | PM 122822.csv |
| CCV 0.5 mgC | | 1 | TSM | Dec 27 2022 02:17:00 | PM 122822.csv |
| CCB | | 1 | TSM | Dec 27 2022 02:28:00 | PM 122822.csv |
| 604807003 | 2359776 | 1 | TSM | Dec 27 2022 02:38:00 | PM 122822.csv |
| 604807004 | 2359776 | 1 | TSM | Dec 27 2022 03:00:00 | PM 122822.csv |
| 604807005 | 2359776 | 1 | TSM | Dec 27 2022 03:23:00 | PM 122822.csv |
| CCV 0.5 mgC | | 1 | TSM | Dec 27 2022 03:45:00 | PM 122822.csv |
| CCB | | 1 | TSM | Dec 27 2022 03:55:00 | PM 122822.csv |

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Sample Results

Spl #: 1 Sample ID : Wake Up Type : Sample Date: 2022/12/27
Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Pass Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 10:02 am | - | - | - | - | 458 | 0.014 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 458 | 0.014 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 2 Sample ID : ICV 0.5 mgC Type : Chk Standar Date: 2022/12/27
Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 10:13 am | - | - | - | - | 29,600 | 0.567 | n/a | n/a |
| Avg. | | - | - | - | - | 29,600 | 0.567 | n/a | n/a |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 3 Sample ID : ICB Type : Sample Date: 2022/12/27
Method : 100422 TOC SOL CAL - Oct 04, 2022; 08-31-07 AM Status: Pass Customer ID: 00000000

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 10:23 am | - | - | - | - | 454 | 0.014 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 454 | 0.014 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

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Spl #: 4 Sample ID : 1205278002 Type : Sample Date: 2022/12/27
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 10:33 am | - | - | - | - | 384 | 0.013 | 0.000 | 0.000 |
| 2 | 10:36 am | - | - | - | - | 409 | 0.013 | 0.000 | 0.000 |
| 3 | 10:39 am | - | - | - | - | 398 | 0.013 | 0.000 | 0.000 |
| 4 | 10:42 am | - | - | - | - | 418 | 0.013 | 0.000 | 0.000 |
| 5 | 10:45 am | - | - | - | - | 434 | 0.013 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 415 | 0.013 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 15 | | | |
| % RSD. | | | | | | 3.64 | | | |

Comments: 2359776|1|1| MB ID:TOC368

Spl #: 5 Sample ID : 1205278003 Type : Sample Date: 2022/12/27
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 10:54 am | - | - | - | - | 22,517 | 0.433 | 0.000 | 0.000 |
| 2 | 10:58 am | - | - | - | - | 22,326 | 0.429 | 0.000 | 0.000 |
| 3 | 11:01 am | - | - | - | - | 22,257 | 0.428 | 0.000 | 0.000 |
| 4 | 11:05 am | - | - | - | - | 22,279 | 0.428 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 22,345 | 0.429 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 118 | | | |
| % RSD. | | | | | | 0.53 | | | |

Comments: 2359776|1|1| LCS ID:TOC368

Spl #: 6 Sample ID : 604801001 Type : Sample Date: 2022/12/27
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 11:16 am | - | - | - | - | 72,186 | 1.375 | 0.000 | 0.000 |
| 2 | 11:19 am | - | - | - | - | 71,666 | 1.365 | 0.000 | 0.000 |
| 3 | 11:23 am | - | - | - | - | 71,473 | 1.362 | 0.000 | 0.000 |
| 4 | 11:27 am | - | - | - | - | 71,496 | 1.362 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 71,706 | 1.366 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 332 | | | |
| % RSD. | | | | | | 0.46 | | | |

Comments: 2359776|1|1| ID:TOC368

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Spl #: 10 Sample ID : 604780001 Type : Sample Date: 2022/12/27
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 12:46 pm | - | - | - | - | 35,740 | 0.683 | 0.000 | 0.000 |
| 2 | 12:50 pm | - | - | - | - | 35,325 | 0.676 | 0.000 | 0.000 |
| 3 | 12:54 pm | - | - | - | - | 35,008 | 0.670 | 0.000 | 0.000 |
| 4 | 12:57 pm | - | - | - | - | 34,937 | 0.668 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 35,252 | 0.674 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 366 | | | |
| % RSD. | | | | | | 1.04 | | | |

Comments: 2359776|1|1| ID:TOC368

Spl #: 11 Sample ID : 604807001 Type : Sample Date: 2022/12/27
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 1:11 pm | - | - | - | - | 97,384 | 1.853 | 0.000 | 0.000 |
| 2 | 1:15 pm | - | - | - | - | 96,523 | 1.837 | 0.000 | 0.000 |
| 3 | 1:18 pm | - | - | - | - | 96,322 | 1.833 | 0.000 | 0.000 |
| 4 | 1:22 pm | - | - | - | - | 96,104 | 1.829 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 96,583 | 1.838 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 561 | | | |
| % RSD. | | | | | | 0.58 | | | |

Comments: 2359776|1|1| ID:TOC368

Spl #: 12 Sample ID : 604807002 Type : Sample Date: 2022/12/27
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 1:33 pm | - | - | - | - | 51,174 | 0.976 | 0.000 | 0.000 |
| 2 | 1:37 pm | - | - | - | - | 50,723 | 0.968 | 0.000 | 0.000 |
| 3 | 1:40 pm | - | - | - | - | 50,599 | 0.965 | 0.000 | 0.000 |
| 4 | 1:44 pm | - | - | - | - | 50,541 | 0.964 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 50,759 | 0.969 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 287 | | | |
| % RSD. | | | | | | 0.56 | | | |

Comments: 2359776|1|1| ID:TOC368

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Spl #: 13 Sample ID : 604807003 Type : Sample Date: 2022/12/27
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 1:55 pm | - | - | - | - | 216,242 | 4.109 | 0.000 | 0.000 |
| 2 | 1:59 pm | - | - | - | - | 214,284 | 4.072 | 0.000 | 0.000 |
| 3 | 2:02 pm | - | - | - | - | 213,783 | 4.062 | 0.000 | 0.000 |
| 4 | 2:06 pm | - | - | - | - | 213,474 | 4.056 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 214,446 | 4.075 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 1,243 | | | |
| % RSD. | | | | | | 0.58 | | | |

Comments: 2359776|1|1| ID:TOC368

Spl #: 14 Sample ID : CCV 0.5 mgC Type : Chk Standar Date: 2022/12/27
Method : 100422 TOC SOL CAL - Oct Status: Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 2:17 pm | - | - | - | - | 28,945 | 0.555 | n/a | n/a |
| Avg. | | - | - | - | - | 28,945 | 0.555 | n/a | n/a |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 15 Sample ID : CCB Type : Sample Date: 2022/12/27
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 2:28 pm | - | - | - | - | 944 | 0.023 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 944 | 0.023 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

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Spl #: 16 Sample ID : 604807003 Type : Sample Date: 2022/12/27
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 2:38 pm | - | - | - | - | 126,222 | 2.401 | 0.000 | 0.000 |
| 2 | 2:42 pm | - | - | - | - | 125,314 | 2.383 | 0.000 | 0.000 |
| 3 | 2:46 pm | - | - | - | - | 125,175 | 2.381 | 0.000 | 0.000 |
| 4 | 2:50 pm | - | - | - | - | 124,841 | 2.374 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 125,388 | 2.385 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 590 | | | |
| % RSD. | | | | | | 0.47 | | | |

Comments: 2359776|1|1| ID:TOC368

Spl #: 17 Sample ID : 604807004 Type : Sample Date: 2022/12/27
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 3:00 pm | - | - | - | - | 67,473 | 1.286 | 0.000 | 0.000 |
| 2 | 3:04 pm | - | - | - | - | 66,753 | 1.272 | 0.000 | 0.000 |
| 3 | 3:08 pm | - | - | - | - | 66,859 | 1.274 | 0.000 | 0.000 |
| 4 | 3:12 pm | - | - | - | - | 66,708 | 1.271 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 66,948 | 1.276 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 356 | | | |
| % RSD. | | | | | | 0.53 | | | |

Comments: 2359776|1|1| ID:TOC368

Spl #: 18 Sample ID : 604807005 Type : Sample Date: 2022/12/27
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 3:23 pm | - | - | - | - | 199,518 | 3.792 | 0.000 | 0.000 |
| 2 | 3:26 pm | - | - | - | - | 197,562 | 3.755 | 0.000 | 0.000 |
| 3 | 3:30 pm | - | - | - | - | 197,345 | 3.750 | 0.000 | 0.000 |
| 4 | 3:34 pm | - | - | - | - | 197,017 | 3.744 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 197,860 | 3.760 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 1,127 | | | |
| % RSD. | | | | | | 0.57 | | | |

Comments: 2359776|1|1| ID:TOC368

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 USA

Spl #: 19 Sample ID : CCV 0.5 mgC Type : Chk Standar Date: 2022/12/27
 Method : 100422 TOC SOL CAL - Oct Status: Customer ID: 00000000
 04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 3:45 pm | - | - | - | - | 27,555 | 0.528 | n/a | n/a |
| Avg. | | - | - | - | - | 27,555 | 0.528 | n/a | n/a |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 20 Sample ID : CCB Type : Sample Date: 2022/12/27
 Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
 04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 3:55 pm | - | - | - | - | 920 | 0.023 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 920 | 0.023 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 1 Sample ID : Wake Up Type : Sample Date: 2022/12/27
 Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
 04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 6:52 pm | - | - | - | - | 28,875 | 0.553 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 28,875 | 0.553 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 2 Sample ID : CCV 0.5 mgC Type : Chk Standar Date: 2022/12/27
 Method : 100422 TOC SOL CAL - Oct Status: Customer ID: 00000000
 04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 7:15 pm | - | - | - | - | 616 | 0.017 | n/a | n/a |
| Avg. | | - | - | - | - | 616 | 0.017 | n/a | n/a |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

| Sample ID | Batch | Dilution | Analyst | Runtime | Dataset |
|-------------|---------|----------|---------|----------------------|----------------|
| Wake Up | | 1 | RMJ | Dec 27 2022 06:52:00 | PM 122822B.csv |
| CCV 0.5 mgC | | 1 | RMJ | Dec 27 2022 07:15:00 | PM 122822B.csv |
| CCB | | 1 | RMJ | Dec 27 2022 07:33:00 | PM 122822B.csv |
| CCV 0.5 mgC | | 1 | RMJ | Dec 27 2022 07:45:00 | PM 122822B.csv |
| CCB | | 1 | RMJ | Dec 27 2022 07:56:00 | PM 122822B.csv |
| 604807006 | 2359776 | 1 | RMJ | Dec 27 2022 08:07:00 | PM 122822B.csv |
| 604807007 | 2359776 | 1 | RMJ | Dec 27 2022 08:28:00 | PM 122822B.csv |
| 604820001 | 2359776 | 1 | RMJ | Dec 27 2022 08:51:00 | PM 122822B.csv |
| 604820002 | 2359776 | 1 | RMJ | Dec 27 2022 09:13:00 | PM 122822B.csv |
| 1205278006 | 2359776 | 1 | RMJ | Dec 27 2022 09:35:00 | PM 122822B.csv |
| 1205278007 | 2359776 | 1 | RMJ | Dec 27 2022 09:58:00 | PM 122822B.csv |
| 605184001 | 2359776 | 1 | RMJ | Dec 27 2022 10:20:00 | PM 122822B.csv |
| CCV 0.5 mgC | | 1 | RMJ | Dec 27 2022 10:55:00 | PM 122822B.csv |
| CCB | | 1 | RMJ | Dec 27 2022 11:05:00 | PM 122822B.csv |

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Spl #: 3 Sample ID : CCB Type : Sample Date: 2022/12/27
 Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
 04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 7:33 pm | - | - | - | - | 463 | 0.014 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 463 | 0.014 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 4 Sample ID : CCV 0.5 mgC Type : Chk Standar Date: 2022/12/27
 Method : 100422 TOC SOL CAL - Oct Status: Customer ID: 00000000
 04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 7:45 pm | - | - | - | - | 28,674 | 0.549 | n/a | n/a |
| Avg. | | - | - | - | - | 28,674 | 0.549 | n/a | n/a |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 5 Sample ID : CCB Type : Sample Date: 2022/12/27
 Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
 04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 7:56 pm | - | - | - | - | 439 | 0.014 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 439 | 0.014 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 6 Sample ID : 604807006 Type : Sample Date: 2022/12/27
 Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
 04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 8:07 pm | - | - | - | - | 25,901 | 0.497 | 0.000 | 0.000 |
| 2 | 8:10 pm | - | - | - | - | 25,803 | 0.495 | 0.000 | 0.000 |
| 3 | 8:14 pm | - | - | - | - | 25,796 | 0.495 | 0.000 | 0.000 |
| 4 | 8:17 pm | - | - | - | - | 25,709 | 0.493 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 25,802 | 0.495 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 78 | | | |
| % RSD. | | | | | | 0.30 | | | |

Comments: 2359776|1|1| ID:TOC368

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Spl #: 7 Sample ID : 604807007 Type : Sample Date: 2022/12/27
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 8:28 pm | - | - | - | - | 127,831 | 2.431 | 0.000 | 0.000 |
| 2 | 8:32 pm | - | - | - | - | 126,776 | 2.411 | 0.000 | 0.000 |
| 3 | 8:36 pm | - | - | - | - | 126,830 | 2.412 | 0.000 | 0.000 |
| 4 | 8:39 pm | - | - | - | - | 126,534 | 2.407 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 126,993 | 2.415 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 574 | | | |
| % RSD. | | | | | | 0.45 | | | |

Comments: 2359776|1|1| ID:TOC368

Spl #: 8 Sample ID : 604820001 Type : Sample Date: 2022/12/27
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 8:51 pm | - | - | - | - | 4,486 | 0.090 | 0.000 | 0.000 |
| 2 | 8:55 pm | - | - | - | - | 4,392 | 0.089 | 0.000 | 0.000 |
| 3 | 8:58 pm | - | - | - | - | 4,362 | 0.088 | 0.000 | 0.000 |
| 4 | 9:02 pm | - | - | - | - | 4,305 | 0.087 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 4,386 | 0.088 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 76 | | | |
| % RSD. | | | | | | 1.73 | | | |

Comments: 2359776|1|1| ID:TOC368

Spl #: 9 Sample ID : 604820002 Type : Sample Date: 2022/12/27
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 9:13 pm | - | - | - | - | 139,896 | 2.660 | 0.000 | 0.000 |
| 2 | 9:16 pm | - | - | - | - | 138,544 | 2.634 | 0.000 | 0.000 |
| 3 | 9:20 pm | - | - | - | - | 138,746 | 2.638 | 0.000 | 0.000 |
| 4 | 9:24 pm | - | - | - | - | 138,373 | 2.631 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 138,890 | 2.641 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 688 | | | |
| % RSD. | | | | | | 0.50 | | | |

Comments: 2359776|1|1| ID:TOC368

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Spl #: 10 Sample ID : 1205278006 Type : Sample Date: 2022/12/27
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|---------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 9:35 pm | - | - | - | - | 135,597 | 2.579 | 0.000 | 0.000 |
| 2 | 9:38 pm | - | - | - | - | 134,406 | 2.556 | 0.000 | 0.000 |
| 3 | 9:42 pm | - | - | - | - | 134,309 | 2.554 | 0.000 | 0.000 |
| 4 | 9:46 pm | - | - | - | - | 134,174 | 2.552 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 134,621 | 2.560 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 657 | | | |
| % RSD. | | | | | | 0.49 | | | |

Comments: 2359776|1|1| DUP ID:TOC368

Spl #: 11 Sample ID : 1205278007 Type : Sample Date: 2022/12/27
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 9:58 pm | - | - | - | - | 159,596 | 3.034 | 0.000 | 0.000 |
| 2 | 10:02 pm | - | - | - | - | 158,149 | 3.007 | 0.000 | 0.000 |
| 3 | 10:06 pm | - | - | - | - | 157,655 | 2.997 | 0.000 | 0.000 |
| 4 | 10:09 pm | - | - | - | - | 157,656 | 2.997 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 158,264 | 3.009 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 918 | | | |
| % RSD. | | | | | | 0.58 | | | |

Comments: 2359776|1|1| PS ID:TOC368

Spl #: 12 Sample ID : 605184001 Type : Sample Date: 2022/12/27
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|-----------------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 10:20 pm | - | - | - | - | 41,124 | 0.786 | 0.000 | 0.000 |
| 2 | 10:24 pm | - | - | - | - | 40,850 | 0.780 | 0.000 | 0.000 |
| 3 | 10:28 pm | - | - | - | - | 40,707 | 0.778 | 0.000 | 0.000 |
| 4 | 10:31 pm | - | - | - | - | 40,567 | 0.775 | 0.000 | 0.000 |
| 5 | 10:35 pm | - | - | - | - | 40,478 | 0.773 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 40,745 | 0.778 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 254 | | | |
| % RSD. | | | | | | 0.62 | | | |

Comments: 2359776|1|1| ID:TOC368

OI Corporation
151 Graham Rd
College Station, TX
77845
USA

Spl #: 13 Sample ID : CCV 0.5 mgC Type : Chk Standar Date: 2022/12/27
Method : 100422 TOC SOL CAL - Oct Status: Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 10:55 pm | - | - | - | - | 28,137 | 0.539 | n/a | n/a |
| Avg. | | - | - | - | - | 28,137 | 0.539 | n/a | n/a |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

Spl #: 14 Sample ID : CCB Type : Sample Date: 2022/12/27
Method : 100422 TOC SOL CAL - Oct Status: Pass Customer ID: 00000000
04, 2022; 08-31-07 AM

| Rep # | Time | TC Area (cts) | TC Mass (mgC) | TC %Carbon | TC %SOM | TOC Area (cts) | TOC Mass (mgC) | TOC %Carbon | TOC %SOM |
|----------|----------|---------------|---------------|------------|---------|----------------|----------------|-------------|----------|
| 1 | 11:05 pm | - | - | - | - | 664 | 0.018 | 0.000 | 0.000 |
| Avg. | | - | - | - | - | 664 | 0.018 | 0.000 | 0.000 |
| Std.Dev. | | | | | | 0 | | | |
| % RSD. | | | | | | 0.00 | | | |

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

| | | | |
|-----------------------|--------------------|-------------------|-----------|
| Client | Merit Laboratories | Boring | NA |
| Client Project | S43512 | Depth | NA |
| Project No. | 45376 | Sample | S43512.13 |
| | | Lab Sample | 45376001 |

Sample Color: **BROWN**
USCS Group Name: **POORLY GRADED SAND WITH SILT**
USCS Group Symbol: **sp-sm** **USDA:** **SAND**

Dry Prep: R58-11(2018)¹

| MECHANICAL SIEVE | | | | | | | |
|-------------------------------|--------------|------------|---------------------|------------|------------------|--------------------|------------------------|
| Total Sample | | Sieve Size | Nominal Opening, mm | Dry Wt, gm | Split % Retained | Normalized % Finer | Project Specifications |
| Tare No. | 317 | 3" | 75 | 0 | 0.0% | 100.0% | |
| Tare + WS., gm | 1012.72 | 2-1/2" | 63 | 0 | 0.0% | 100.0% | |
| Tare + DS., gm | 715.9 | 2" | 50 | 0 | 0.0% | 100.0% | |
| Tare, gm | 189.11 | 1-1/2" | 37.5 | 0 | 0.0% | 100.0% | |
| Total sample WC | 56.3% | 1" | 25 | 0 | 0.0% | 100.0% | |
| Total Sample Dry Wt, gm (-3") | 527 | 3/4" | 19 | 0 | 0.0% | 100.0% | |
| Hygroscopic WC (-#10) | | 1/2" | 12.5 | 9.43 | 1.8% | 98.2% | |
| Tare No. | 449 | 3/8" | 9.5 | 12.77 | 2.4% | 95.8% | |
| Tare + WS., gm | 27.09 | No. 4 | 4.75 | 26.84 | 5.1% | 90.7% | |
| Tare + DS., gm | 27.08 | No. 10 | 2 | 19.45 | 3.7% | 87.0% | |
| Tare, gm | 10.7 | No. 20 | 0.85 | 2.38 | 3.0% | 84.0% | |
| Hygroscopic WC | 0.06% | No. 40 | 0.425 | 3.91 | 5.0% | 79.0% | |
| -#10 Hydro/Sieve air dry wt. | 68.48 | No. 60 | 0.25 | 21.68 | 27.5% | 51.5% | |
| Wt. of +#200 Sample, gm | 60.56 | No. 140 | 0.106 | 31.21 | 39.7% | 11.8% | |
| | | No. 200 | 0.075 | 1.38 | 1.8% | 10.1% | |

| HYDROMETER (-#10) | | | |
|--------------------------|-------|--|------------------------|
| Split Air Dry Wt | 68.52 | Specific Gravity | 2.7 |
| Hygroscopic WC | 0.06% | | Assumed |
| Corrected Dry wt | 68.5 | <i>-#10 Dispersed 1min in Hamilton Beach Mixer</i> | <i>a Factor</i> 0.9889 |

| Elapsed Time (min.) | R Measured | Temp °C | Composite Correction | R Corrected | K Factor | Percent Finer (%) | Particle Diameter (mm) | Adjusted % Finer (%) |
|---------------------|------------|---------|----------------------|-------------|----------|-------------------|------------------------|----------------------|
| 2 | 11 | 21.7 | 5.6 | 5.4 | 0.0132 | 7.8 | 0.0354 | 6.8% |
| 5 | 10 | 21.8 | 5.5 | 4.5 | 0.0132 | 6.5 | 0.0225 | 5.7% |
| 15 | 9 | 21.9 | 5.5 | 3.5 | 0.0132 | 5.1 | 0.0131 | 4.4% |
| 30 | 8.5 | 22.3 | 5.4 | 3.1 | 0.0131 | 4.5 | 0.0092 | 3.9% |
| 60 | 7.5 | 22.6 | 5.3 | 2.2 | 0.0131 | 3.2 | 0.0065 | 2.8% |
| 250 | 7 | 23 | 5.2 | 1.8 | 0.0130 | 2.6 | 0.0032 | 2.3% |
| 1440 | 6.5 | 19.2 | 6.2 | 0.3 | 0.0136 | 0.4 | 0.0014 | 0.4% |

| USCS SOIL CLASSIFICATION | | | | USDA CLASSIFICATION | | | | |
|--|-------------|---------------------|---------|----------------------------|-------------------|--|--|------|
| <i>Corrected For 100% Passing a 3" Sieve</i> | | | | Particle Size (mm) | Percent Finer (%) | Percent of Each Component (Material) (%) | Corrected Percent of -2.0 mm Material for USDA | |
| % Gravel (-3" & +#4) | 9.3 | Silt=7.5% Clay=2.6% | D60, mm | | | | | 0.30 |
| <i>Coarse=0; Fine=9.3</i> | | | D30, mm | | | | | 0.16 |
| % Sand (-#4 & +#200) | 80.6 | | D10, mm | | | | | 0.07 |
| <i>Coarse=3.7; Medium=8; Fine=68.9</i> | | | Cc | | | | | 1.13 |
| % Fines (-#200) | 10.1 | | Cu | 3.98 | | | | |
| % Plus #200 (-3") | 89.9 | | | | | | | |
| USCS Description | | | | 100 | 100 | | | |
| POORLY GRADED SAND WITH SILT | | | | 2 | 87.0 | Gravel | 13.0 | |
| USCS Group Symbol | | | | 0.05 | 8.3 | Sand | 78.7 | |
| Atterberg Limits Group Symbol | | | | 0.002 | 1.2 | Silt | 7.1 | |
| sp-sm | | | | | | Clay | 1.2 | |
| np - Non-Plastic (assumed) | | | | | | | | |
| Auxiliary Information | | | | | | | | |
| Wt Ret, gm | % Retained | % Finer | | | | | | |
| 12" Sieve - 300 mm | 0 | 0.0 | 100.0 | | | | | |
| 6" Sieve - 150 mm | 0 | 0.0 | 100.0 | | | | | |
| 3" Sieve - 75 mm | 0 | 0.0 | 100.0 | | | | | |
| | | | | USDA Classification | | | | |
| | | | | SAND | | | | |

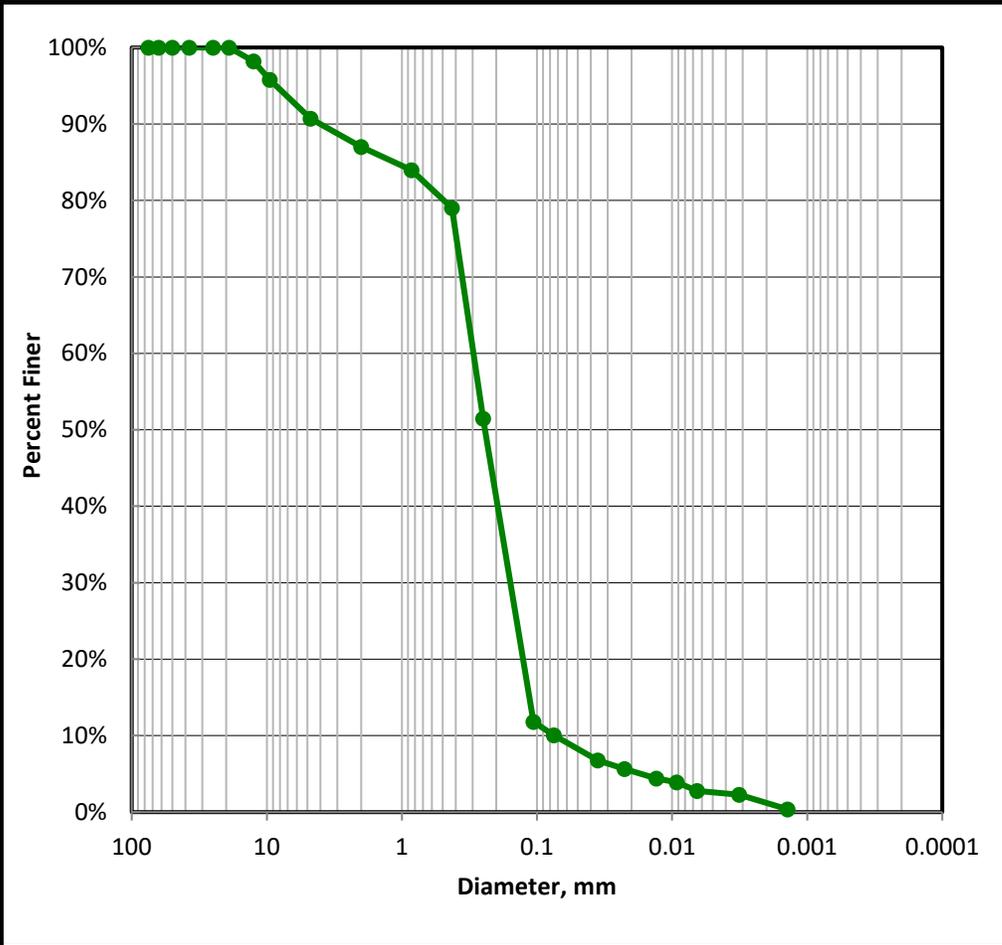
Input Validation RS Reviewed By: JK Date Tested 1/3/2023

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Merit Laboratories
 Client Project S43512
 Project No. 45376

Boring NA
 Depth NA
 Sample S43512.13
 Lab Sample 45376001

Sample Color: **BROWN**
 USCS Group Name: **POORLY GRADED SAND WITH SILT**
 USCS Group Symbol: **sp-sm** USDA: **SAND**



| US Std. Sieve Size | Particle Diameter (mm) | Percent Finer |
|--------------------|------------------------|---------------|
| 3" | 75 | 100.0% |
| 2-1/2" | 63 | 100.0% |
| 2" | 50 | 100.0% |
| 1-1/2" | 37.5 | 100.0% |
| 1" | 25 | 100.0% |
| 3/4" | 19 | 100.0% |
| 1/2" | 12.5 | 98.2% |
| 3/8" | 9.5 | 95.8% |
| No. 4 | 4.75 | 90.7% |
| No. 10 | 2 | 87.0% |
| No. 20 | 0.85 | 84.0% |
| No. 40 | 0.425 | 79.0% |
| No. 60 | 0.25 | 51.5% |
| No. 140 | 0.106 | 11.8% |
| No. 200 | 0.075 | 10.1% |
| NA | 0.0354 | 6.8% |
| NA | 0.0225 | 5.7% |
| NA | 0.0131 | 4.4% |
| NA | 0.0092 | 3.9% |
| NA | 0.0065 | 2.8% |
| NA | 0.0032 | 2.3% |
| NA | 0.0014 | 0.4% |

| USCS SOIL CLASSIFICATION | | | |
|--|-------------|--------------------------------------|--------------|
| <i>Corrected For 100% Passing a 3" Sieve</i> | | | |
| % Gravel (-3" & +#4) | 9.3 | Silt=7.5% Clay=2.6% | |
| Coarse=0; Fine=9.3 | | D60, mm | 0.295 |
| % Sand (-#4 & +#200) | 80.6 | D30, mm | 0.157 |
| Coarse=3.7; Medium=8; Fine=68.9 | | D10, mm | 0.074 |
| % Fines (-#200) | 10.1 | Cc | 1.130 |
| % Plus #200 (-3") | 89.9 | Cu | 3.980 |
| USCS Description | | | |
| POORLY GRADED SAND WITH SILT | | | |
| USCS Group Symbol | | Atterberg Limits Group Symbol | |
| sp-sm | | np - Non-Plastic (assumed) | |
| Auxiliary Information | Wt Ret, gm | % Retained | % Finer |
| 12" Sieve - 300 mm | 0 | 0.0 | 100.0 |
| 6" Sieve - 150 mm | 0 | 0.0 | 100.0 |
| 3" Sieve - 75 mm | 0 | 0.0 | 100.0 |

| USDA CLASSIFICATION | | | |
|----------------------------|-------------------|--|--|
| Particle Size (mm) | Percent Finer (%) | Percent of Each Component (Material) (%) | Corrected Percent of -2.0 mm Material for USDA |
| 100 | 100 | | |
| 2 | 87.0 | Gravel 13.0 | 0 |
| 0.05 | 8.3 | Sand 78.7 | 90.5 |
| 0.002 | 1.2 | Silt 7.1 | 8.2 |
| | | Clay 1.2 | 1.4 |
| USDA Classification | | | |
| SAND | | | |

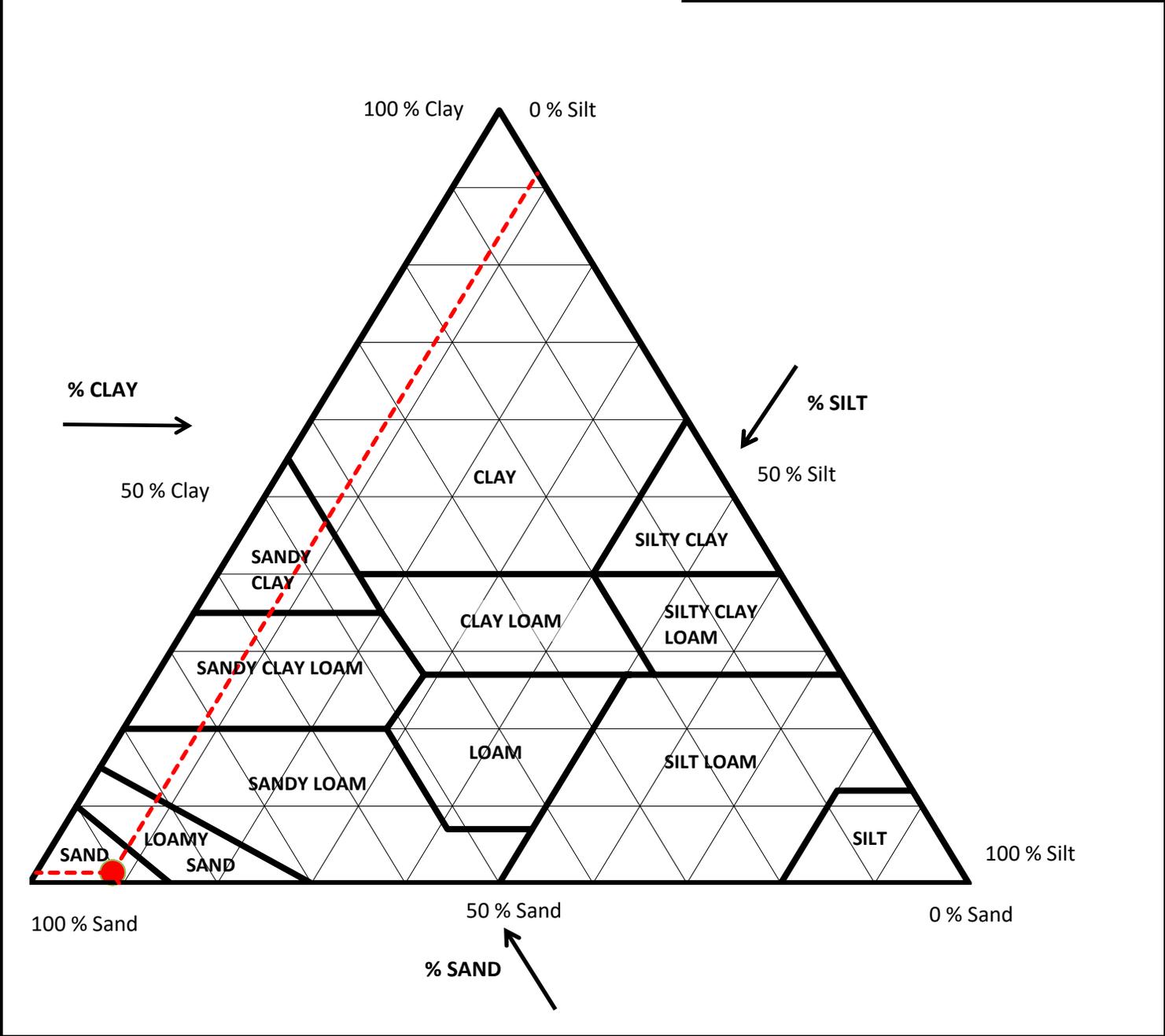
USDA CLASSIFICATION CHART

Client Merit Laboratories
 Client Project S43512
 Project No. 45376

Boring NA
 Depth NA
 Sample S43512.13
 Lab Sample 45376001

Sample Color: **BROWN**
 USCS Group Name: **POORLY GRADED SAND WITH SILT**
 USCS Group Symbol: **sp-sm** USDA: **SAND**

| Corrected for 0% gravel | | Sand Subsizes Corrected Percentages | |
|-------------------------|------|--|-------------|
| Percent Gravel, % | 0.0 | Very Coarse Sand; 2-1 | 2.8 |
| Percent Sand, % | 90.5 | Coarse Sand; 1-0.5 | 5.0 |
| Percent Silt, % | 8.2 | Medium Sand; 0.5-0.25 | 33.0 |
| Percent Clay, % | 1.4 | Fine Sand; 0.25-0.1 | 45.9 |
| | | Very Fine Sand; 0.1-0.05 | 3.7 |
| | | Total | 90.5 |



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

| | | | |
|-----------------------|--------------------|-------------------|-----------|
| Client | Merit Laboratories | Boring | NA |
| Client Project | S43512 | Depth | NA |
| Project No. | 45376 | Sample | S43512.14 |
| | | Lab Sample | 45376002 |

Sample Color: BROWN
USCS Group Name: POORLY GRADED SAND
USCS Group Symbol: sp

USDA: SAND

Dry Prep: R58-11(2018)¹

| MECHANICAL SIEVE | | | | | | | |
|-------------------------------|--------------|------------|---------------------|------------|------------------|--------------------|------------------------|
| Total Sample | | Sieve Size | Nominal Opening, mm | Dry Wt, gm | Split % Retained | Normalized % Finer | Project Specifications |
| Tare No. | 872 | 3" | 75 | 0 | 0.0% | 100.0% | |
| Tare + WS., gm | 1394.04 | 2-1/2" | 63 | 0 | 0.0% | 100.0% | |
| Tare + DS., gm | 1224.93 | 2" | 50 | 0 | 0.0% | 100.0% | |
| Tare, gm | 189.88 | 1-1/2" | 37.5 | 0 | 0.0% | 100.0% | |
| Total sample WC | 16.3% | 1" | 25 | 20.69 | 2.0% | 98.0% | |
| Total Sample Dry Wt, gm (-3") | 1035 | 3/4" | 19 | 25.94 | 2.5% | 95.5% | |
| Hygroscopic WC (-#10) | | 1/2" | 12.5 | 10.02 | 1.0% | 94.5% | |
| Tare No. | 320 | 3/8" | 9.5 | 6.53 | 0.6% | 93.9% | |
| Tare + WS., gm | 28.08 | No. 4 | 4.75 | 20.36 | 2.0% | 91.9% | |
| Tare + DS., gm | 28.08 | No. 10 | 2 | 22.21 | 2.1% | 89.8% | |
| Tare, gm | 11.19 | No. 20 | 0.85 | 0.65 | 0.5% | 89.2% | |
| Hygroscopic WC | 0.00% | No. 40 | 0.425 | 3.1 | 2.6% | 86.7% | |
| -#10 Hydro/Sieve air dry wt. | 108.00 | No. 60 | 0.25 | 48.43 | 40.3% | 46.4% | |
| Wt. of +#200 Sample, gm | 103.97 | No. 140 | 0.106 | 51.47 | 42.8% | 3.6% | |
| | | No. 200 | 0.075 | 0.32 | 0.3% | 3.4% | |

| HYDROMETER (-#10) | | | |
|-------------------|--------|--|------------------------|
| Split Air Dry Wt | 108.00 | Specific Gravity | 2.7 |
| Hygroscopic WC | 0.00% | | Assumed |
| Corrected Dry wt | 108.0 | <i>-#10 Dispersed 1min in Hamilton Beach Mixer</i> | <i>a Factor 0.9889</i> |

| Elapsed Time (min.) | R Measured | Temp °C | Composite Correction | R Corrected | K Factor | Percent Finer (%) | Particle Diameter (mm) | Adjusted % Finer (%) |
|---------------------|------------|---------|----------------------|-------------|----------|-------------------|------------------------|----------------------|
| 2 | 9 | 20.8 | 5.8 | 3.2 | 0.0133 | 2.9 | 0.0362 | 2.6% |
| 5 | 8.5 | 21 | 5.7 | 2.8 | 0.0133 | 2.6 | 0.0229 | 2.3% |
| 15 | 8 | 21.2 | 5.7 | 2.3 | 0.0133 | 2.1 | 0.0132 | 1.9% |
| 30 | 8 | 21.7 | 5.6 | 2.4 | 0.0132 | 2.2 | 0.0093 | 2.0% |
| 60 | 7.5 | 22.4 | 5.4 | 2.1 | 0.0131 | 1.9 | 0.0065 | 1.7% |
| 250 | 7 | 23 | 5.2 | 1.8 | 0.0130 | 1.6 | 0.0032 | 1.5% |
| 1440 | 6.5 | 19.3 | 6.2 | 0.3 | 0.0136 | 0.3 | 0.0014 | 0.2% |

| USCS SOIL CLASSIFICATION | | | | USDA CLASSIFICATION | | | | |
|--|------|-------------------------------|------------|---------------------|-------------------|--|--|------|
| <i>Corrected For 100% Passing a 3" Sieve</i> | | | | Particle Size (mm) | Percent Finer (%) | Percent of Each Component (Material) (%) | Corrected Percent of -2.0 mm Material for USDA | |
| % Gravel (-3" & +#4) | 8.1 | Silt=1.8% Clay=1.6% | D60, mm | | | | | 0.30 |
| Coarse=4.5; Fine=3.6 | | | D30, mm | | | | | 0.18 |
| % Sand (-#4 & +#200) | 88.6 | | D10, mm | | | | | 0.12 |
| Coarse=2.1; Medium=3.1; Fine=83.3 | | | Cc | | | | | 0.90 |
| % Fines (-#200) | 3.4 | | Cu | 2.48 | | | | |
| % Plus #200 (-3") | 96.6 | | | | | | | |
| USCS Description | | | | 100 | 100 | Gravel | 10.2 | |
| POORLY GRADED SAND | | | | 2 | 89.8 | Sand | 86.8 | |
| USCS Group Symbol | | Atterberg Limits Group Symbol | | 0.05 | 2.9 | Silt | 2.2 | |
| sp | | np - Non-Plastic (assumed) | | 0.002 | 0.8 | Clay | 0.8 | |
| Auxiliary Information | | Wt Ret, gm | % Retained | | | | | |
| 12" Sieve - 300 mm | | 0 | 0.0 | USDA Classification | | | | |
| 6" Sieve - 150 mm | | 0 | 0.0 | SAND | | | | |
| 3" Sieve - 75 mm | | 0 | 0.0 | | | | | |

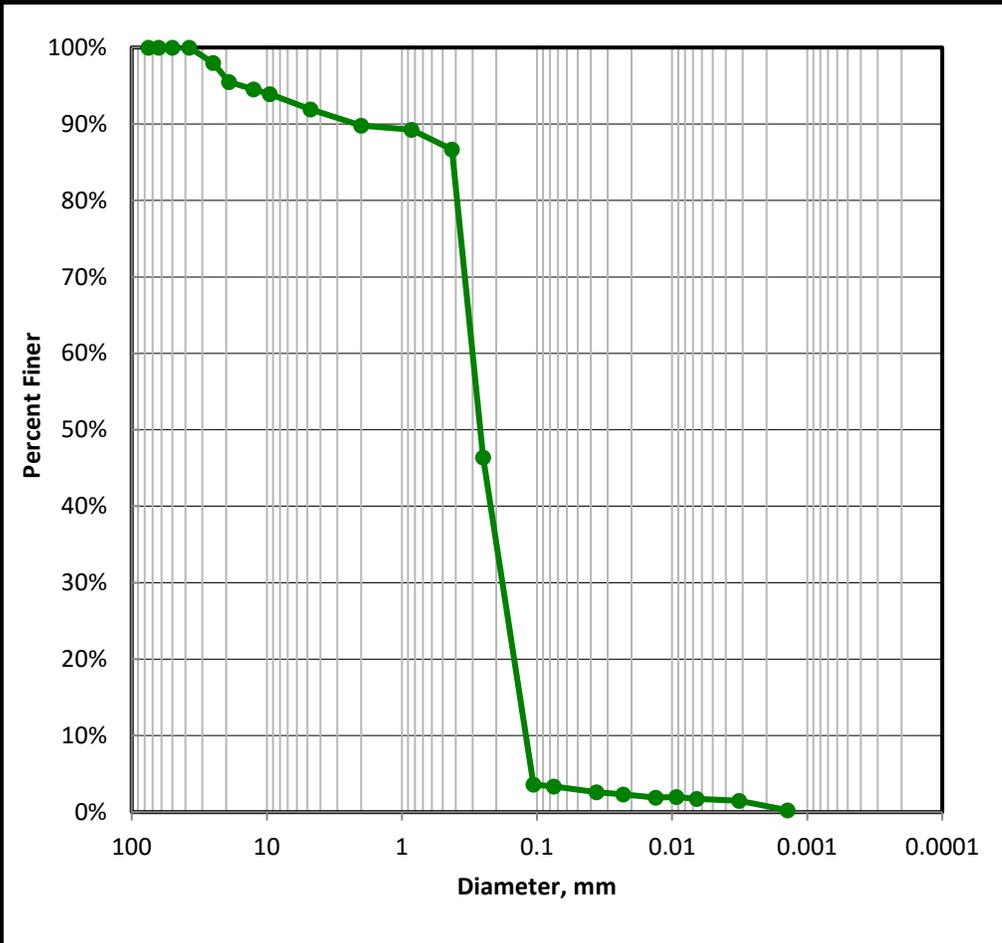
Input Validation RS Reviewed By: JK Date Tested 1/3/2023

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Merit Laboratories
 Client Project S43512
 Project No. 45376

Boring NA
 Depth NA
 Sample S43512.14
 Lab Sample 45376002

Sample Color: **BROWN**
 USCS Group Name: **POORLY GRADED SAND**
 USCS Group Symbol: **sp** USDA: **SAND**



| US Std. Sieve Size | Particle Diameter (mm) | Percent Finer |
|--------------------|------------------------|---------------|
| 3" | 75 | 100.0% |
| 2-1/2" | 63 | 100.0% |
| 2" | 50 | 100.0% |
| 1-1/2" | 37.5 | 100.0% |
| 1" | 25 | 98.0% |
| 3/4" | 19 | 95.5% |
| 1/2" | 12.5 | 94.5% |
| 3/8" | 9.5 | 93.9% |
| No. 4 | 4.75 | 91.9% |
| No. 10 | 2 | 89.8% |
| No. 20 | 0.85 | 89.2% |
| No. 40 | 0.425 | 86.7% |
| No. 60 | 0.25 | 46.4% |
| No. 140 | 0.106 | 3.6% |
| No. 200 | 0.075 | 3.4% |
| NA | 0.0362 | 2.6% |
| NA | 0.0229 | 2.3% |
| NA | 0.0132 | 1.9% |
| NA | 0.0093 | 2.0% |
| NA | 0.0065 | 1.7% |
| NA | 0.0032 | 1.5% |
| NA | 0.0014 | 0.2% |

| USCS SOIL CLASSIFICATION | | | |
|--|-------------|--------------------------------------|--------------|
| <i>Corrected For 100% Passing a 3" Sieve</i> | | | |
| % Gravel (-3" & +#4) | 8.1 | Silt=1.8% Clay=1.6% | |
| Coarse=4.5; Fine=3.6 | | D60, mm | 0.299 |
| % Sand (-#4 & +#200) | 88.6 | D30, mm | 0.180 |
| Coarse=2.1; Medium=3.1; Fine=83.3 | | D10, mm | 0.120 |
| % Fines (-#200) | 3.4 | Cc | 0.900 |
| % Plus #200 (-3") | 96.6 | Cu | 2.480 |
| USCS Description | | | |
| POORLY GRADED SAND | | | |
| USCS Group Symbol | | Atterberg Limits Group Symbol | |
| sp | | np - Non-Plastic (assumed) | |
| Auxiliary Information | Wt Ret, gm | % Retained | % Finer |
| 12" Sieve - 300 mm | 0 | 0.0 | 100.0 |
| 6" Sieve - 150 mm | 0 | 0.0 | 100.0 |
| 3" Sieve - 75 mm | 0 | 0.0 | 100.0 |

| USDA CLASSIFICATION | | | |
|----------------------------|-------------------|--|--|
| Particle Size (mm) | Percent Finer (%) | Percent of Each Component (Material) (%) | Corrected Percent of -2.0 mm Material for USDA |
| 100 | 100 | | |
| 2 | 89.8 | Gravel 10.2 | 0 |
| 0.05 | 2.9 | Sand 86.8 | 96.7 |
| 0.002 | 0.8 | Silt 2.2 | 2.4 |
| | | Clay 0.8 | 0.9 |
| USDA Classification | | | |
| SAND | | | |

USDA CLASSIFICATION CHART

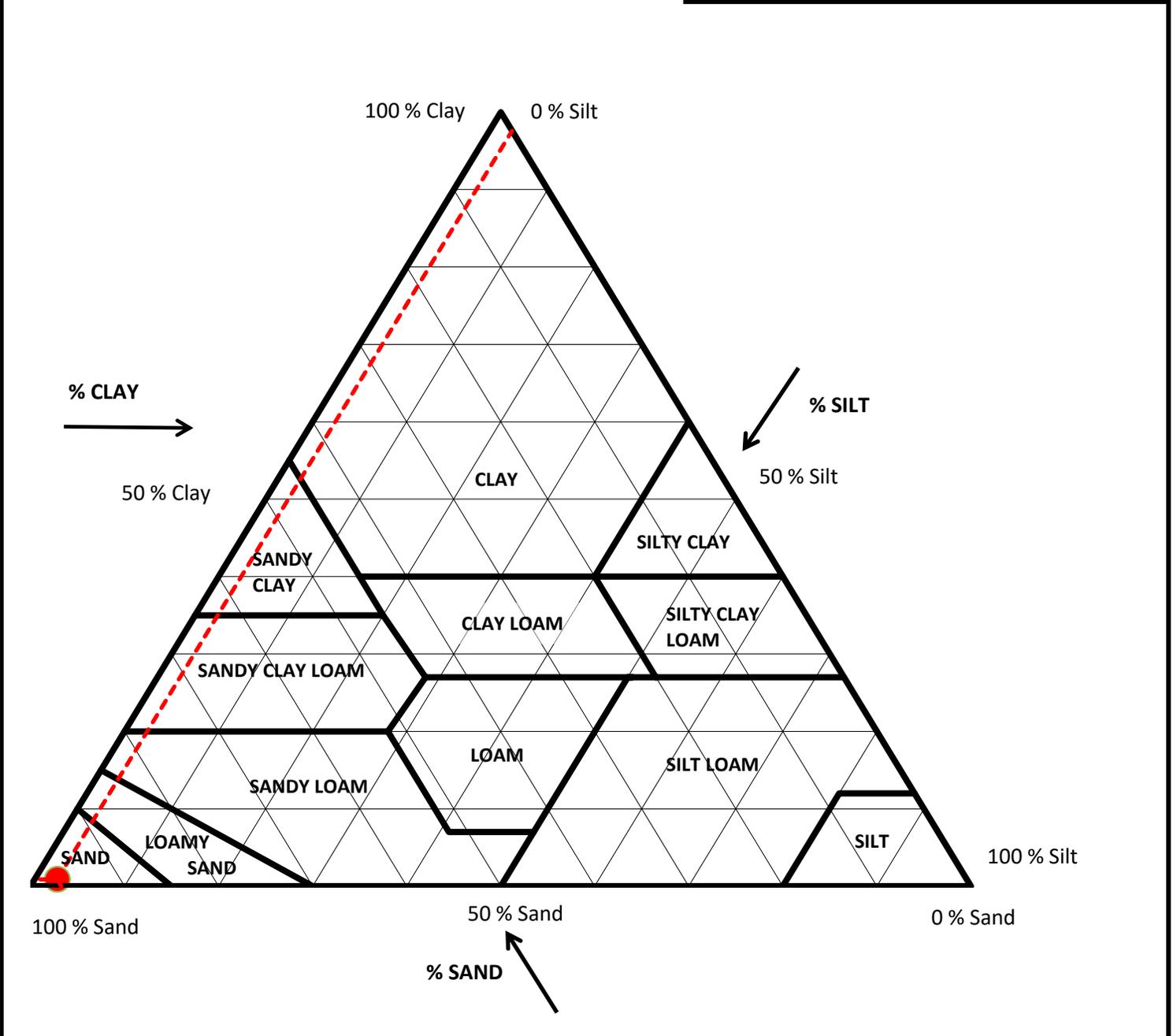
Client Merit Laboratories
 Client Project S43512
 Project No. 45376

Boring NA
 Depth NA
 Sample S43512.14
 Lab Sample 45376002

Sample Color: **BROWN**
 USCS Group Name: **POORLY GRADED SAND**
 USCS Group Symbol: **sp**

USDA: **SAND**

| Corrected for 0% gravel | | Sand Subsizes Corrected Percentages | |
|-------------------------|------|--|-------------|
| Percent Gravel, % | 0.0 | Very Coarse Sand; 2-1 | 0.5 |
| Percent Sand, % | 96.7 | Coarse Sand; 1-0.5 | 2.3 |
| Percent Silt, % | 2.4 | Medium Sand; 0.5-0.25 | 45.5 |
| Percent Clay, % | 0.9 | Fine Sand; 0.25-0.1 | 47.7 |
| | | Very Fine Sand; 0.1-0.05 | 0.7 |
| | | Total | 96.7 |



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Merit Laboratories
 Client Project S43512
 Project No. 45376

Boring NA
 Depth NA
 Sample S43512.15
 Lab Sample 45376003

Sample Color: **BROWN**
 USCS Group Name: **SILTY SAND**
 USCS Group Symbol: **sm**

USDA: **LOAMY SAND**

Dry Prep: R58-11(2018)¹

| MECHANICAL SIEVE | | | | | | | | |
|--|-----------------------------------|---|----------------------|---------------------|-----------------------------|--|--|----------------------|
| Total Sample | | Sieve Size | Nominal Opening, mm | Dry Wt, gm | Split Normalized % Retained | Split Normalized % Finer | Project Specifications | |
| Tare No. | 208 | 3" | 75 | 0 | 0.0% | 100.0% | | |
| Tare + WS., gm | 1162.91 | 2-1/2" | 63 | 0 | 0.0% | 100.0% | | |
| Tare + DS., gm | 971.44 | 2" | 50 | 0 | 0.0% | 100.0% | | |
| Tare, gm | 179.56 | 1-1/2" | 37.5 | 0 | 0.0% | 100.0% | | |
| Total sample WC | 24.2% | 1" | 25 | 0 | 0.0% | 100.0% | | |
| Total Sample Dry Wt, gm (-3") | 792 | 3/4" | 19 | 0 | 0.0% | 100.0% | | |
| Hygroscopic WC (-#10) | | 1/2" | 12.5 | 5.3 | 0.7% | 99.3% | | |
| Tare No. | 453 | 3/8" | 9.5 | 6.13 | 0.8% | 98.6% | | |
| Tare + WS., gm | 29.27 | No. 4 | 4.75 | 19.37 | 2.4% | 96.1% | | |
| Tare + DS., gm | 29.27 | No. 10 | 2 | 31.58 | 4.0% | 92.1% | | |
| Tare, gm | 10.76 | No. 20 | 0.85 | 4.14 | 5.3% | 86.8% | | |
| Hygroscopic WC | 0.00% | No. 40 | 0.425 | 6.11 | 7.9% | 78.9% | | |
| -#10 Hydro/Sieve air dry wt. | 71.40 | No. 60 | 0.25 | 16.96 | 21.9% | 57.0% | | |
| Wt. of +#200 Sample, gm | 50.38 | No. 140 | 0.106 | 18.87 | 24.3% | 32.7% | | |
| | | No. 200 | 0.075 | 4.3 | 5.5% | 27.1% | | |
| HYDROMETER (-#10) | | | | | | | | |
| Split Air Dry Wt | 71.40 | | | | | | Specific Gravity | 2.7 |
| Hygroscopic WC | 0.00% | | | | | | | Assumed |
| Corrected Dry wt | 71.4 | -#10 Dispersed 1min in Hamilton Beach Mixer | | | | | a Factor | 0.9889 |
| Elapsed Time (min.) | R Measured | Temp °C | Composite Correction | R Corrected | K Factor | Percent Finer (%) | Particle Diameter (mm) | Adjusted % Finer (%) |
| 2 | 19 | 20.7 | 5.8 | 13.2 | 0.0134 | 18.3 | 0.0342 | 16.8% |
| 5 | 15 | 20.8 | 5.8 | 9.2 | 0.0133 | 12.7 | 0.0221 | 11.7% |
| 15 | 12 | 21.1 | 5.7 | 6.3 | 0.0133 | 8.7 | 0.0130 | 8.0% |
| 30 | 11 | 21.5 | 5.6 | 5.4 | 0.0132 | 7.5 | 0.0092 | 6.9% |
| 60 | 9.5 | 22.2 | 5.4 | 4.1 | 0.0131 | 5.7 | 0.0065 | 5.2% |
| 250 | 7.5 | 23.1 | 5.2 | 2.3 | 0.0130 | 3.2 | 0.0032 | 2.9% |
| 1440 | 6.5 | 19.2 | 6.2 | 0.3 | 0.0136 | 0.4 | 0.0014 | 0.4% |
| USCS SOIL CLASSIFICATION | | | | USDA CLASSIFICATION | | | | |
| Corrected For 100% Passing a 3" Sieve | | | | Particle Size (mm) | Percent Finer (%) | Percent of Each Component (Material) (%) | Corrected Percent of -2.0 mm Material for USDA | |
| % Gravel (-3" & +#4) | 3.9 | Silt=22.7% Clay=4.4% | | 100 | 100 | Gravel 7.9 | 0 | |
| Coarse=0; Fine=3.9 | | D60, mm | NA | | | | | |
| % Sand (-#4 & +#200) | 69.0 | D30, mm | NA | 2 | 92.1 | Sand 70.3 | 76.3 | |
| Coarse=4; Medium=13.2; Fine=51.8 | | D10, mm | NA | | | | | |
| % Fines (-#200) | 27.1 | Cc | NA | | | | | |
| % Plus #200 (-3") | 72.9 | Cu | NA | 0.05 | 21.8 | Silt 20.3 | 22.1 | |
| USCS Description | | | | | | | | |
| SILTY SAND | | | | | | | | |
| USCS Group Symbol | Atterberg Limits Group Symbol | | | | | | | |
| sm | np - Non-Plastic (assumed) | | | | | | | |
| Auxiliary Information | Wt Ret, gm | % Retained | % Finer | 0.002 | 1.5 | Clay 1.5 | 1.6 | |
| 12" Sieve - 300 mm | 0 | 0.0 | 100.0 | | | | | |
| 6" Sieve - 150 mm | 0 | 0.0 | 100.0 | | | | | |
| 3" Sieve - 75 mm | 0 | 0.0 | 100.0 | | | | | |
| USDA Classification LOAMY SAND | | | | | | | | |

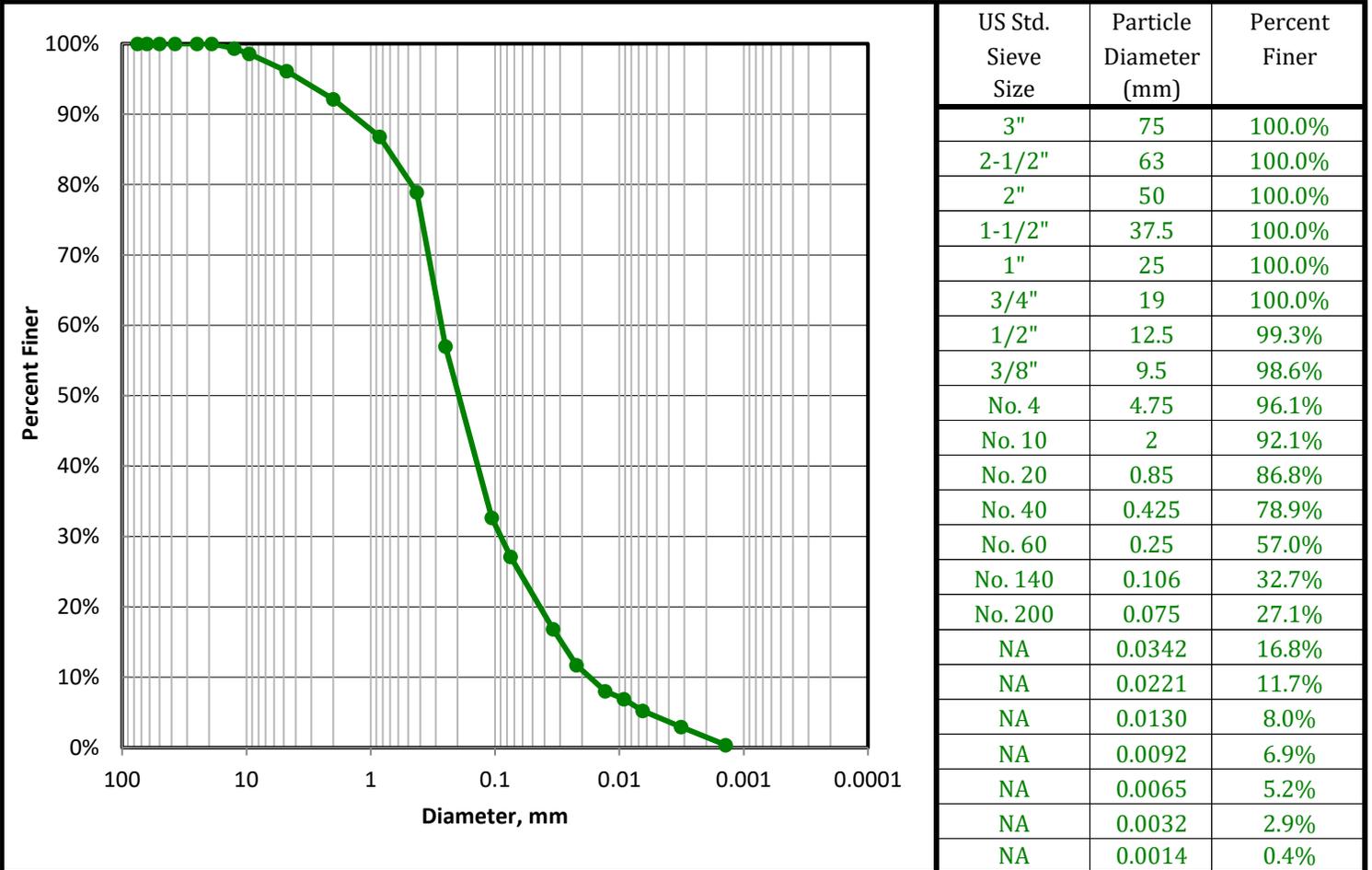
Input Validation RS Reviewed By: JK Date Tested 1/3/2023

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Merit Laboratories
 Client Project S43512
 Project No. 45376

Boring NA
 Depth NA
 Sample S43512.15
 Lab Sample 45376003

Sample Color: **BROWN**
 USCS Group Name: **SILTY SAND**
 USCS Group Symbol: **sm** USDA: **LOAMY SAND**



| USCS SOIL CLASSIFICATION | | | | USDA CLASSIFICATION | | | | | | | | |
|--|-------------|--------------------------------------|-------|---------------------|-------------------|--|-----|--|--------|------|------|------|
| <i>Corrected For 100% Passing a 3" Sieve</i> | | | | Particle Size (mm) | Percent Finer (%) | Percent of Each Component (Material) (%) | | Corrected Percent of -2.0 mm Material for USDA | | | | |
| % Gravel (-3" & +#4) | 3.9 | Silt=22.7% Clay=4.4% | | | | 100 | 100 | | Gravel | 7.9 | 0 | |
| <i>Coarse=0; Fine=3.9</i> | | D60, mm | NA | | | | | | | | | |
| % Sand (-#4 & +#200) | 69.0 | D30, mm | NA | | | | | 2 | 92.1 | Sand | 70.3 | 76.3 |
| <i>Coarse=4; Medium=13.2; Fine=51.8</i> | | D10, mm | NA | | | | | | | | | |
| % Fines (-#200) | 27.1 | Cc | NA | 0.05 | 21.8 | | | | | Silt | 20.3 | 22.1 |
| % Plus #200 (-3") | 72.9 | Cu | NA | | | | | | | | | |
| USCS Description | | | | | | 0.002 | 1.5 | | | Clay | 1.5 | 1.6 |
| SILTY SAND | | | | | | | | | | | | |
| USCS Group Symbol | | Atterberg Limits Group Symbol | | | | | | USDA Classification | | | | |
| sm | | np - Non-Plastic (assumed) | | LOAMY SAND | | | | | | | | |
| Auxiliary Information | | | | | | | | | | | | |
| 12" Sieve - 300 mm | 0 | 0.0 | 100.0 | | | | | | | | | |
| 6" Sieve - 150 mm | 0 | 0.0 | 100.0 | | | | | | | | | |
| 3" Sieve - 75 mm | 0 | 0.0 | 100.0 | | | | | | | | | |

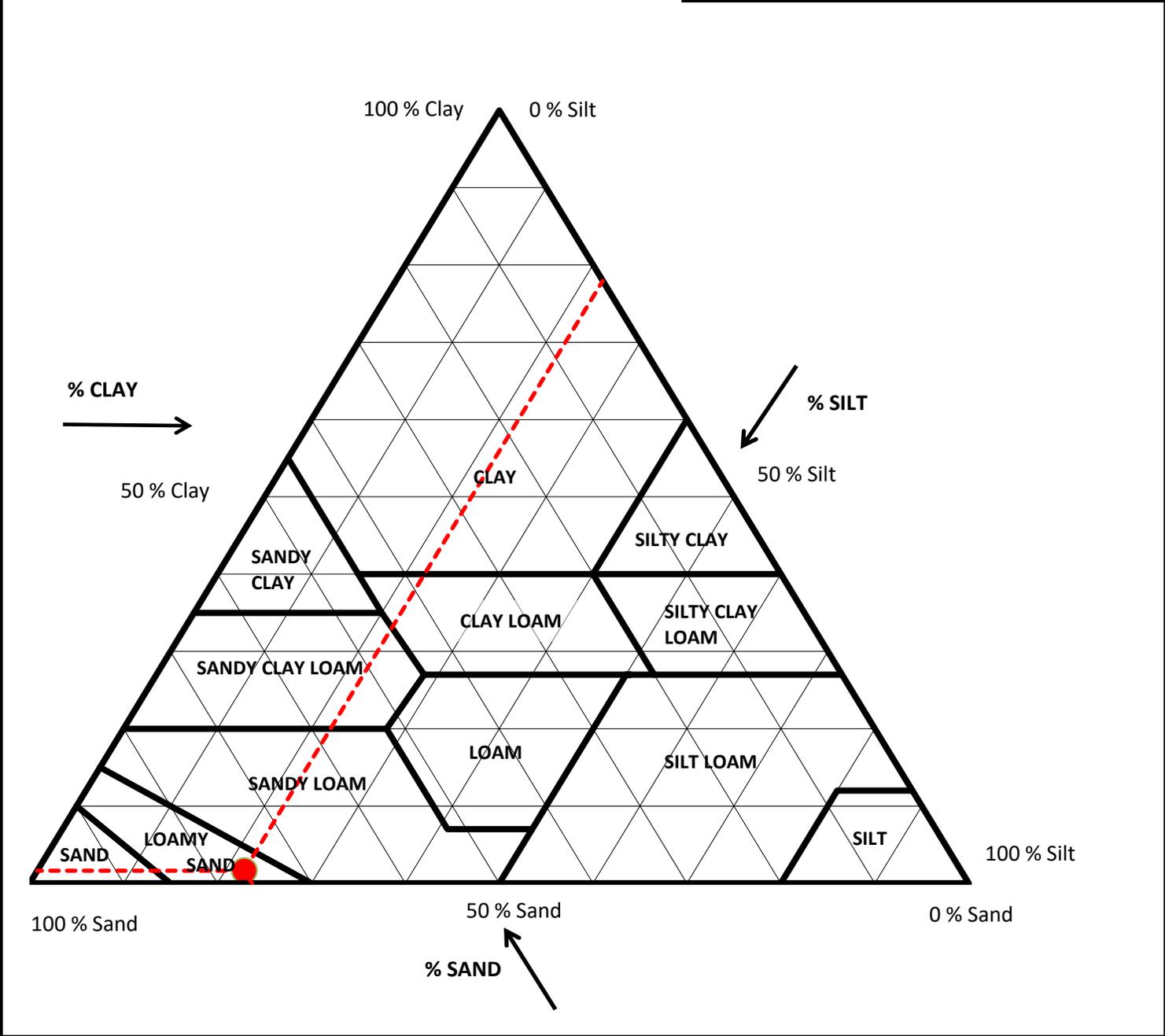
USDA CLASSIFICATION CHART

Client Merit Laboratories
 Client Project S43512
 Project No. 45376

Boring NA
 Depth NA
 Sample S43512.15
 Lab Sample 45376003

Sample Color: **BROWN**
 USCS Group Name: **SILTY SAND**
 USCS Group Symbol: **sm** USDA: **LOAMY SAND**

| Corrected for 0% gravel | | Sand Subsizes Corrected Percentages | |
|-------------------------|------|--|-------------|
| Percent Gravel, % | 0.0 | Very Coarse Sand; 2-1 | 4.7 |
| Percent Sand, % | 76.3 | Coarse Sand; 1-0.5 | 7.7 |
| Percent Silt, % | 22.1 | Medium Sand; 0.5-0.25 | 25.8 |
| Percent Clay, % | 1.6 | Fine Sand; 0.25-0.1 | 27.4 |
| | | Very Fine Sand; 0.1-0.05 | 10.8 |
| | | Total | 76.3 |



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

| | | | |
|-----------------------|--------------------|-------------------|-----------|
| Client | Merit Laboratories | Boring | NA |
| Client Project | S43512 | Depth | NA |
| Project No. | 45376 | Sample | S43512.16 |
| | | Lab Sample | 45376004 |

Sample Color: **BROWN**
USCS Group Name: **WELL-GRADED SAND WITH SILT AND GRAVEL**
USCS Group Symbol: **sw-sm** **USDA:** **LOAMY SAND**

Dry Prep: R58-11(2018)¹

| MECHANICAL SIEVE | | | | | | | |
|-------------------------------|--------------|------------|---------------------|------------|------------------|--------------------|------------------------|
| Total Sample | | Sieve Size | Nominal Opening, mm | Dry Wt, gm | Split % Retained | Normalized % Finer | Project Specifications |
| Tare No. | 1003 | 3" | 75 | 0 | 0.0% | 100.0% | |
| Tare + WS., gm | 1083.34 | 2-1/2" | 63 | 0 | 0.0% | 100.0% | |
| Tare + DS., gm | 800.94 | 2" | 50 | 0 | 0.0% | 100.0% | |
| Tare, gm | 190.55 | 1-1/2" | 37.5 | 0 | 0.0% | 100.0% | |
| Total sample WC | 46.3% | 1" | 25 | 36.52 | 6.0% | 94.0% | |
| Total Sample Dry Wt, gm (-3") | 610 | 3/4" | 19 | 0 | 0.0% | 94.0% | |
| Hygroscopic WC (-#10) | | 1/2" | 12.5 | 51.57 | 8.4% | 85.6% | |
| Tare No. | 306 | 3/8" | 9.5 | 28.03 | 4.6% | 81.0% | |
| Tare + WS., gm | 28.61 | No. 4 | 4.75 | 45.34 | 7.4% | 73.5% | |
| Tare + DS., gm | 28.61 | No. 10 | 2 | 51.32 | 8.4% | 65.1% | |
| Tare, gm | 11.02 | No. 20 | 0.85 | 5.74 | 5.1% | 60.0% | |
| Hygroscopic WC | 0.00% | No. 40 | 0.425 | 7.51 | 6.7% | 53.3% | |
| | | No. 60 | 0.25 | 24.11 | 21.6% | 31.7% | |
| -#10 Hydro/Sieve air dry wt. | 72.76 | No. 140 | 0.106 | 20.77 | 18.6% | 13.1% | |
| Wt. of +#200 Sample, gm | 59.75 | No. 200 | 0.075 | 1.62 | 1.5% | 11.6% | |

| HYDROMETER (-#10) | | | |
|--------------------------|-------|--|------------------------|
| Split Air Dry Wt | 72.76 | Specific Gravity | 2.7 |
| Hygroscopic WC | 0.00% | | Assumed |
| Corrected Dry wt | 72.8 | <i>-#10 Dispersed 1min in Hamilton Beach Mixer</i> | <i>a Factor</i> 0.9889 |

| Elapsed Time (min.) | R Measured | Temp °C | Composite Correction | R Corrected | K Factor | Percent Finer (%) | Particle Diameter (mm) | Adjusted % Finer (%) |
|---------------------|------------|---------|----------------------|-------------|----------|-------------------|------------------------|----------------------|
| 2 | 15 | 20.6 | 5.9 | 9.1 | 0.0134 | 12.4 | 0.0351 | 8.1% |
| 5 | 13 | 20.8 | 5.8 | 7.2 | 0.0133 | 9.8 | 0.0224 | 6.4% |
| 15 | 11 | 21.1 | 5.7 | 5.3 | 0.0133 | 7.2 | 0.0130 | 4.7% |
| 30 | 10 | 21.5 | 5.6 | 4.4 | 0.0132 | 6.0 | 0.0092 | 3.9% |
| 60 | 9 | 22.1 | 5.4 | 3.6 | 0.0131 | 4.9 | 0.0065 | 3.2% |
| 250 | 8 | 23 | 5.2 | 2.8 | 0.0130 | 3.8 | 0.0032 | 2.5% |
| 1440 | 7 | 19.2 | 6.2 | 0.8 | 0.0136 | 1.1 | 0.0014 | 0.7% |

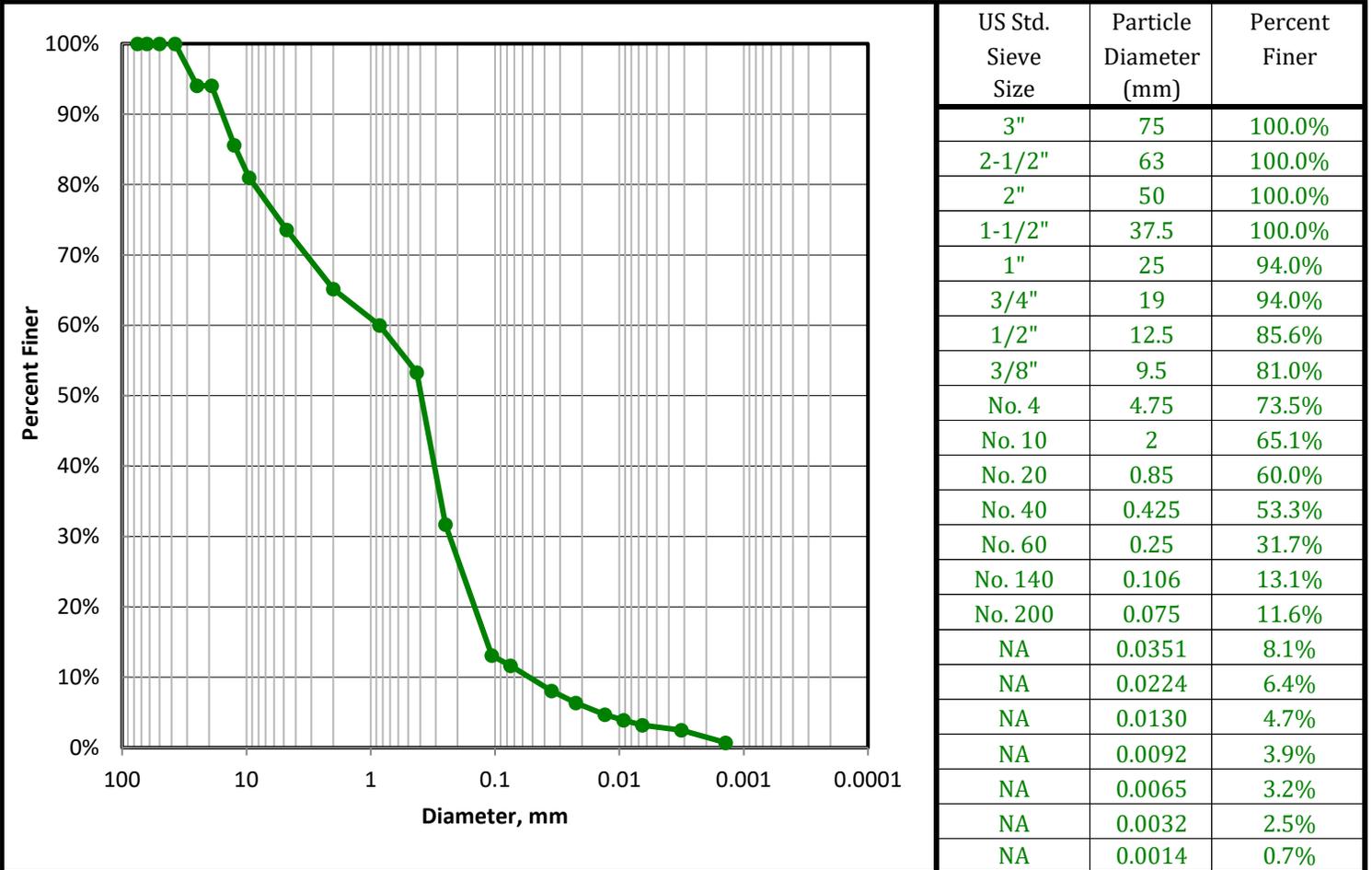
| USCS SOIL CLASSIFICATION | | | | USDA CLASSIFICATION | | | | |
|--|-------------|---------------------|---------|----------------------------|-------------------|--|--|------|
| <i>Corrected For 100% Passing a 3" Sieve</i> | | | | Particle Size (mm) | Percent Finer (%) | Percent of Each Component (Material) (%) | Corrected Percent of -2.0 mm Material for USDA | |
| % Gravel (-3" & +#4) | 26.5 | Silt=8.7% Clay=2.9% | D60, mm | | | | | 0.85 |
| <i>Coarse=6; Fine=20.5</i> | | | D30, mm | | | | | 0.23 |
| % Sand (-#4 & +#200) | 61.9 | | D10, mm | | | | | 0.05 |
| <i>Coarse=8.4; Medium=11.9; Fine=41.6</i> | | | Cc | | | | | 1.19 |
| % Fines (-#200) | 11.6 | | Cu | 16.06 | | | | |
| % Plus #200 (-3") | 88.4 | | | | | | | |
| USCS Description | | | | 100 | 100 | | | |
| WELL-GRADED SAND WITH SILT AND GRAVEL | | | | 2 | 65.1 | Gravel | 34.9 | |
| USCS Group Symbol | | | | 0.05 | 9.7 | Sand | 55.4 | |
| Atterberg Limits Group Symbol | | | | 0.002 | 1.5 | Silt | 8.2 | |
| sw-sm | | | | | | Clay | 1.5 | |
| np - Non-Plastic (assumed) | | | | | | | | |
| Auxiliary Information | | | | | | | | |
| Wt Ret, gm | % Retained | % Finer | | | | | | |
| 12" Sieve - 300 mm | 0 | 0.0 | 100.0 | | | | | |
| 6" Sieve - 150 mm | 0 | 0.0 | 100.0 | | | | | |
| 3" Sieve - 75 mm | 0 | 0.0 | 100.0 | | | | | |
| | | | | USDA Classification | | | | |
| | | | | LOAMY SAND | | | | |

Input Validation RS Reviewed By: JK Date Tested 1/3/2023

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

| | | | |
|----------------|--------------------|------------|-----------|
| Client | Merit Laboratories | Boring | NA |
| Client Project | S43512 | Depth | NA |
| Project No. | 45376 | Sample | S43512.16 |
| | | Lab Sample | 45376004 |

Sample Color: **BROWN**
 USCS Group Name: **WELL-GRADED SAND WITH SILT AND GRAVEL**
 USCS Group Symbol: **sw-sm** USDA: **LOAMY SAND**



| USCS SOIL CLASSIFICATION | | | | USDA CLASSIFICATION | | | | | | |
|--|------|--------------------------------------|-------------------|----------------------------|-------------------|--|--|------|--------|------|
| <i>Corrected For 100% Passing a 3" Sieve</i> | | | | Particle Size (mm) | Percent Finer (%) | Percent of Each Component (Material) (%) | Corrected Percent of -2.0 mm Material for USDA | | | |
| % Gravel (-3" & +#4) | 26.5 | Silt=8.7% Clay=2.9% | 100 | | | | | 100 | | |
| Coarse=6; Fine=20.5 | | D60, mm | 2 | | | | | 65.1 | Gravel | 34.9 |
| % Sand (-#4 & +#200) | 61.9 | D30, mm | 0.05 | | | | | 9.7 | Sand | 55.4 |
| Coarse=8.4; Medium=11.9; Fine=41.6 | | D10, mm | 0.002 | | | | | 1.5 | Silt | 8.2 |
| % Fines (-#200) | 11.6 | Cc | | | Clay | 1.5 | 2.3 | | | |
| % Plus #200 (-3") | 88.4 | Cu | 16.060 | | | | | | | |
| USCS Description | | | | USDA Classification | | | | | | |
| WELL-GRADED SAND WITH SILT AND GRAVEL | | | | LOAMY SAND | | | | | | |
| USCS Group Symbol | | Atterberg Limits Group Symbol | | | | | | | | |
| sw-sm | | np - Non-Plastic (assumed) | | | | | | | | |
| Auxiliary Information | | Wt Ret, gm | % Retained | % Finer | | | | | | |
| 12" Sieve - 300 mm | | 0 | 0.0 | 100.0 | | | | | | |
| 6" Sieve - 150 mm | | 0 | 0.0 | 100.0 | | | | | | |
| 3" Sieve - 75 mm | | 0 | 0.0 | 100.0 | | | | | | |

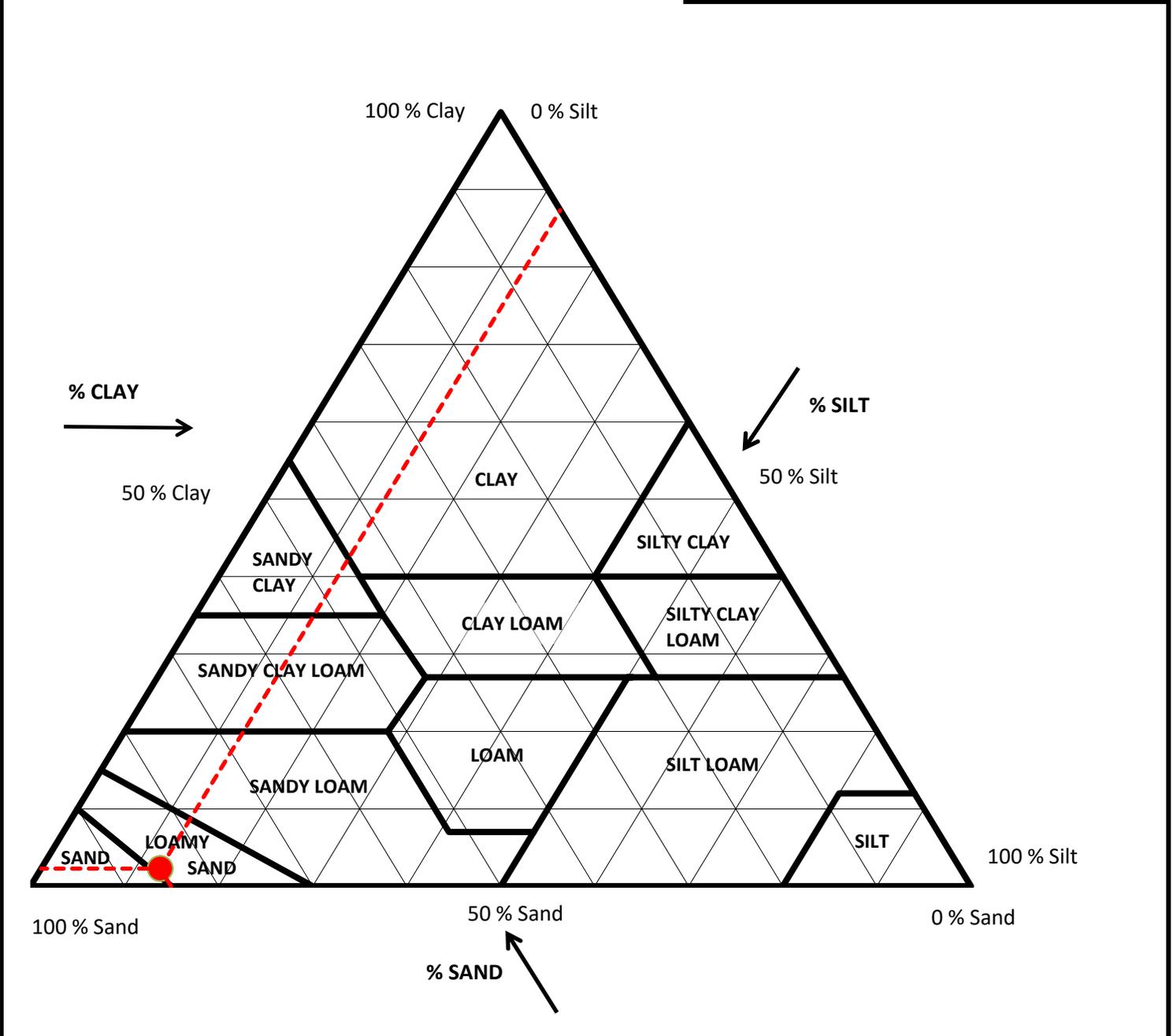
USDA CLASSIFICATION CHART

Client: Merit Laboratories
 Client Project: S43512
 Project No.: 45376

Boring: NA
 Depth: NA
 Sample: S43512.16
 Lab Sample: 45376004

Sample Color: **BROWN**
 USCS Group Name: **WELL-GRADED SAND WITH SILT AND GRAVEL**
 USCS Group Symbol: **sw-sm** USDA: **LOAMY SAND**

| Corrected for 0% gravel | | Sand Subsizes Corrected Percentages | |
|-------------------------|------|--|-------------|
| Percent Gravel, % | 0.0 | Very Coarse Sand; 2-1 | 6.4 |
| Percent Sand, % | 85.1 | Coarse Sand; 1-0.5 | 9.4 |
| Percent Silt, % | 12.7 | Medium Sand; 0.5-0.25 | 35.6 |
| Percent Clay, % | 2.3 | Fine Sand; 0.25-0.1 | 28.9 |
| | | Very Fine Sand; 0.1-0.05 | 4.8 |
| | | Total | 85.1 |



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Merit Laboratories
 Client Project S43512
 Project No. 45376

Boring NA
 Depth NA
 Sample S43512.17
 Lab Sample 45376005

Sample Color: **BLACK**
 USCS Group Name: **SILTY SAND**
 USCS Group Symbol: **sm**

USDA: **LOAMY SAND**

Dry Prep: R58-11(2018)¹

| MECHANICAL SIEVE | | | | | | | | | | |
|--|--------------------------------------|---|----------------------|----------------------------|-------------------|--|------------------------|--|-----|---|
| Total Sample | | Sieve Size | Nominal Opening, mm | Dry Wt, gm | Split % Retained | Normalized % Finer | Project Specifications | | | |
| Tare No. | 899 | 3" | 75 | 0 | 0.0% | 100.0% | | | | |
| Tare + WS., gm | 1039.27 | 2-1/2" | 63 | 0 | 0.0% | 100.0% | | | | |
| Tare + DS., gm | 771.25 | 2" | 50 | 0 | 0.0% | 100.0% | | | | |
| Tare, gm | 186.91 | 1-1/2" | 37.5 | 0 | 0.0% | 100.0% | | | | |
| Total sample WC | 45.9% | 1" | 25 | 0 | 0.0% | 100.0% | | | | |
| Total Sample Dry Wt, gm (-3") | 584 | 3/4" | 19 | 0 | 0.0% | 100.0% | | | | |
| Hygroscopic WC (-#10) | | 1/2" | 12.5 | 3.88 | 0.7% | 99.3% | | | | |
| Tare No. | 309 | 3/8" | 9.5 | 2.42 | 0.4% | 98.9% | | | | |
| Tare + WS., gm | 27.29 | No. 4 | 4.75 | 6.77 | 1.2% | 97.8% | | | | |
| Tare + DS., gm | 27.29 | No. 10 | 2 | 6.67 | 1.1% | 96.6% | | | | |
| Tare, gm | 11.31 | No. 20 | 0.85 | 0.51 | 0.7% | 95.9% | | | | |
| Hygroscopic WC | 0.00% | No. 40 | 0.425 | 1.35 | 2.0% | 93.9% | | | | |
| -#10 Hydro/Sieve air dry wt. | 66.27 | No. 60 | 0.25 | 17.78 | 25.9% | 68.0% | | | | |
| Wt. of +#200 Sample, gm | 56.35 | No. 140 | 0.106 | 35.08 | 51.1% | 16.8% | | | | |
| | | No. 200 | 0.075 | 1.63 | 2.4% | 14.5% | | | | |
| HYDROMETER (-#10) | | | | | | | | | | |
| Split Air Dry Wt | 66.27 | | | | | | Specific Gravity | 2.7 | | |
| Hygroscopic WC | 0.00% | | | | | | | Assumed | | |
| Corrected Dry wt | 66.3 | -#10 Dispersed 1min in Hamilton Beach Mixer | | | | | a Factor | 0.9889 | | |
| Elapsed Time (min.) | R Measured | Temp °C | Composite Correction | R Corrected | K Factor | Percent Finer (%) | Particle Diameter (mm) | Adjusted % Finer (%) | | |
| 2 | 13 | 20.6 | 5.9 | 7.1 | 0.0134 | 10.6 | 0.0355 | 10.2% | | |
| 5 | 12 | 20.8 | 5.8 | 6.2 | 0.0133 | 9.3 | 0.0225 | 8.9% | | |
| 15 | 11.5 | 21 | 5.7 | 5.8 | 0.0133 | 8.7 | 0.0130 | 8.4% | | |
| 30 | 11 | 21.7 | 5.6 | 5.4 | 0.0132 | 8.1 | 0.0092 | 7.8% | | |
| 60 | 10.5 | 22.2 | 5.4 | 5.1 | 0.0131 | 7.6 | 0.0064 | 7.4% | | |
| 250 | 10 | 22.9 | 5.2 | 4.8 | 0.0130 | 7.2 | 0.0031 | 6.9% | | |
| 1440 | 9 | 19.3 | 6.2 | 2.8 | 0.0136 | 4.2 | 0.0014 | 4.0% | | |
| USCS SOIL CLASSIFICATION | | | | USDA CLASSIFICATION | | | | | | |
| <i>Corrected For 100% Passing a 3" Sieve</i> | | | | Particle Size (mm) | Percent Finer (%) | Percent of Each Component (Material) (%) | | Corrected Percent of -2.0 mm Material for USDA | | |
| % Gravel (-3" & +#4) | 2.2 | Silt=7.3% Clay=7.2% | | | | 100 | 100 | Gravel | 3.4 | 0 |
| <i>Coarse=0; Fine=2.2</i> | | D60, mm | NA | | | | | | | |
| % Sand (-#4 & +#200) | 83.3 | D30, mm | NA | 2 | 96.6 | Sand | 84.5 | 87.4 | | |
| <i>Coarse=1.1; Medium=2.7; Fine=79.4</i> | | D10, mm | NA | | | | | | | |
| % Fines (-#200) | 14.5 | Cc | NA | 0.05 | 12.2 | Silt | 6.8 | 7.1 | | |
| % Plus #200 (-3") | 85.5 | Cu | NA | | | | | | | |
| USCS Description | | | | 0.002 | 5.3 | Clay | 5.3 | 5.5 | | |
| SILTY SAND | | | | | | | | | | |
| USCS Group Symbol | Atterberg Limits Group Symbol | | | | | | | | | |
| sm | np - Non-Plastic (assumed) | | | | | | | | | |
| Auxiliary Information | Wt Ret, gm | % Retained | % Finer | | | | | | | |
| 12" Sieve - 300 mm | 0 | 0.0 | 100.0 | | | | | | | |
| 6" Sieve - 150 mm | 0 | 0.0 | 100.0 | | | | | | | |
| 3" Sieve - 75 mm | 0 | 0.0 | 100.0 | | | | | | | |
| USDA Classification | | | | | | | | | | |
| LOAMY SAND | | | | | | | | | | |

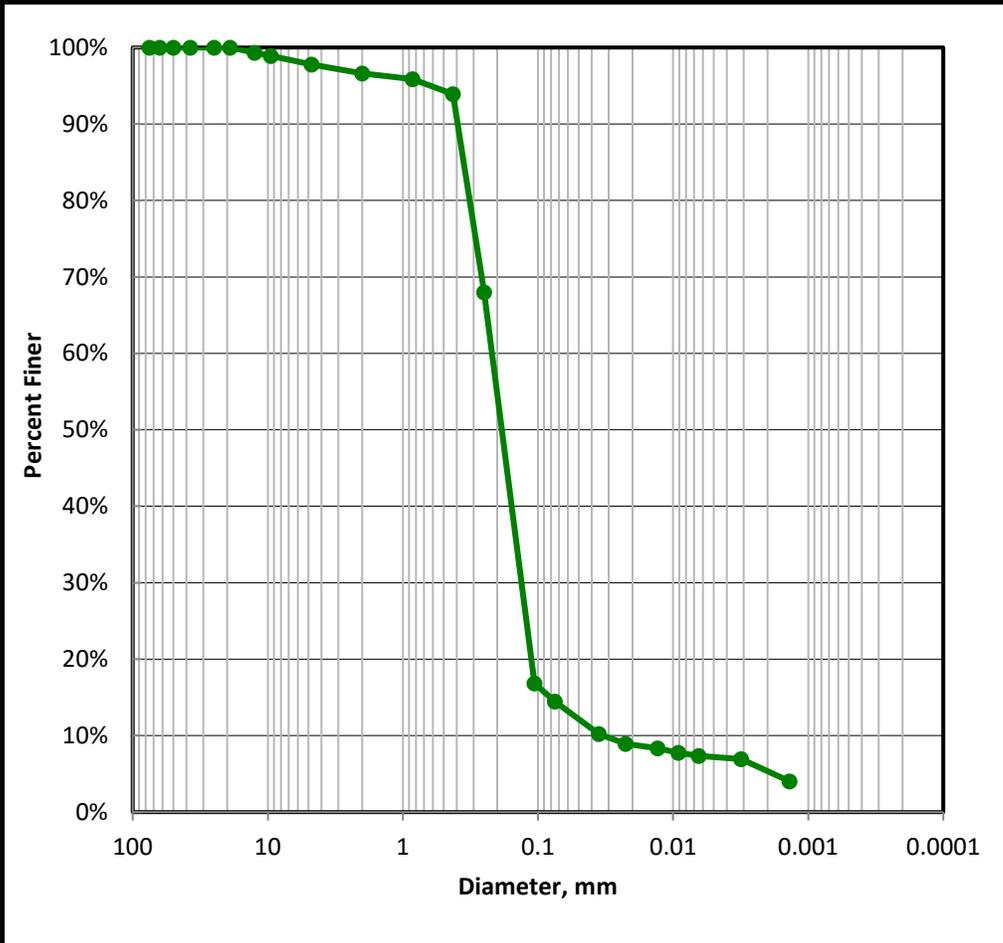
Input Validation RS Reviewed By: JK Date Tested 1/3/2023

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Merit Laboratories
 Client Project S43512
 Project No. 45376

Boring NA
 Depth NA
 Sample S43512.17
 Lab Sample 45376005

Sample Color: **BLACK**
 USCS Group Name: **SILTY SAND**
 USCS Group Symbol: **sm** USDA: **LOAMY SAND**



| US Std. Sieve Size | Particle Diameter (mm) | Percent Finer |
|--------------------|------------------------|---------------|
| 3" | 75 | 100.0% |
| 2-1/2" | 63 | 100.0% |
| 2" | 50 | 100.0% |
| 1-1/2" | 37.5 | 100.0% |
| 1" | 25 | 100.0% |
| 3/4" | 19 | 100.0% |
| 1/2" | 12.5 | 99.3% |
| 3/8" | 9.5 | 98.9% |
| No. 4 | 4.75 | 97.8% |
| No. 10 | 2 | 96.6% |
| No. 20 | 0.85 | 95.9% |
| No. 40 | 0.425 | 93.9% |
| No. 60 | 0.25 | 68.0% |
| No. 140 | 0.106 | 16.8% |
| No. 200 | 0.075 | 14.5% |
| NA | 0.0355 | 10.2% |
| NA | 0.0225 | 8.9% |
| NA | 0.0130 | 8.4% |
| NA | 0.0092 | 7.8% |
| NA | 0.0064 | 7.4% |
| NA | 0.0031 | 6.9% |
| NA | 0.0014 | 4.0% |

| USCS SOIL CLASSIFICATION | | | |
|--|--------------------------------------|---------------------|----------------|
| <i>Corrected For 100% Passing a 3" Sieve</i> | | | |
| % Gravel (-3" & +#4) | 2.2 | Silt=7.3% Clay=7.2% | |
| Coarse=0; Fine=2.2 | | D60, mm | NA |
| % Sand (-#4 & +#200) | 83.3 | D30, mm | NA |
| Coarse=1.1; Medium=2.7; Fine=79.4 | | D10, mm | NA |
| % Fines (-#200) | 14.5 | Cc | NA |
| % Plus #200 (-3") | 85.5 | Cu | NA |
| USCS Description | | | |
| SILTY SAND | | | |
| USCS Group Symbol | Atterberg Limits Group Symbol | | |
| sm | np - Non-Plastic (assumed) | | |
| Auxiliary Information | Wt Ret, gm | % Retained | % Finer |
| 12" Sieve - 300 mm | 0 | 0.0 | 100.0 |
| 6" Sieve - 150 mm | 0 | 0.0 | 100.0 |
| 3" Sieve - 75 mm | 0 | 0.0 | 100.0 |

| USDA CLASSIFICATION | | | |
|----------------------------|-------------------|--|--|
| Particle Size (mm) | Percent Finer (%) | Percent of Each Component (Material) (%) | Corrected Percent of -2.0 mm Material for USDA |
| 100 | 100 | | |
| 2 | 96.6 | Gravel 3.4 | 0 |
| 0.05 | 12.2 | Sand 84.5 | 87.4 |
| 0.002 | 5.3 | Silt 6.8 | 7.1 |
| | | Clay 5.3 | 5.5 |
| USDA Classification | | | |
| LOAMY SAND | | | |

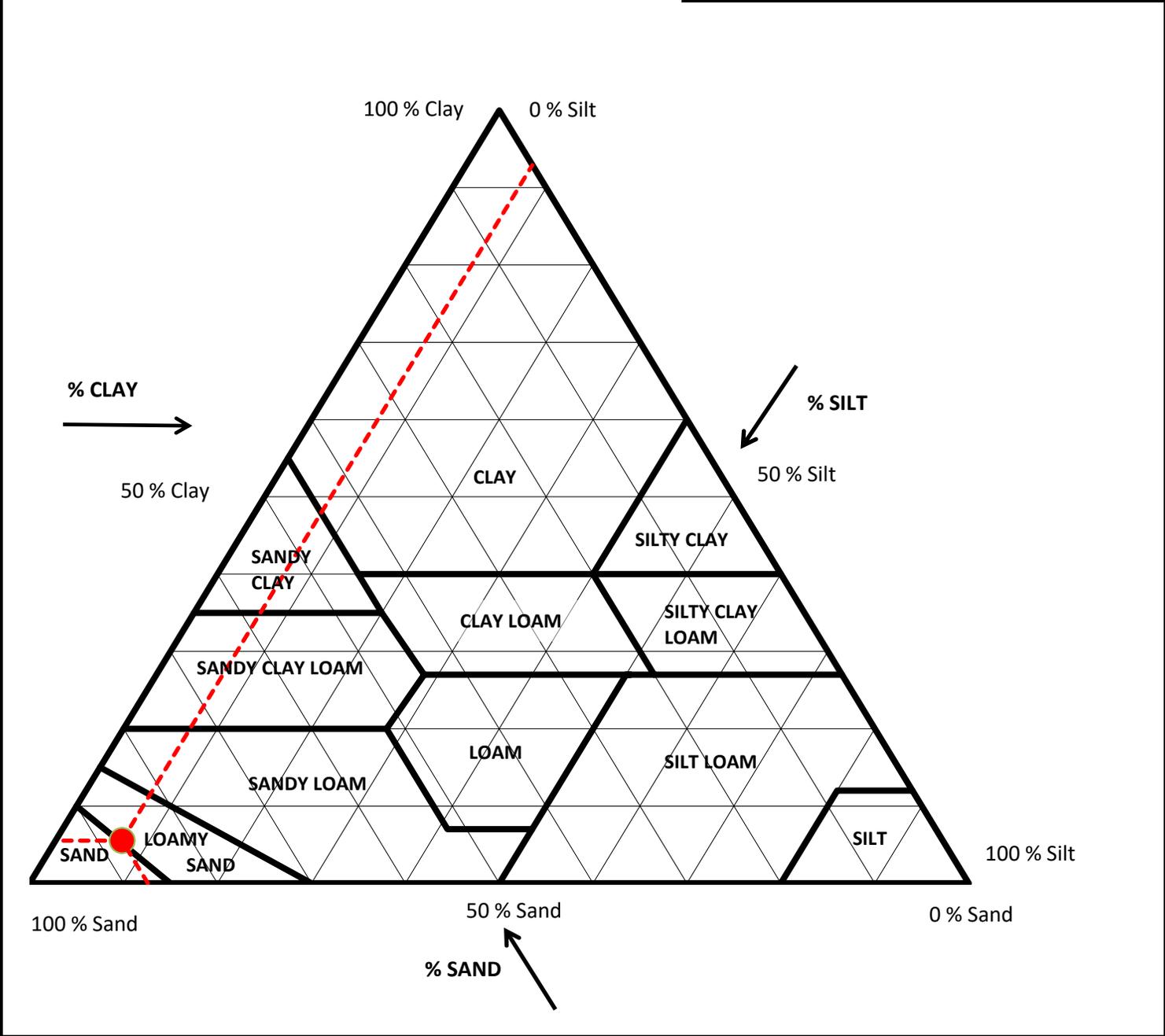
USDA CLASSIFICATION CHART

Client Merit Laboratories
 Client Project S43512
 Project No. 45376

Boring NA
 Depth NA
 Sample S43512.17
 Lab Sample 45376005

Sample Color: **BLACK**
 USCS Group Name: **SILTY SAND**
 USCS Group Symbol: **sm** USDA: **LOAMY SAND**

| Corrected for 0% gravel | | Sand Subsizes Corrected Percentages | |
|-------------------------|------|--|-------------|
| Percent Gravel, % | 0.0 | Very Coarse Sand; 2-1 | 0.6 |
| Percent Sand, % | 87.4 | Coarse Sand; 1-0.5 | 1.7 |
| Percent Silt, % | 7.1 | Medium Sand; 0.5-0.25 | 27.3 |
| Percent Clay, % | 5.5 | Fine Sand; 0.25-0.1 | 53.3 |
| | | Very Fine Sand; 0.1-0.05 | 4.4 |
| | | Total | 87.4 |



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Merit Laboratories
 Client Project S43512
 Project No. 45376

Boring NA
 Depth NA
 Sample S43512.18
 Lab Sample 45376006

Sample Color: **BROWN**
 USCS Group Name: **SILTY SAND**
 USCS Group Symbol: **sm**

USDA: **LOAMY SAND**

Dry Prep: R58-11(2018)¹

| MECHANICAL SIEVE | | | | | | | | | | |
|---------------------------------------|-------------------------------|---|----------------------|----------------------------|-------------------|--|------------------------|--|-----|---|
| Total Sample | | Sieve Size | Nominal Opening, mm | Dry Wt, gm | Split % Retained | Normalized % Finer | Project Specifications | | | |
| Tare No. | 884 | 3" | 75 | 0 | 0.0% | 100.0% | | | | |
| Tare + WS., gm | 1280.94 | 2-1/2" | 63 | 0 | 0.0% | 100.0% | | | | |
| Tare + DS., gm | 1105.34 | 2" | 50 | 0 | 0.0% | 100.0% | | | | |
| Tare, gm | 189.3 | 1-1/2" | 37.5 | 0 | 0.0% | 100.0% | | | | |
| Total sample WC | 19.2% | 1" | 25 | 0 | 0.0% | 100.0% | | | | |
| Total Sample Dry Wt, gm (-3") | 916 | 3/4" | 19 | 0 | 0.0% | 100.0% | | | | |
| Hygroscopic WC (-#10) | | 1/2" | 12.5 | 0 | 0.0% | 100.0% | | | | |
| Tare No. | 302 | 3/8" | 9.5 | 5.11 | 0.6% | 99.4% | | | | |
| Tare + WS., gm | 27.53 | No. 4 | 4.75 | 9.16 | 1.0% | 98.4% | | | | |
| Tare + DS., gm | 27.53 | No. 10 | 2 | 10.12 | 1.1% | 97.3% | | | | |
| Tare, gm | 11.31 | No. 20 | 0.85 | 0.78 | 0.8% | 96.6% | | | | |
| Hygroscopic WC | 0.00% | No. 40 | 0.425 | 3.67 | 3.6% | 93.0% | | | | |
| -#10 Hydro/Sieve air dry wt. | 98.82 | No. 60 | 0.25 | 25.23 | 24.9% | 68.1% | | | | |
| Wt. of +#200 Sample, gm | 78.17 | No. 140 | 0.106 | 40.97 | 40.4% | 27.7% | | | | |
| | | No. 200 | 0.075 | 7.52 | 7.4% | 20.3% | | | | |
| HYDROMETER (-#10) | | | | | | | | | | |
| Split Air Dry Wt | 98.82 | | | | | | Specific Gravity | 2.7 | | |
| Hygroscopic WC | 0.00% | | | | | | | Assumed | | |
| Corrected Dry wt | 98.8 | -#10 Dispersed 1min in Hamilton Beach Mixer | | | | | a Factor | 0.9889 | | |
| Elapsed Time (min.) | R Measured | Temp °C | Composite Correction | R Corrected | K Factor | Percent Finer (%) | Particle Diameter (mm) | Adjusted % Finer (%) | | |
| 2 | 17.5 | 21 | 5.7 | 11.8 | 0.0133 | 11.8 | 0.0344 | 11.5% | | |
| 5 | 13 | 21.1 | 5.7 | 7.3 | 0.0133 | 7.3 | 0.0223 | 7.1% | | |
| 15 | 12.5 | 21.3 | 5.7 | 6.8 | 0.0133 | 6.8 | 0.0129 | 6.6% | | |
| 30 | 11.5 | 21.7 | 5.6 | 5.9 | 0.0132 | 5.9 | 0.0091 | 5.7% | | |
| 60 | 9.5 | 22.4 | 5.4 | 4.1 | 0.0131 | 4.1 | 0.0065 | 4.0% | | |
| 250 | 8 | 23 | 5.2 | 2.8 | 0.0130 | 2.8 | 0.0032 | 2.7% | | |
| 1440 | 7 | 19.3 | 6.2 | 0.8 | 0.0136 | 0.8 | 0.0014 | 0.8% | | |
| USCS SOIL CLASSIFICATION | | | | USDA CLASSIFICATION | | | | | | |
| Corrected For 100% Passing a 3" Sieve | | | | Particle Size (mm) | Percent Finer (%) | Percent of Each Component (Material) (%) | | Corrected Percent of -2.0 mm Material for USDA | | |
| % Gravel (-3" & +#4) | 1.6 | Silt=16.8% Clay=3.5% | | | | 100 | 100 | Gravel | 2.7 | 0 |
| Coarse=0; Fine=1.6 | | D60, mm | NA | | | | | | | |
| % Sand (-#4 & +#200) | 78.1 | D30, mm | NA | | | | | | | |
| Coarse=1.1; Medium=4.4; Fine=72.6 | | D10, mm | NA | | | | | | | |
| % Fines (-#200) | 20.3 | Cc | | 2 | 97.3 | Sand | 81.6 | 83.8 | | |
| % Plus #200 (-3") | 79.7 | Cu | | | | | | | | |
| USCS Description | | SILTY SAND | | | | | | | | |
| USCS Group Symbol | Atterberg Limits Group Symbol | | | 0.05 | 15.7 | Silt | 14.1 | 14.5 | | |
| sm | np - Non-Plastic (assumed) | | | | | | | | | |
| Auxiliary Information | Wt Ret, gm | % Retained | % Finer | 0.002 | 1.6 | Clay | 1.6 | 1.7 | | |
| 12" Sieve - 300 mm | 0 | 0.0 | 100.0 | | | | | | | |
| 6" Sieve - 150 mm | 0 | 0.0 | 100.0 | | | | | | | |
| 3" Sieve - 75 mm | 0 | 0.0 | 100.0 | | | | | | | |
| USDA Classification | | | | | | | | | | |
| LOAMY SAND | | | | | | | | | | |

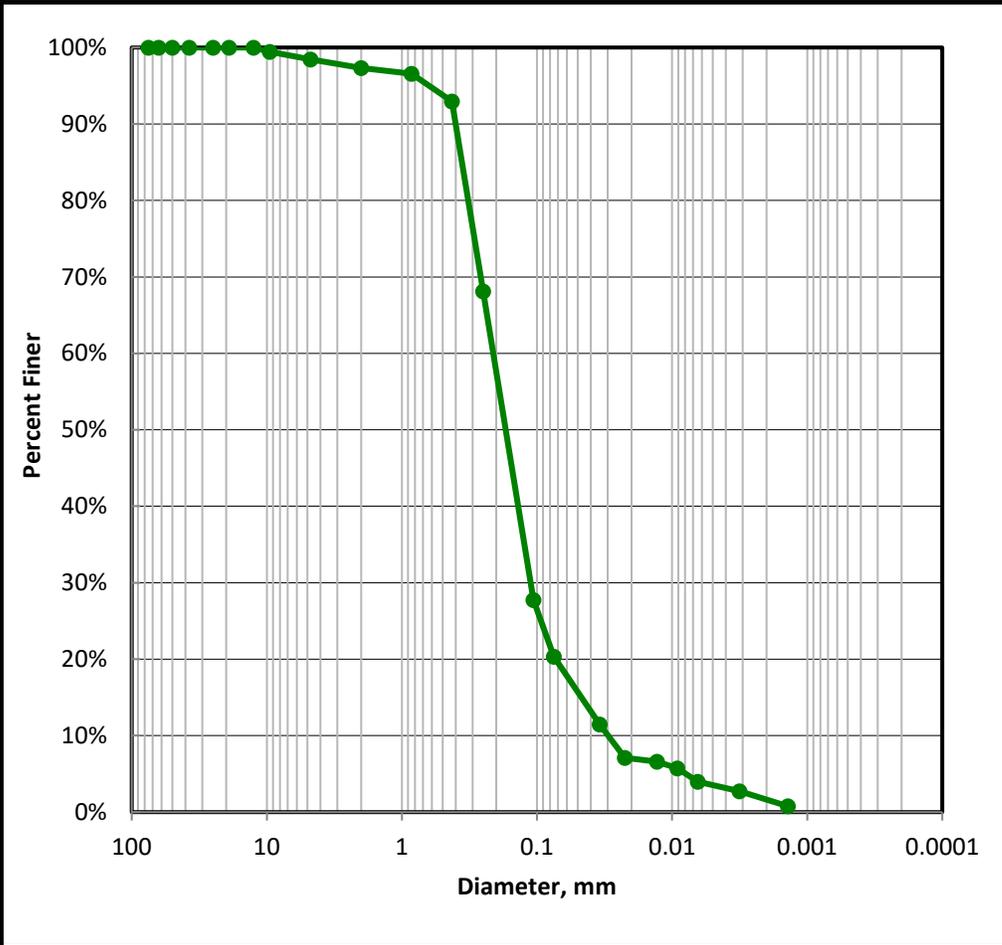
Input Validation RS Reviewed By: JK Date Tested 1/3/2023

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Merit Laboratories
 Client Project S43512
 Project No. 45376

Boring NA
 Depth NA
 Sample S43512.18
 Lab Sample 45376006

Sample Color: **BROWN**
 USCS Group Name: **SILTY SAND**
 USCS Group Symbol: **sm** USDA: **LOAMY SAND**



| US Std. Sieve Size | Particle Diameter (mm) | Percent Finer |
|--------------------|------------------------|---------------|
| 3" | 75 | 100.0% |
| 2-1/2" | 63 | 100.0% |
| 2" | 50 | 100.0% |
| 1-1/2" | 37.5 | 100.0% |
| 1" | 25 | 100.0% |
| 3/4" | 19 | 100.0% |
| 1/2" | 12.5 | 100.0% |
| 3/8" | 9.5 | 99.4% |
| No. 4 | 4.75 | 98.4% |
| No. 10 | 2 | 97.3% |
| No. 20 | 0.85 | 96.6% |
| No. 40 | 0.425 | 93.0% |
| No. 60 | 0.25 | 68.1% |
| No. 140 | 0.106 | 27.7% |
| No. 200 | 0.075 | 20.3% |
| NA | 0.0344 | 11.5% |
| NA | 0.0223 | 7.1% |
| NA | 0.0129 | 6.6% |
| NA | 0.0091 | 5.7% |
| NA | 0.0065 | 4.0% |
| NA | 0.0032 | 2.7% |
| NA | 0.0014 | 0.8% |

| USCS SOIL CLASSIFICATION | | | |
|--|--------------------------------------|----------------------|----------------|
| <i>Corrected For 100% Passing a 3" Sieve</i> | | | |
| % Gravel (-3" & +#4) | 1.6 | Silt=16.8% Clay=3.5% | |
| Coarse=0; Fine=1.6 | | D60, mm | NA |
| % Sand (-#4 & +#200) | 78.1 | D30, mm | NA |
| Coarse=1.1; Medium=4.4; Fine=72.6 | | D10, mm | NA |
| % Fines (-#200) | 20.3 | Cc | NA |
| % Plus #200 (-3") | 79.7 | Cu | NA |
| USCS Description | | | |
| SILTY SAND | | | |
| USCS Group Symbol | Atterberg Limits Group Symbol | | |
| sm | np - Non-Plastic (assumed) | | |
| Auxiliary Information | Wt Ret, gm | % Retained | % Finer |
| 12" Sieve - 300 mm | 0 | 0.0 | 100.0 |
| 6" Sieve - 150 mm | 0 | 0.0 | 100.0 |
| 3" Sieve - 75 mm | 0 | 0.0 | 100.0 |

| USDA CLASSIFICATION | | | |
|----------------------------|-------------------|--|--|
| Particle Size (mm) | Percent Finer (%) | Percent of Each Component (Material) (%) | Corrected Percent of -2.0 mm Material for USDA |
| 100 | 100 | | |
| 2 | 97.3 | Gravel 2.7 | 0 |
| 0.05 | 15.7 | Sand 81.6 | 83.8 |
| 0.002 | 1.6 | Silt 14.1 | 14.5 |
| | | Clay 1.6 | 1.7 |
| USDA Classification | | | |
| LOAMY SAND | | | |

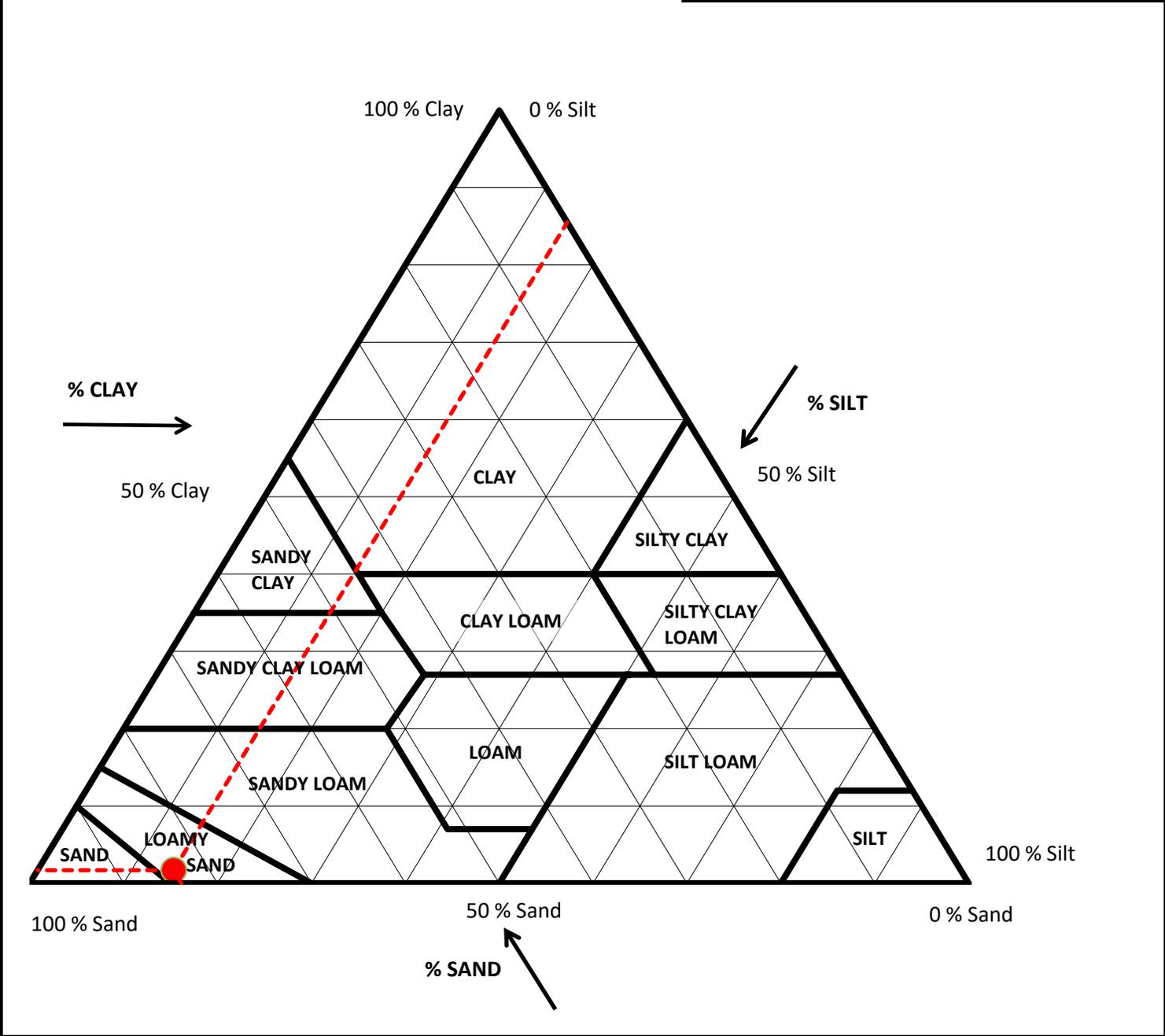
USDA CLASSIFICATION CHART

Client Merit Laboratories
 Client Project S43512
 Project No. 45376

Boring NA
 Depth NA
 Sample S43512.18
 Lab Sample 45376006

Sample Color: **BROWN**
 USCS Group Name: **SILTY SAND**
 USCS Group Symbol: **sm** USDA: **LOAMY SAND**

| Corrected for 0% gravel | | Sand Subsizes Corrected Percentages | |
|-------------------------|------|--|-------------|
| Percent Gravel, % | 0.0 | Very Coarse Sand; 2-1 | 0.6 |
| Percent Sand, % | 83.8 | Coarse Sand; 1-0.5 | 3.0 |
| Percent Silt, % | 14.5 | Medium Sand; 0.5-0.25 | 26.4 |
| Percent Clay, % | 1.7 | Fine Sand; 0.25-0.1 | 42.7 |
| | | Very Fine Sand; 0.1-0.05 | 11.1 |
| | | Total | 83.8 |



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

| | | | |
|-----------------------|--------------------|-------------------|-----------|
| Client | Merit Laboratories | Boring | NA |
| Client Project | S43512 | Depth | NA |
| Project No. | 45376 | Sample | S43512.19 |
| | | Lab Sample | 45376007 |

Sample Color: GRAY
USCS Group Name: POORLY GRADED SAND WITH SILT
USCS Group Symbol: sp-sm

USDA: SAND

Dry Prep: R58-11(2018)¹

| MECHANICAL SIEVE | | | | | | | |
|-------------------------------|--------------|------------|---------------------|------------|------------------|--------------------|------------------------|
| Total Sample | | Sieve Size | Nominal Opening, mm | Dry Wt, gm | Split % Retained | Normalized % Finer | Project Specifications |
| Tare No. | 801 | 3" | 75 | 0 | 0.0% | 100.0% | |
| Tare + WS., gm | 1167.35 | 2-1/2" | 63 | 0 | 0.0% | 100.0% | |
| Tare + DS., gm | 872.2 | 2" | 50 | 0 | 0.0% | 100.0% | |
| Tare, gm | 181.3 | 1-1/2" | 37.5 | 0 | 0.0% | 100.0% | |
| Total sample WC | 42.7% | 1" | 25 | 36.1 | 5.2% | 94.8% | |
| Total Sample Dry Wt, gm (-3") | 691 | 3/4" | 19 | 13.4 | 1.9% | 92.8% | |
| Hygroscopic WC (-#10) | | 1/2" | 12.5 | 6.01 | 0.9% | 92.0% | |
| Tare No. | 456 | 3/8" | 9.5 | 11.3 | 1.6% | 90.3% | |
| Tare + WS., gm | 28.3 | No. 4 | 4.75 | 19.3 | 2.8% | 87.5% | |
| Tare + DS., gm | 28.3 | No. 10 | 2 | 16.96 | 2.5% | 85.1% | |
| Tare, gm | 10.89 | No. 20 | 0.85 | 1.77 | 1.8% | 83.3% | |
| Hygroscopic WC | 0.00% | No. 40 | 0.425 | 6.46 | 6.5% | 76.8% | |
| -#10 Hydro/Sieve air dry wt. | 84.61 | No. 60 | 0.25 | 40.36 | 40.6% | 36.2% | |
| Wt. of +#200 Sample, gm | 77.86 | No. 140 | 0.106 | 28.35 | 28.5% | 7.7% | |
| | | No. 200 | 0.075 | 0.92 | 0.9% | 6.8% | |

| HYDROMETER (-#10) | | | |
|-------------------|-------|--|------------------------|
| Split Air Dry Wt | 84.61 | Specific Gravity | 2.7 |
| Hygroscopic WC | 0.00% | | Assumed |
| Corrected Dry wt | 84.6 | <i>-#10 Dispersed 1min in Hamilton Beach Mixer</i> | <i>a Factor</i> 0.9889 |

| Elapsed Time (min.) | R Measured | Temp °C | Composite Correction | R Corrected | K Factor | Percent Finer (%) | Particle Diameter (mm) | Adjusted % Finer (%) |
|---------------------|------------|---------|----------------------|-------------|----------|-------------------|------------------------|----------------------|
| 2 | 10 | 20.6 | 5.9 | 4.1 | 0.0134 | 4.8 | 0.0361 | 4.1% |
| 5 | 9.5 | 20.7 | 5.8 | 3.7 | 0.0134 | 4.3 | 0.0229 | 3.7% |
| 15 | 9 | 21 | 5.7 | 3.3 | 0.0133 | 3.9 | 0.0132 | 3.3% |
| 30 | 8.5 | 21.5 | 5.6 | 2.9 | 0.0132 | 3.4 | 0.0093 | 2.9% |
| 60 | 7.5 | 22.2 | 5.4 | 2.1 | 0.0131 | 2.5 | 0.0066 | 2.1% |
| 250 | 7 | 22.8 | 5.3 | 1.7 | 0.0130 | 2.0 | 0.0032 | 1.7% |
| 1440 | 6.5 | 19.3 | 6.2 | 0.3 | 0.0136 | 0.4 | 0.0014 | 0.3% |

| USCS SOIL CLASSIFICATION | | | | USDA CLASSIFICATION | | | | |
|--|------------|---------------------|---------|---------------------|-------------------|--|--|------|
| <i>Corrected For 100% Passing a 3" Sieve</i> | | | | Particle Size (mm) | Percent Finer (%) | Percent of Each Component (Material) (%) | Corrected Percent of -2.0 mm Material for USDA | |
| % Gravel (-3" & +#4) | 12.5 | Silt=4.9% Clay=1.9% | D60, mm | | | | | 0.34 |
| Coarse=7.2; Fine=5.3 | | | D30, mm | | | | | 0.21 |
| % Sand (-#4 & +#200) | 80.7 | | D10, mm | | | | | 0.11 |
| Coarse=2.5; Medium=8.3; Fine=70 | | | Cc | | | | | 1.11 |
| % Fines (-#200) | 6.8 | | Cu | 3.00 | | | | |
| % Plus #200 (-3") | 93.2 | | | | | | | |
| USCS Description | | | | 100 | 100 | | | |
| POORLY GRADED SAND WITH SILT | | | | 2 | 85.1 | Gravel | 14.9 | |
| USCS Group Symbol | | | | 0.05 | 5.3 | Sand | 79.8 | |
| Atterberg Limits Group Symbol | | | | 0.002 | 0.9 | Silt | 4.4 | |
| sp-sm | | | | | | Clay | 0.9 | |
| np - Non-Plastic (assumed) | | | | | | | | |
| Auxiliary Information | | | | | | | | |
| Wt Ret, gm | % Retained | % Finer | | | | | | |
| 12" Sieve - 300 mm | 0 | 0.0 | 100.0 | | | | | |
| 6" Sieve - 150 mm | 0 | 0.0 | 100.0 | | | | | |
| 3" Sieve - 75 mm | 0 | 0.0 | 100.0 | | | | | |
| | | | | USDA Classification | | | | |
| | | | | SAND | | | | |

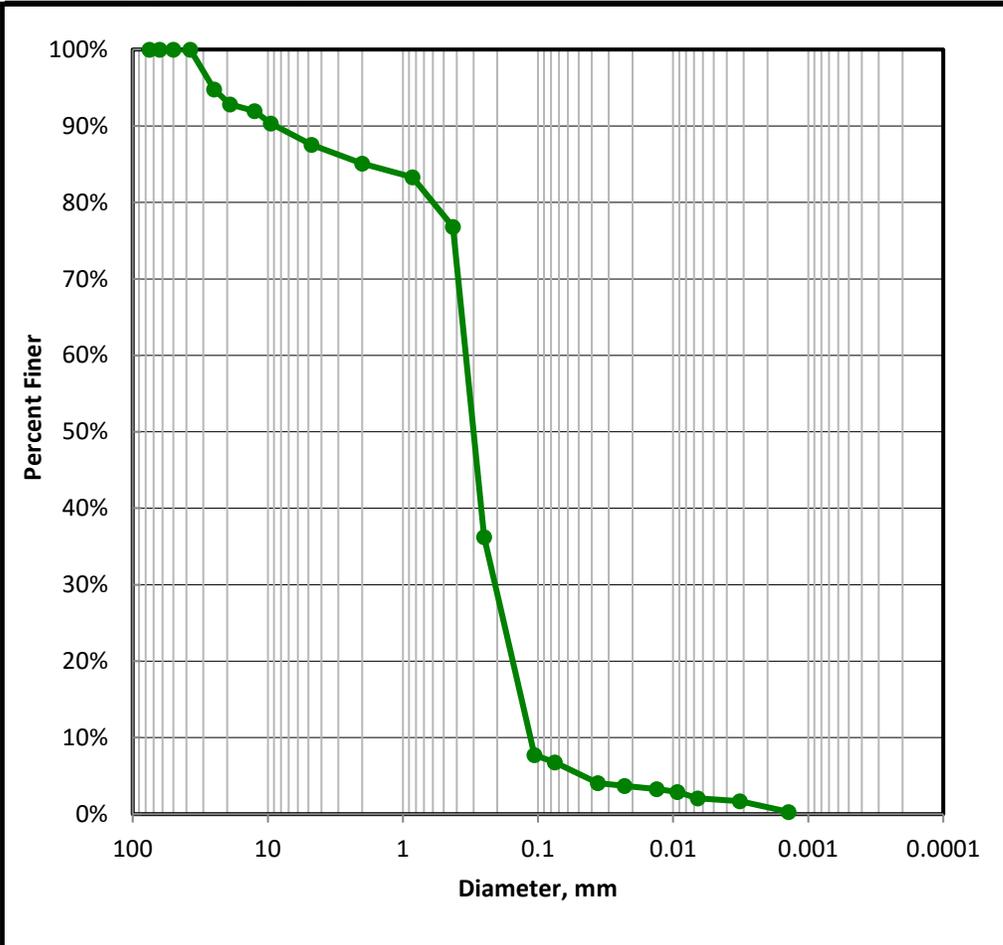
Input Validation RS Reviewed By: JK Date Tested 1/3/2023

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Merit Laboratories
 Client Project S43512
 Project No. 45376

Boring NA
 Depth NA
 Sample S43512.19
 Lab Sample 45376007

Sample Color: **GRAY**
 USCS Group Name: **POORLY GRADED SAND WITH SILT**
 USCS Group Symbol: **sp-sm** USDA: **SAND**



| US Std. Sieve Size | Particle Diameter (mm) | Percent Finer |
|--------------------|------------------------|---------------|
| 3" | 75 | 100.0% |
| 2-1/2" | 63 | 100.0% |
| 2" | 50 | 100.0% |
| 1-1/2" | 37.5 | 100.0% |
| 1" | 25 | 94.8% |
| 3/4" | 19 | 92.8% |
| 1/2" | 12.5 | 92.0% |
| 3/8" | 9.5 | 90.3% |
| No. 4 | 4.75 | 87.5% |
| No. 10 | 2 | 85.1% |
| No. 20 | 0.85 | 83.3% |
| No. 40 | 0.425 | 76.8% |
| No. 60 | 0.25 | 36.2% |
| No. 140 | 0.106 | 7.7% |
| No. 200 | 0.075 | 6.8% |
| NA | 0.0361 | 4.1% |
| NA | 0.0229 | 3.7% |
| NA | 0.0132 | 3.3% |
| NA | 0.0093 | 2.9% |
| NA | 0.0066 | 2.1% |
| NA | 0.0032 | 1.7% |
| NA | 0.0014 | 0.3% |

| USCS SOIL CLASSIFICATION | | | |
|---------------------------------------|------------|-----------------------------------|---------|
| Corrected For 100% Passing a 3" Sieve | | | |
| % Gravel (-3" & +#4) | 12.5 | Silt=4.9% Clay=1.9% | |
| Coarse=7.2; Fine=5.3 | | D60, mm | 0.341 |
| % Sand (-#4 & +#200) | 80.7 | D30, mm | 0.207 |
| Coarse=2.5; Medium=8.3; Fine=70 | | D10, mm | 0.114 |
| % Fines (-#200) | 6.8 | Cc | 1.110 |
| % Plus #200 (-3") | 93.2 | Cu | 3.000 |
| USCS Description | | | |
| POORLY GRADED SAND WITH SILT | | | |
| USCS Group Symbol | | Atterberg Limits Group Symbol | |
| sp-sm | | np - Non-Plastic (assumed) | |
| Auxiliary Information | Wt Ret, gm | % Retained | % Finer |
| 12" Sieve - 300 mm | 0 | 0.0 | 100.0 |
| 6" Sieve - 150 mm | 0 | 0.0 | 100.0 |
| 3" Sieve - 75 mm | 0 | 0.0 | 100.0 |

| USDA CLASSIFICATION | | | |
|---------------------|-------------------|--|--|
| Particle Size (mm) | Percent Finer (%) | Percent of Each Component (Material) (%) | Corrected Percent of -2.0 mm Material for USDA |
| 100 | 100 | | |
| 2 | 85.1 | Gravel 14.9 | 0 |
| 0.05 | 5.3 | Sand 79.8 | 93.8 |
| 0.002 | 0.9 | Silt 4.4 | 5.1 |
| | | Clay 0.9 | 1.1 |
| USDA Classification | | | |
| SAND | | | |

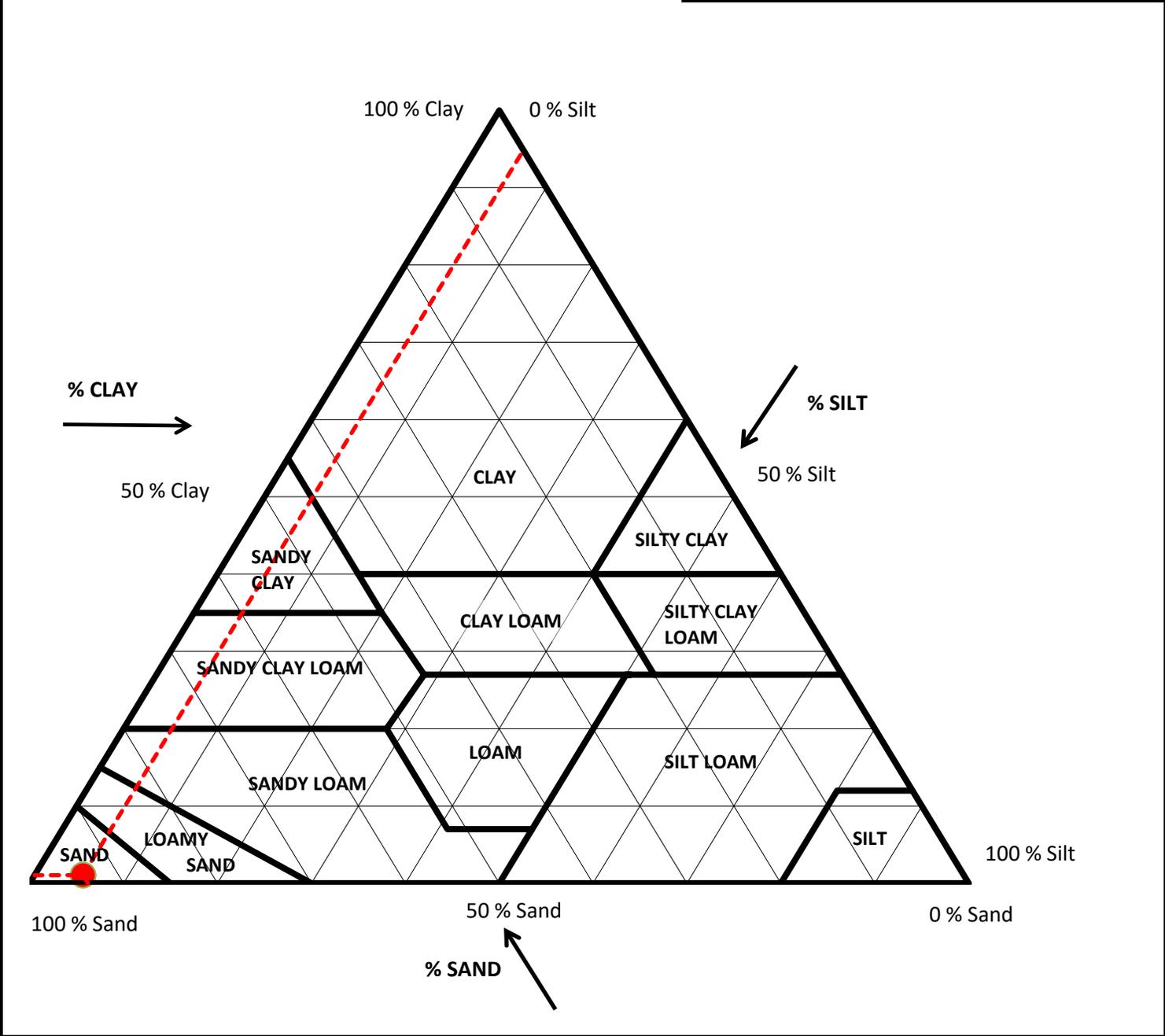
USDA CLASSIFICATION CHART

Client Merit Laboratories
 Client Project S43512
 Project No. 45376

Boring NA
 Depth NA
 Sample S43512.19
 Lab Sample 45376007

Sample Color: **GRAY**
 USCS Group Name: **POORLY GRADED SAND WITH SILT**
 USCS Group Symbol: **sp-sm** USDA: **SAND**

| Corrected for 0% gravel | | Sand Subsizes Corrected Percentages | |
|-------------------------|------|--|-------------|
| Percent Gravel, % | 0.0 | Very Coarse Sand; 2-1 | 1.7 |
| Percent Sand, % | 93.8 | Coarse Sand; 1-0.5 | 6.2 |
| Percent Silt, % | 5.1 | Medium Sand; 0.5-0.25 | 49.5 |
| Percent Clay, % | 1.1 | Fine Sand; 0.25-0.1 | 33.7 |
| | | Very Fine Sand; 0.1-0.05 | 2.7 |
| | | Total | 93.8 |



Testing Summary Merit Laboratories - S43512

| Sample Identification | | | | As Rec. WC | Percent Passing | | | | | | | | USCS | | | | | | | | | AASHTO | | | | | | USDA CORRECTED COMPONENTS | | | | | | | | | |
|-----------------------|--------|-------|-----------|------------|-----------------|--------|-------|-------|-------|-------|-------|-------|---------|--------|-------|---------|--------|--------|-------|---------|-------|--------|---------|-------|-------|--------|-------|---------------------------|-----------|-------|-------|-------|----------|--------|------------|--------|----------------|
| | | | | | USCS | | USDA | | USCS | | USDA | | USCS | | USDA | | Gravel | | | Sand | | | % Fines | | | Gravel | Sand | Coarse Sand | Fine Sand | Fines | Silt | Clay | % Gravel | % Sand | % Silt | % Clay | Classification |
| Lab Id Number | Boring | Depth | Sample | | 2" | 3/4" | #4 | #10 | #20 | 0.05 | 0.005 | 0.002 | Total % | Coarse | Fine | Total % | Coarse | Medium | Fine | (-#200) | Silt | Clay | | | | | | | | | | | | | | | |
| 45376001 | NA | NA | S43512.13 | 56.3% | 100.0% | 100.0% | 90.7% | 87.0% | 10.1% | 8.3% | 2.6% | 1.2% | 9.3% | 0.0% | 9.3% | 80.6% | 3.7% | 8.0% | 68.9% | 10.1% | 7.5% | 2.6% | 13.0% | 76.9% | 8.0% | 68.9% | 10.1% | 8.9% | 1.2% | 0.0% | 90.5% | 8.2% | 1.4% | | SAND | | |
| 45376002 | NA | NA | S43512.14 | 16.3% | 100.0% | 95.5% | 91.9% | 89.8% | 3.4% | 2.9% | 1.6% | 0.8% | 8.1% | 4.5% | 3.6% | 88.6% | 2.1% | 3.1% | 83.3% | 3.4% | 1.8% | 1.6% | 10.2% | 86.4% | 3.1% | 83.3% | 3.4% | 2.6% | 0.8% | 0.0% | 96.7% | 2.4% | 0.9% | | SAND | | |
| 45376003 | NA | NA | S43512.15 | 24.2% | 100.0% | 100.0% | 96.1% | 92.1% | 27.1% | 21.8% | 4.4% | 1.5% | 3.9% | 0.0% | 3.9% | 69.0% | 4.0% | 13.2% | 51.8% | 27.1% | 22.7% | 4.4% | 7.9% | 65.0% | 13.2% | 51.8% | 27.1% | 25.6% | 1.5% | 0.0% | 76.3% | 22.1% | 1.6% | | LOAMY SAND | | |
| 45376004 | NA | NA | S43512.16 | 46.3% | 100.0% | 94.0% | 73.5% | 65.1% | 11.6% | 9.7% | 2.9% | 1.5% | 26.5% | 6.0% | 20.5% | 61.9% | 8.4% | 11.9% | 41.6% | 11.6% | 8.7% | 2.9% | 34.9% | 53.5% | 11.9% | 41.6% | 11.6% | 10.1% | 1.5% | 0.0% | 85.1% | 12.7% | 2.3% | | LOAMY SAND | | |
| 45376005 | NA | NA | S43512.17 | 45.9% | 100.0% | 100.0% | 97.8% | 96.6% | 14.5% | 12.2% | 7.2% | 5.3% | 2.2% | 0.0% | 2.2% | 83.3% | 1.1% | 2.7% | 79.4% | 14.5% | 7.3% | 7.2% | 3.4% | 82.2% | 2.7% | 79.4% | 14.5% | 9.2% | 5.3% | 0.0% | 87.4% | 7.1% | 5.5% | | LOAMY SAND | | |
| 45376006 | NA | NA | S43512.18 | 19.2% | 100.0% | 100.0% | 98.4% | 97.3% | 20.3% | 15.7% | 3.5% | 1.6% | 1.6% | 0.0% | 1.6% | 78.1% | 1.1% | 4.4% | 72.6% | 20.3% | 16.8% | 3.5% | 2.7% | 77.0% | 4.4% | 72.6% | 20.3% | 18.7% | 1.6% | 0.0% | 83.8% | 14.5% | 1.7% | | LOAMY SAND | | |
| 45376007 | NA | NA | S43512.19 | 42.7% | 100.0% | 92.8% | 87.5% | 85.1% | 6.8% | 5.3% | 1.9% | 0.9% | 12.5% | 7.2% | 5.3% | 80.7% | 2.5% | 8.3% | 70.0% | 6.8% | 4.9% | 1.9% | 14.9% | 78.3% | 8.3% | 70.0% | 6.8% | 5.9% | 0.9% | 0.0% | 93.8% | 5.1% | 1.1% | | SAND | | |



Analytical Laboratory Report

Report ID: S44975.01(01)
Generated on 02/28/2023

Report to

Attention: Saamih Bashir
WSP
45850 Magellan Drive, Suite 190
Novi, MI 48377

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Report Summary

Lab Sample ID(s): S44975.01-S44975.43
Project: Former JB Sims Generating Station, Harbor Island, GrandHaven
Collected Date(s): 01/30/2023 - 02/02/2023
Submitted Date/Time: 02/03/2023 08:15
Sampled by: Kiersten White / Andi Johns
P.O. #: C012407104

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Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Certifications

| Authority | Certification ID |
|---------------------|------------------|
| Michigan DEQ | #9956 |
| DOD ELAP/ISO 17025 | #69699 |
| WBENC | #2005110032 |
| Ohio VAP | #CL0002 |
| Indiana DOH | #C-MI-07 |
| New York NELAC | #11814 |
| North Carolina DENR | #680 |
| North Carolina DOH | #26702 |
| Alaska CSLAP | #17-001 |
| Pennsylvania DEP | #68-05884 |
| Wisconsin DNR | FID# 399147320 |

Qualifier Descriptions

| Qualifier | Description |
|-----------|---|
| ! | Result is outside of stated limit criteria |
| B | Compound also found in associated method blank |
| E | Concentration exceeds calibration range |
| F | Analysis run outside of holding time |
| G | Estimated result due to extraction run outside of holding time |
| H | Sample submitted and run outside of holding time |
| I | Matrix interference with internal standard |
| J | Estimated value less than reporting limit, but greater than MDL |
| L | Elevated reporting limit due to low sample amount |
| M | Result reported to MDL not RDL |
| O | Analysis performed by outside laboratory. See attached report. |
| R | Preliminary result |
| S | Surrogate recovery outside of control limits |
| T | No correction for total solids |
| X | Elevated reporting limit due to matrix interference |
| Y | Elevated reporting limit due to high target concentration |
| b | Value detected less than reporting limit, but greater than MDL |
| e | Reported value estimated due to interference |
| j | Analyte also found in associated method blank |
| p | Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak. |
| x | Preserved from bulk sample |

Glossary of Abbreviations

| Abbreviation | Description |
|--------------|--|
| RL/RDL | Reporting Limit |
| MDL | Method Detection Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| SW | EPA SW 846 (Soil and Wastewater) Methods |
| E | EPA Methods |
| SM | Standard Methods |
| LN | Linear |
| BR | Branched |



Analytical Laboratory Report

Method Summary

| Method | Version |
|---------------|---|
| ASTMD7979-19M | ASTM Method D7979 - 19 Modified (Isotopic Dilution) |

Parameter Summary

| Parameter | Synonym | Cas # |
|------------------|--|--------------|
| PFBA | Perfluorobutanoic Acid | 375-22-4 |
| PFPeA | Perfluoropentanoic Acid | 2706-90-3 |
| 4:2 FTSA | 4:2 Fluorotelomer Sulfonic Acid | 757124-72-4 |
| PFHxA | Perfluorohexanoic Acid | 307-24-4 |
| PFBS | Perfluorobutane sulfonic Acid | 375-73-5 |
| PFFHpA | Perfluoroheptanoic Acid | 375-85-9 |
| PFPeS | Perfluoropentane Sulfonic Acid | 2706-91-4 |
| 6:2 FTSA | 6:2 Fluorotelomer Sulfonic Acid | 27619-97-2 |
| PFOA | Perfluorooctanoic Acid | 335-67-1 |
| PFHxS | Perfluorohexane Sulfonic Acid | 355-46-4 |
| PFHxS-LN | Perfluorohexane Sulfonic Acid - LN | 355-46-4-LN |
| PFHxS-BR | Perfluorohexane Sulfonic Acid - BR | 355-46-4-BR |
| PFNA | Perfluorononanoic Acid | 375-95-1 |
| 8:2 FTSA | 8:2 Fluorotelomer Sulfonic Acid | 39108-34-4 |
| PFFHpS | Perfluoroheptane Sulfonic Acid | 375-92-8 |
| PFDA | Perfluorodecanoic Acid | 335-76-2 |
| N-MeFOSAA | N-methyl perfluorooctanesulfonamidoacetic acid | 2355-31-9 |
| EtFOSAA | N-Ethyl Perfluorooctane Sulfonamidoacetic Acid | 2991-50-6 |
| PFOS | Perfluorooctane Sulfonic Acid | 1763-23-1 |
| PFOS-LN | Perfluorooctane Sulfonic Acid - LN | 1763-23-1-LN |
| PFOS-BR | Perfluorooctane Sulfonic Acid - BR | 1763-23-1-BR |
| PFUnDA | Perfluoroundecanoic Acid | 2058-94-8 |
| PFNS | Perfluorononane Sulfonic Acid | 68259-12-1 |
| PFDoDA | Perfluorododecanoic Acid | 307-55-1 |
| PFDS | Perfluorodecane Sulfonic Acid | 335-77-3 |
| PFFTrDA | Perfluorotridecanoic Acid | 72629-94-8 |
| FOSA | Perfluorooctane Sulfonamide | 754-91-6 |
| PFFTeDA | Perfluorotetradecanoic Acid | 376-06-7 |
| 11Cl-PF3OUdS | 11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid | 763051-92-9 |
| 9Cl-PF3ONS | 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid | 756426-58-1 |
| ADONA | 4,8-dioxa-3H-perfluorononanoic acid | 919005-14-4 |
| HFPO-DA | Hexafluoropropylene oxide dimer | 13252-13-6 |
| FHpPA (7:3 FTCA) | 3-Perfluoroheptyl propanoic acid | 812-70-4 |
| FPePA (5:3 FTCA) | 3-Perfluoropentyl propanoic acid | 914637-49-3 |
| FPrPA (3:3 FTCA) | 3-Perfluoropropyl propanoic acid | 356-02-5 |
| PFBSA | Perfluorobutanesulfonamide | 30334-69-1 |
| PFECHS | Perfluoro-4-ethylcyclohexanesulfonate | 67584-42-3 |
| PFHxSA | Perfluorohexanesulfonamide | 41997-13-1 |



Analytical Laboratory Report

Sample Summary (43 samples)

| Sample ID | Sample Tag | Matrix | Collected Date/Time |
|-----------|--------------------|-------------|---------------------|
| S44975.01 | PZ-26-01302023 | Groundwater | 01/30/23 12:35 |
| S44975.02 | PZ-24-01302023 | Groundwater | 01/30/23 15:05 |
| S44975.03 | PZ-23-01302023 | Groundwater | 01/30/23 15:54 |
| S44975.04 | PZ-25-01302023 | Groundwater | 01/30/23 16:10 |
| S44975.05 | PZ-13-01302023 | Groundwater | 01/30/23 17:15 |
| S44975.06 | MW-07-01302023 | Groundwater | 01/30/23 17:35 |
| S44975.07 | MW-33-01312023 | Groundwater | 01/31/23 10:25 |
| S44975.08 | MW-34-01312023 | Groundwater | 01/31/23 10:55 |
| S44975.09 | PZ-27-01312023 | Groundwater | 01/31/23 12:05 |
| S44975.10 | PZ-28-01312023 | Groundwater | 01/31/23 12:10 |
| S44975.11 | PZ-30-01312023 | Groundwater | 01/31/23 13:25 |
| S44975.12 | DUP-01-01312023 | Groundwater | 01/31/23 00:00 |
| S44975.13 | PZ-32-01312023 | Groundwater | 01/31/23 13:50 |
| S44975.14 | PZ-18-01312023 | Groundwater | 01/31/23 15:06 |
| S44975.15 | PZ-19-01312023 | Groundwater | 01/31/23 16:07 |
| S44975.16 | PZ-31-01312023 | Groundwater | 01/31/23 16:25 |
| S44975.17 | MW-05-01312023 | Groundwater | 01/31/23 17:45 |
| S44975.18 | MW-08-01312023 | Groundwater | 01/31/23 17:55 |
| S44975.19 | MW-38-02012023 | Groundwater | 02/01/23 08:40 |
| S44975.20 | PZ-12-02012023 | Groundwater | 02/01/23 09:45 |
| S44975.21 | MW-37-02012023 | Groundwater | 02/01/23 10:10 |
| S44975.22 | MW-36-02012023 | Groundwater | 02/01/23 11:05 |
| S44975.23 | MW-04-02012023 | Groundwater | 02/01/23 11:15 |
| S44975.24 | DUP-02-02012023 | Groundwater | 02/01/23 00:00 |
| S44975.25 | MW-03-02012023 | Groundwater | 02/01/23 12:30 |
| S44975.26 | PZ-20-02012023 | Groundwater | 02/01/23 13:05 |
| S44975.27 | MW-39-02012023 | Groundwater | 02/01/23 14:10 |
| S44975.28 | MW-39-02012023 MS | Groundwater | 02/01/23 14:10 |
| S44975.29 | MW-39-02012023 MSD | Groundwater | 02/01/23 14:10 |
| S44975.30 | MW-02-02012023 | Groundwater | 02/01/23 14:10 |
| S44975.31 | PZ-11-02012023 | Groundwater | 02/01/23 15:02 |
| S44975.32 | MW-40-02012023 | Groundwater | 02/01/23 15:15 |
| S44975.33 | MW-06-02012023 | Groundwater | 02/01/23 16:55 |
| S44975.34 | MW-10-02012023 | Groundwater | 02/01/23 17:44 |
| S44975.35 | MW-35-02012023 | Groundwater | 02/01/23 17:50 |
| S44975.36 | DUP-03-02012023 | Groundwater | 02/01/23 00:00 |
| S44975.37 | MW-01R-02022023 | Groundwater | 02/02/23 10:05 |
| S44975.38 | PZ-16-02022023 | Groundwater | 02/02/23 11:25 |
| S44975.39 | MW-09-02022023 | Groundwater | 02/02/23 11:35 |
| S44975.40 | PZ-15-02022023 | Groundwater | 02/02/23 12:45 |
| S44975.41 | PZ-17-02022023 | Groundwater | 02/02/23 12:50 |
| S44975.42 | PZ-14-02022023 | Groundwater | 02/02/23 13:53 |
| S44975.43 | PZ-29-02022023 | Groundwater | 02/02/23 15:25 |



Analytical Laboratory Report

Lab Sample ID: S44975.01

Sample Tag: PZ-26-01302023

Collected Date/Time: 01/30/2023 12:35

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 10.03/6.54/7 | ASTMD7979-19M | 02/03/23 15:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 15:25, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 4.0 | 10 | 1.6 | ng/L | 2.01 | 375-22-4 | J |
| PFPeA* | 1.3 | 4.0 | 0.80 | ng/L | 2.01 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 2.0 | 0.80 | ng/L | 2.01 | 757124-72-4 | |
| PFHxA* | Not detected | 2.0 | 0.40 | ng/L | 2.01 | 307-24-4 | |
| PFBS* | 1.2 | 2.0 | 0.80 | ng/L | 2.01 | 375-73-5 | J |
| PFHpA* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 0.80 | ng/L | 2.01 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 27619-97-2 | |
| PFOA* | 4.2 | 2.0 | 1.6 | ng/L | 2.01 | 335-67-1 | |
| PFHxS* | 1.2 | 2.0 | 1.2 | ng/L | 2.01 | 355-46-4 | J |
| PFHxS-LN* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 0.80 | ng/L | 2.01 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.60 | ng/L | 2.01 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 2.01 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 2.01 | 2991-50-6 | |
| PFOS* | 7.1 | 2.0 | 1.2 | ng/L | 2.01 | 1763-23-1 | |
| PFOS-LN* | 2.3 | 2.0 | 1.2 | ng/L | 2.01 | 1763-23-1-LN | |
| PFOS-BR* | 4.9 | 2.0 | 1.2 | ng/L | 2.01 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 68259-12-1 | |
| PFDoDA* | Not detected | 2.0 | 0.60 | ng/L | 2.01 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.80 | ng/L | 2.01 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 0.40 | ng/L | 2.01 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.80 | ng/L | 2.01 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.80 | ng/L | 2.01 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.0 | ng/L | 2.01 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 2.0 | ng/L | 2.01 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.0 | ng/L | 2.01 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.0 | ng/L | 2.01 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.01 (continued)

Sample Tag: PZ-26-01302023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 15:25, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 2.1 | 2.0 | 1.0 | ng/L | 2.01 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.80 | ng/L | 2.01 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.02

Sample Tag: PZ-24-01302023

Collected Date/Time: 01/30/2023 15:05

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.35/6.49/9 | ASTMD7979-19M | 02/03/23 15:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 15:44, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 19 | 1.5 | ng/L | 1.85 | 375-22-4 | X |
| PFPeA* | Not detected | 3.7 | 0.74 | ng/L | 1.85 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 0.74 | ng/L | 1.85 | 757124-72-4 | I |
| PFHxA* | 3.0 | 1.9 | 0.37 | ng/L | 1.85 | 307-24-4 | |
| PFBS* | 1.8 | 1.9 | 0.74 | ng/L | 1.85 | 375-73-5 | J |
| PFHpA* | 1.8 | 1.9 | 0.93 | ng/L | 1.85 | 375-85-9 | J |
| PFPeS* | Not detected | 1.9 | 0.74 | ng/L | 1.85 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.1 | ng/L | 1.85 | 27619-97-2 | |
| PFOA* | 14 | 1.9 | 1.5 | ng/L | 1.85 | 335-67-1 | |
| PFHxS* | 1.5 | 1.9 | 1.1 | ng/L | 1.85 | 355-46-4 | J |
| PFHxS-LN* | 1.5 | 1.9 | 1.1 | ng/L | 1.85 | 355-46-4-LN | J |
| PFHxS-BR* | Not detected | 1.9 | 1.1 | ng/L | 1.85 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 0.74 | ng/L | 1.85 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.93 | ng/L | 1.85 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.1 | ng/L | 1.85 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 0.56 | ng/L | 1.85 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.3 | ng/L | 1.85 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.7 | 1.9 | ng/L | 1.85 | 2991-50-6 | |
| PFOS* | 4.9 | 1.9 | 1.1 | ng/L | 1.85 | 1763-23-1 | |
| PFOS-LN* | 1.7 | 1.9 | 1.1 | ng/L | 1.85 | 1763-23-1-LN | J |
| PFOS-BR* | 3.5 | 1.9 | 1.1 | ng/L | 1.85 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 0.93 | ng/L | 1.85 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.93 | ng/L | 1.85 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 0.56 | ng/L | 1.85 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.1 | ng/L | 1.85 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.93 | ng/L | 1.85 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 0.74 | ng/L | 1.85 | 754-91-6 | |
| PFTeDA* | Not detected | 3.7 | 0.37 | ng/L | 1.85 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.74 | ng/L | 1.85 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.74 | ng/L | 1.85 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.93 | ng/L | 1.85 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.3 | 1.9 | ng/L | 1.85 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.7 | 1.9 | ng/L | 1.85 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.7 | 1.9 | ng/L | 1.85 | 914637-49-3 | |

X-Elevated reporting limit due to matrix interference

I-Matrix interference with internal standard

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.02 (continued)

Sample Tag: PZ-24-01302023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 15:44, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|------------|-------|
| FPrPA (3:3 FTCA)* | Not detected | 3.7 | 0.93 | ng/L | 1.85 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.1 | ng/L | 1.85 | 30334-69-1 | |
| PFECHS* | Not detected | 1.9 | 0.93 | ng/L | 1.85 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.9 | 0.74 | ng/L | 1.85 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.03

Sample Tag: PZ-23-01302023

Collected Date/Time: 01/30/2023 15:54

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.58/6.55/10 | ASTMD7979-19M | 02/03/23 15:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/14/23 16:34, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|------|------|-------|----------|--------------|-------|
| PFBA* | 20 | 10.0 | 1.6 | ng/L | 1.99 | 375-22-4 | |
| PFPeA* | 7.9 | 4.0 | 0.80 | ng/L | 1.99 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 0.80 | ng/L | 1.99 | 757124-72-4 | |
| PFHxA* | 8.6 | 2.0 | 0.40 | ng/L | 1.99 | 307-24-4 | |
| PFBS* | 3.5 | 2.0 | 0.80 | ng/L | 1.99 | 375-73-5 | |
| PFHpA* | 3.4 | 2.0 | 1.00 | ng/L | 1.99 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 0.80 | ng/L | 1.99 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 27619-97-2 | |
| PFOA* | 3.7 | 2.0 | 1.6 | ng/L | 1.99 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 0.80 | ng/L | 1.99 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.60 | ng/L | 1.99 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 1.99 | 2991-50-6 | |
| PFOS* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.60 | ng/L | 1.99 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.80 | ng/L | 1.99 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 0.40 | ng/L | 1.99 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.80 | ng/L | 1.99 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.80 | ng/L | 1.99 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10.0 | 2.0 | ng/L | 1.99 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 2.0 | ng/L | 1.99 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.0 | ng/L | 1.99 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.00 | ng/L | 1.99 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 30334-69-1 | |
| PFCHS* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S44975.03 (continued)

Sample Tag: PZ-23-01302023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/14/23 16:34, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 2.0 | 0.80 | ng/L | 1.99 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.04

Sample Tag: PZ-25-01302023

Collected Date/Time: 01/30/2023 16:10

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.09/6.53/9 | ASTMD7979-19M | 02/03/23 15:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 16:43, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 39 | 1.6 | ng/L | 1.97 | 375-22-4 | X |
| PFPeA* | Not detected | 4.9 | 0.79 | ng/L | 1.97 | 2706-90-3 | X |
| 4:2 FTSA* | Not detected | 2.0 | 0.79 | ng/L | 1.97 | 757124-72-4 | |
| PFHxA* | 2.3 | 2.0 | 0.39 | ng/L | 1.97 | 307-24-4 | |
| PFBS* | Not detected | 2.0 | 0.79 | ng/L | 1.97 | 375-73-5 | |
| PFHpA* | 1.2 | 2.0 | 0.99 | ng/L | 1.97 | 375-85-9 | J |
| PFPeS* | Not detected | 2.0 | 0.79 | ng/L | 1.97 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 27619-97-2 | |
| PFOA* | 2.5 | 2.0 | 1.6 | ng/L | 1.97 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 0.79 | ng/L | 1.97 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.59 | ng/L | 1.97 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.97 | 2991-50-6 | |
| PFOS* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.59 | ng/L | 1.97 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.79 | ng/L | 1.97 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 0.39 | ng/L | 1.97 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.79 | ng/L | 1.97 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.79 | ng/L | 1.97 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.9 | 2.0 | ng/L | 1.97 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.0 | ng/L | 1.97 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.0 | ng/L | 1.97 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 0.99 | ng/L | 1.97 | 356-02-5 | |

X-Elevated reporting limit due to matrix interference

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.04 (continued)

Sample Tag: PZ-25-01302023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 16:43, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 30334-69-1 | |
| PFECHS* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.79 | ng/L | 1.97 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.05

Sample Tag: PZ-13-01302023

Collected Date/Time: 01/30/2023 17:15

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.14/6.57/9 | ASTMD7979-19M | 02/03/23 15:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/10/23 23:39, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 300 | 9.9 | 1.6 | ng/L | 1.97 | 375-22-4 | |
| PFPeA* | 1,400 | 3.9 | 0.79 | ng/L | 1.97 | 2706-90-3 | |
| 4:2 FTSA* | 8.7 | 2.0 | 0.79 | ng/L | 1.97 | 757124-72-4 | |
| PFHxA* | 710 | 2.0 | 0.39 | ng/L | 1.97 | 307-24-4 | |
| PFBS* | 40 | 2.0 | 0.79 | ng/L | 1.97 | 375-73-5 | |
| PFHpA* | 140 | 2.0 | 0.99 | ng/L | 1.97 | 375-85-9 | |
| PFPeS* | 31 | 2.0 | 0.79 | ng/L | 1.97 | 2706-91-4 | |
| 6:2 FTSA* | 1,200 | 2.0 | 1.2 | ng/L | 1.97 | 27619-97-2 | |
| PFOA* | 59 | 2.0 | 1.6 | ng/L | 1.97 | 335-67-1 | |
| PFHxS* | 110 | 2.0 | 1.2 | ng/L | 1.97 | 355-46-4 | |
| PFHxS-LN* | 83 | 2.0 | 1.2 | ng/L | 1.97 | 355-46-4-LN | |
| PFHxS-BR* | 29 | 2.0 | 1.2 | ng/L | 1.97 | 355-46-4-BR | |
| PFNA* | 3.3 | 2.0 | 0.79 | ng/L | 1.97 | 375-95-1 | |
| 8:2 FTSA* | 14 | 2.0 | 0.99 | ng/L | 1.97 | 39108-34-4 | |
| PFHpS* | 4.5 | 2.0 | 1.2 | ng/L | 1.97 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.59 | ng/L | 1.97 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.97 | 2991-50-6 | |
| PFOS* | 160 | 2.0 | 1.2 | ng/L | 1.97 | 1763-23-1 | |
| PFOS-LN* | 69 | 2.0 | 1.2 | ng/L | 1.97 | 1763-23-1-LN | |
| PFOS-BR* | 93 | 2.0 | 1.2 | ng/L | 1.97 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.59 | ng/L | 1.97 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.79 | ng/L | 1.97 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 0.39 | ng/L | 1.97 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.79 | ng/L | 1.97 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.79 | ng/L | 1.97 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.9 | 2.0 | ng/L | 1.97 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.0 | ng/L | 1.97 | 812-70-4 | |
| FPePA (5:3 FTCA)* | 4.4 | 3.9 | 2.0 | ng/L | 1.97 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 0.99 | ng/L | 1.97 | 356-02-5 | |
| PFBSA* | 76 | 2.0 | 1.2 | ng/L | 1.97 | 30334-69-1 | |
| PFECHS* | 1.7 | 2.0 | 0.99 | ng/L | 1.97 | 67584-42-3 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.05 (continued)

Sample Tag: PZ-13-01302023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/10/23 23:39, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFHxSA* | 71 | 2.0 | 0.79 | ng/L | 1.97 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.06

Sample Tag: MW-07-01302023

Collected Date/Time: 01/30/2023 17:35

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.00/6.54/11 | ASTMD7979-19M | 02/03/23 15:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 17:22, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 10 | 1.6 | ng/L | 2.01 | 375-22-4 | |
| PFPeA* | Not detected | 4.0 | 0.80 | ng/L | 2.01 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 0.80 | ng/L | 2.01 | 757124-72-4 | |
| PFHxA* | Not detected | 2.0 | 0.40 | ng/L | 2.01 | 307-24-4 | |
| PFBS* | Not detected | 2.0 | 0.80 | ng/L | 2.01 | 375-73-5 | |
| PFHpA* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 0.80 | ng/L | 2.01 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 27619-97-2 | |
| PFOA* | Not detected | 2.0 | 1.6 | ng/L | 2.01 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 0.80 | ng/L | 2.01 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.60 | ng/L | 2.01 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 2.01 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 2.01 | 2991-50-6 | |
| PFOS* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.60 | ng/L | 2.01 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.80 | ng/L | 2.01 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 0.40 | ng/L | 2.01 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.80 | ng/L | 2.01 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.80 | ng/L | 2.01 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.0 | ng/L | 2.01 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 2.0 | ng/L | 2.01 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.0 | ng/L | 2.01 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.0 | ng/L | 2.01 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 30334-69-1 | |
| PFCHS* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S44975.06 (continued)

Sample Tag: MW-07-01302023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 17:22, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 2.0 | 0.80 | ng/L | 2.01 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.07

Sample Tag: MW-33-01312023

Collected Date/Time: 01/31/2023 10:25

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.50/6.55/10 | ASTMD7979-19M | 02/03/23 15:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/14/23 13:27, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 15 | 10 | 1.6 | ng/L | 2.02 | 375-22-4 | |
| PFPeA* | 11 | 4.0 | 0.81 | ng/L | 2.02 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 0.81 | ng/L | 2.02 | 757124-72-4 | |
| PFHxA* | 11 | 2.0 | 0.40 | ng/L | 2.02 | 307-24-4 | |
| PFBS* | 11 | 2.0 | 0.81 | ng/L | 2.02 | 375-73-5 | |
| PFHpA* | 7.8 | 2.0 | 1.0 | ng/L | 2.02 | 375-85-9 | |
| PFPeS* | 2.1 | 2.0 | 0.81 | ng/L | 2.02 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 27619-97-2 | |
| PFOA* | 34 | 2.0 | 1.6 | ng/L | 2.02 | 335-67-1 | |
| PFHxS* | 15 | 2.0 | 1.2 | ng/L | 2.02 | 355-46-4 | |
| PFHxS-LN* | 12 | 2.0 | 1.2 | ng/L | 2.02 | 355-46-4-LN | |
| PFHxS-BR* | 2.4 | 2.0 | 1.2 | ng/L | 2.02 | 355-46-4-BR | |
| PFNA* | 2.2 | 2.0 | 0.81 | ng/L | 2.02 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.61 | ng/L | 2.02 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 2.02 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 2.02 | 2991-50-6 | |
| PFOS* | 83 | 2.0 | 1.2 | ng/L | 2.02 | 1763-23-1 | |
| PFOS-LN* | 24 | 2.0 | 1.2 | ng/L | 2.02 | 1763-23-1-LN | |
| PFOS-BR* | 59 | 2.0 | 1.2 | ng/L | 2.02 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.61 | ng/L | 2.02 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.81 | ng/L | 2.02 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 0.40 | ng/L | 2.02 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.81 | ng/L | 2.02 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.81 | ng/L | 2.02 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.0 | ng/L | 2.02 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 2.0 | ng/L | 2.02 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.0 | ng/L | 2.02 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.0 | ng/L | 2.02 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 30334-69-1 | |
| PFECHS* | 6.8 | 2.0 | 1.0 | ng/L | 2.02 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S44975.07 (continued)

Sample Tag: MW-33-01312023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/14/23 13:27, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 2.0 | 0.81 | ng/L | 2.02 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.08

Sample Tag: MW-34-01312023

Collected Date/Time: 01/31/2023 10:55

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.23/6.50/9 | ASTMD7979-19M | 02/03/23 15:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 18:56, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 11 | 9.5 | 1.5 | ng/L | 1.9 | 375-22-4 | |
| PFPeA* | 12 | 3.8 | 0.76 | ng/L | 1.9 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 0.76 | ng/L | 1.9 | 757124-72-4 | |
| PFHxA* | 8.2 | 1.9 | 0.38 | ng/L | 1.9 | 307-24-4 | |
| PFBS* | 9.7 | 1.9 | 0.76 | ng/L | 1.9 | 375-73-5 | |
| PFHpA* | 5.9 | 1.9 | 0.95 | ng/L | 1.9 | 375-85-9 | |
| PFPeS* | 2.0 | 1.9 | 0.76 | ng/L | 1.9 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.1 | ng/L | 1.9 | 27619-97-2 | |
| PFOA* | 53 | 1.9 | 1.5 | ng/L | 1.9 | 335-67-1 | |
| PFHxS* | 9.6 | 1.9 | 1.1 | ng/L | 1.9 | 355-46-4 | |
| PFHxS-LN* | 7.6 | 1.9 | 1.1 | ng/L | 1.9 | 355-46-4-LN | |
| PFHxS-BR* | 1.7 | 1.9 | 1.1 | ng/L | 1.9 | 355-46-4-BR | J |
| PFNA* | 0.86 | 1.9 | 0.76 | ng/L | 1.9 | 375-95-1 | J |
| 8:2 FTSA* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 39108-34-4 | |
| PFHpS* | 2.5 | 1.9 | 1.1 | ng/L | 1.9 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 0.57 | ng/L | 1.9 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.3 | ng/L | 1.9 | 2355-31-9 | |
| EtFOSAA* | 13 | 3.8 | 1.9 | ng/L | 1.9 | 2991-50-6 | |
| PFOS* | 130 | 1.9 | 1.1 | ng/L | 1.9 | 1763-23-1 | |
| PFOS-LN* | 76 | 1.9 | 1.1 | ng/L | 1.9 | 1763-23-1-LN | |
| PFOS-BR* | 51 | 1.9 | 1.1 | ng/L | 1.9 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 68259-12-1 | |
| PFDoDA* | Not detected | 1.9 | 0.57 | ng/L | 1.9 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.1 | ng/L | 1.9 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 0.76 | ng/L | 1.9 | 754-91-6 | |
| PFTeDA* | Not detected | 3.8 | 0.38 | ng/L | 1.9 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.76 | ng/L | 1.9 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.76 | ng/L | 1.9 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.5 | 1.9 | ng/L | 1.9 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.8 | 1.9 | ng/L | 1.9 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.8 | 1.9 | ng/L | 1.9 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.8 | 0.95 | ng/L | 1.9 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.1 | ng/L | 1.9 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.08 (continued)

Sample Tag: MW-34-01312023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 18:56, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFECHS* | 7.6 | 1.9 | 0.95 | ng/L | 1.9 | 67584-42-3 | |
| PFHxSA* | 1.4 | 1.9 | 0.76 | ng/L | 1.9 | 41997-13-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.09

Sample Tag: PZ-27-01312023

Collected Date/Time: 01/31/2023 12:05

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.67/6.51/10 | ASTMD7979-19M | 02/03/23 15:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 19:15, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 16 | 9.7 | 1.6 | ng/L | 1.94 | 375-22-4 | |
| PFPeA* | 25 | 3.9 | 0.78 | ng/L | 1.94 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 757124-72-4 | |
| PFHxA* | 12 | 1.9 | 0.39 | ng/L | 1.94 | 307-24-4 | |
| PFBS* | 4.0 | 1.9 | 0.78 | ng/L | 1.94 | 375-73-5 | |
| PFHpA* | 7.7 | 1.9 | 0.97 | ng/L | 1.94 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 27619-97-2 | |
| PFOA* | 5.5 | 1.9 | 1.6 | ng/L | 1.94 | 335-67-1 | |
| PFHxS* | 3.5 | 1.9 | 1.2 | ng/L | 1.94 | 355-46-4 | |
| PFHxS-LN* | 2.6 | 1.9 | 1.2 | ng/L | 1.94 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 355-46-4-BR | |
| PFNA* | 1.5 | 1.9 | 0.78 | ng/L | 1.94 | 375-95-1 | J |
| 8:2 FTSA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 0.58 | ng/L | 1.94 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.4 | ng/L | 1.94 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 1.9 | ng/L | 1.94 | 2991-50-6 | |
| PFOS* | 9.0 | 1.9 | 1.2 | ng/L | 1.94 | 1763-23-1 | |
| PFOS-LN* | 5.4 | 1.9 | 1.2 | ng/L | 1.94 | 1763-23-1-LN | |
| PFOS-BR* | 3.8 | 1.9 | 1.2 | ng/L | 1.94 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 68259-12-1 | |
| PFDoDA* | Not detected | 1.9 | 0.58 | ng/L | 1.94 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 0.39 | ng/L | 1.94 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.7 | 1.9 | ng/L | 1.94 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 1.9 | ng/L | 1.94 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 1.9 | ng/L | 1.94 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 0.97 | ng/L | 1.94 | 356-02-5 | |
| PFBSA* | 1.2 | 1.9 | 1.2 | ng/L | 1.94 | 30334-69-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.09 (continued)

Sample Tag: PZ-27-01312023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 19:15, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.10

Sample Tag: PZ-28-01312023

Collected Date/Time: 01/31/2023 12:10

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.19/6.59/9 | ASTMD7979-19M | 02/03/23 15:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 19:35, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 17 | 9.8 | 1.6 | ng/L | 1.96 | 375-22-4 | |
| PFPeA* | 12 | 3.9 | 0.78 | ng/L | 1.96 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 757124-72-4 | |
| PFHxA* | 7.5 | 2.0 | 0.39 | ng/L | 1.96 | 307-24-4 | |
| PFBS* | 4.5 | 2.0 | 0.78 | ng/L | 1.96 | 375-73-5 | |
| PFHpA* | 3.4 | 2.0 | 0.98 | ng/L | 1.96 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 27619-97-2 | |
| PFOA* | 11 | 2.0 | 1.6 | ng/L | 1.96 | 335-67-1 | |
| PFHxS* | 3.4 | 2.0 | 1.2 | ng/L | 1.96 | 355-46-4 | |
| PFHxS-LN* | 2.2 | 2.0 | 1.2 | ng/L | 1.96 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 355-46-4-BR | |
| PFNA* | 0.78 | 2.0 | 0.78 | ng/L | 1.96 | 375-95-1 | J |
| 8:2 FTSA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.59 | ng/L | 1.96 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 2991-50-6 | |
| PFOS* | 16 | 2.0 | 1.2 | ng/L | 1.96 | 1763-23-1 | |
| PFOS-LN* | 5.4 | 2.0 | 1.2 | ng/L | 1.96 | 1763-23-1-LN | |
| PFOS-BR* | 11 | 2.0 | 1.2 | ng/L | 1.96 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.59 | ng/L | 1.96 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 0.39 | ng/L | 1.96 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.8 | 2.0 | ng/L | 1.96 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 0.98 | ng/L | 1.96 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.10 (continued)

Sample Tag: PZ-28-01312023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 19:35, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 2.1 | 2.0 | 0.98 | ng/L | 1.96 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.11

Sample Tag: PZ-30-01312023

Collected Date/Time: 01/31/2023 13:25

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.23/6.54/9 | ASTMD7979-19M | 02/03/23 15:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 19:54, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 83 | 9.6 | 1.5 | ng/L | 1.92 | 375-22-4 | |
| PFPeA* | 390 | 3.8 | 0.77 | ng/L | 1.92 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 0.77 | ng/L | 1.92 | 757124-72-4 | |
| PFHxA* | 150 | 1.9 | 0.38 | ng/L | 1.92 | 307-24-4 | |
| PFBS* | 16 | 1.9 | 0.77 | ng/L | 1.92 | 375-73-5 | |
| PFHpA* | 46 | 1.9 | 0.96 | ng/L | 1.92 | 375-85-9 | |
| PFPeS* | 8.7 | 1.9 | 0.77 | ng/L | 1.92 | 2706-91-4 | |
| 6:2 FTSA* | 5.2 | 1.9 | 1.2 | ng/L | 1.92 | 27619-97-2 | |
| PFOA* | 15 | 1.9 | 1.5 | ng/L | 1.92 | 335-67-1 | |
| PFHxS* | 19 | 1.9 | 1.2 | ng/L | 1.92 | 355-46-4 | |
| PFHxS-LN* | 13 | 1.9 | 1.2 | ng/L | 1.92 | 355-46-4-LN | |
| PFHxS-BR* | 5.7 | 1.9 | 1.2 | ng/L | 1.92 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 0.77 | ng/L | 1.92 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 0.58 | ng/L | 1.92 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 2355-31-9 | |
| EtFOSAA* | 14 | 3.8 | 1.9 | ng/L | 1.92 | 2991-50-6 | |
| PFOS* | 41 | 1.9 | 1.2 | ng/L | 1.92 | 1763-23-1 | |
| PFOS-LN* | 28 | 1.9 | 1.2 | ng/L | 1.92 | 1763-23-1-LN | |
| PFOS-BR* | 12 | 1.9 | 1.2 | ng/L | 1.92 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 0.58 | ng/L | 1.92 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 0.77 | ng/L | 1.92 | 754-91-6 | |
| PFTeDA* | Not detected | 3.8 | 0.38 | ng/L | 1.92 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.77 | ng/L | 1.92 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.77 | ng/L | 1.92 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.6 | 1.9 | ng/L | 1.92 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.8 | 1.9 | ng/L | 1.92 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.8 | 1.9 | ng/L | 1.92 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.8 | 0.96 | ng/L | 1.92 | 356-02-5 | |
| PFBSA* | 2.3 | 1.9 | 1.2 | ng/L | 1.92 | 30334-69-1 | |
| PFCHS* | 9.2 | 1.9 | 0.96 | ng/L | 1.92 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S44975.11 (continued)

Sample Tag: PZ-30-01312023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 19:54, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 1.9 | 0.77 | ng/L | 1.92 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.12

Sample Tag: DUP-01-01312023

Collected Date/Time: 01/31/2023 00:00

Matrix: Groundwater

COC Reference: 1

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.16/6.51/11 | ASTMD7979-19M | 02/03/23 15:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 20:14, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 17 | 9.8 | 1.6 | ng/L | 1.95 | 375-22-4 | |
| PFPeA* | 22 | 3.9 | 0.78 | ng/L | 1.95 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 0.78 | ng/L | 1.95 | 757124-72-4 | |
| PFHxA* | 11 | 2.0 | 0.39 | ng/L | 1.95 | 307-24-4 | |
| PFBS* | 3.5 | 2.0 | 0.78 | ng/L | 1.95 | 375-73-5 | |
| PFHpA* | 6.2 | 2.0 | 0.98 | ng/L | 1.95 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 0.78 | ng/L | 1.95 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 27619-97-2 | |
| PFOA* | 5.3 | 2.0 | 1.6 | ng/L | 1.95 | 335-67-1 | |
| PFHxS* | 2.6 | 2.0 | 1.2 | ng/L | 1.95 | 355-46-4 | |
| PFHxS-LN* | 1.8 | 2.0 | 1.2 | ng/L | 1.95 | 355-46-4-LN | J |
| PFHxS-BR* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 355-46-4-BR | |
| PFNA* | 1.6 | 2.0 | 0.78 | ng/L | 1.95 | 375-95-1 | J |
| 8:2 FTSA* | Not detected | 2.0 | 0.98 | ng/L | 1.95 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.59 | ng/L | 1.95 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.95 | 2991-50-6 | |
| PFOS* | 11 | 2.0 | 1.2 | ng/L | 1.95 | 1763-23-1 | |
| PFOS-LN* | 6.5 | 2.0 | 1.2 | ng/L | 1.95 | 1763-23-1-LN | |
| PFOS-BR* | 4.2 | 2.0 | 1.2 | ng/L | 1.95 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 0.98 | ng/L | 1.95 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 0.98 | ng/L | 1.95 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.59 | ng/L | 1.95 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 0.98 | ng/L | 1.95 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.78 | ng/L | 1.95 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 0.39 | ng/L | 1.95 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.78 | ng/L | 1.95 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.78 | ng/L | 1.95 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 0.98 | ng/L | 1.95 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.8 | 2.0 | ng/L | 1.95 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.0 | ng/L | 1.95 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.0 | ng/L | 1.95 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 0.98 | ng/L | 1.95 | 356-02-5 | |
| PFBSA* | 1.8 | 2.0 | 1.2 | ng/L | 1.95 | 30334-69-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.12 (continued)

Sample Tag: DUP-01-01312023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 20:14, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 2.0 | 0.98 | ng/L | 1.95 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.78 | ng/L | 1.95 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.13

Sample Tag: PZ-32-01312023

Collected Date/Time: 01/31/2023 13:50

Matrix: Groundwater

COC Reference: 2

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.72/6.48/10 | ASTMD7979-19M | 02/03/23 15:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 20:33, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 13 | 9.6 | 1.5 | ng/L | 1.91 | 375-22-4 | |
| PFPeA* | 17 | 3.8 | 0.76 | ng/L | 1.91 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 0.76 | ng/L | 1.91 | 757124-72-4 | |
| PFHxA* | 10 | 1.9 | 0.38 | ng/L | 1.91 | 307-24-4 | |
| PFBS* | 3.5 | 1.9 | 0.76 | ng/L | 1.91 | 375-73-5 | |
| PFHpA* | 7.2 | 1.9 | 0.96 | ng/L | 1.91 | 375-85-9 | |
| PFPeS* | 2.2 | 1.9 | 0.76 | ng/L | 1.91 | 2706-91-4 | |
| 6:2 FTSA* | 1.7 | 1.9 | 1.1 | ng/L | 1.91 | 27619-97-2 | J |
| PFOA* | 14 | 1.9 | 1.5 | ng/L | 1.91 | 335-67-1 | |
| PFHxS* | 7.8 | 1.9 | 1.1 | ng/L | 1.91 | 355-46-4 | |
| PFHxS-LN* | 6.0 | 1.9 | 1.1 | ng/L | 1.91 | 355-46-4-LN | |
| PFHxS-BR* | 1.6 | 1.9 | 1.1 | ng/L | 1.91 | 355-46-4-BR | J |
| PFNA* | 1.9 | 1.9 | 0.76 | ng/L | 1.91 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.96 | ng/L | 1.91 | 39108-34-4 | |
| PFHpS* | 2.0 | 1.9 | 1.1 | ng/L | 1.91 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 0.57 | ng/L | 1.91 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.3 | ng/L | 1.91 | 2355-31-9 | |
| EtFOSAA* | 3.4 | 3.8 | 1.9 | ng/L | 1.91 | 2991-50-6 | J |
| PFOS* | 140 | 1.9 | 1.1 | ng/L | 1.91 | 1763-23-1 | |
| PFOS-LN* | 91 | 1.9 | 1.1 | ng/L | 1.91 | 1763-23-1-LN | |
| PFOS-BR* | 46 | 1.9 | 1.1 | ng/L | 1.91 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 0.96 | ng/L | 1.91 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.96 | ng/L | 1.91 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 0.57 | ng/L | 1.91 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.1 | ng/L | 1.91 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.96 | ng/L | 1.91 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 0.76 | ng/L | 1.91 | 754-91-6 | |
| PFTeDA* | Not detected | 3.8 | 0.38 | ng/L | 1.91 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.76 | ng/L | 1.91 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.76 | ng/L | 1.91 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.96 | ng/L | 1.91 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.6 | 1.9 | ng/L | 1.91 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.8 | 1.9 | ng/L | 1.91 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.8 | 1.9 | ng/L | 1.91 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.8 | 0.96 | ng/L | 1.91 | 356-02-5 | |
| PFBSA* | 1.2 | 1.9 | 1.1 | ng/L | 1.91 | 30334-69-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.13 (continued)

Sample Tag: PZ-32-01312023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 20:33, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFECHS* | 24 | 1.9 | 0.96 | ng/L | 1.91 | 67584-42-3 | |
| PFHxSA* | 0.80 | 1.9 | 0.76 | ng/L | 1.91 | 41997-13-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.14

Sample Tag: PZ-18-01312023

Collected Date/Time: 01/31/2023 15:06

Matrix: Groundwater

COC Reference: 2

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.20/6.54/9 | ASTMD7979-19M | 02/03/23 15:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 20:53, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 16 | 9.7 | 1.5 | ng/L | 1.93 | 375-22-4 | |
| PFPeA* | 23 | 3.9 | 0.77 | ng/L | 1.93 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 0.77 | ng/L | 1.93 | 757124-72-4 | |
| PFHxA* | 12 | 1.9 | 0.39 | ng/L | 1.93 | 307-24-4 | |
| PFBS* | 3.0 | 1.9 | 0.77 | ng/L | 1.93 | 375-73-5 | |
| PFHpA* | 7.2 | 1.9 | 0.97 | ng/L | 1.93 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 0.77 | ng/L | 1.93 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 27619-97-2 | |
| PFOA* | 5.8 | 1.9 | 1.5 | ng/L | 1.93 | 335-67-1 | |
| PFHxS* | 2.5 | 1.9 | 1.2 | ng/L | 1.93 | 355-46-4 | |
| PFHxS-LN* | 2.1 | 1.9 | 1.2 | ng/L | 1.93 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 0.77 | ng/L | 1.93 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 0.58 | ng/L | 1.93 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 1.9 | ng/L | 1.93 | 2991-50-6 | |
| PFOS* | 4.2 | 1.9 | 1.2 | ng/L | 1.93 | 1763-23-1 | |
| PFOS-LN* | 2.0 | 1.9 | 1.2 | ng/L | 1.93 | 1763-23-1-LN | |
| PFOS-BR* | 2.5 | 1.9 | 1.2 | ng/L | 1.93 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 0.58 | ng/L | 1.93 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 0.77 | ng/L | 1.93 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 0.39 | ng/L | 1.93 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.77 | ng/L | 1.93 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.77 | ng/L | 1.93 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.7 | 1.9 | ng/L | 1.93 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 1.9 | ng/L | 1.93 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 1.9 | ng/L | 1.93 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 0.97 | ng/L | 1.93 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 30334-69-1 | |
| PFCHS* | 2.5 | 1.9 | 0.97 | ng/L | 1.93 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S44975.14 (continued)

Sample Tag: PZ-18-01312023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 20:53, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 1.9 | 0.77 | ng/L | 1.93 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.15

Sample Tag: PZ-19-01312023

Collected Date/Time: 01/31/2023 16:07

Matrix: Groundwater

COC Reference: 2

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.16/6.57/9 | ASTMD7979-19M | 02/03/23 15:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 21:12, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 26 | 9.8 | 1.6 | ng/L | 1.96 | 375-22-4 | |
| PFPeA* | 75 | 3.9 | 0.78 | ng/L | 1.96 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 757124-72-4 | |
| PFHxA* | 39 | 2.0 | 0.39 | ng/L | 1.96 | 307-24-4 | |
| PFBS* | 4.7 | 2.0 | 0.78 | ng/L | 1.96 | 375-73-5 | |
| PFHpA* | 12 | 2.0 | 0.98 | ng/L | 1.96 | 375-85-9 | |
| PFPeS* | 2.4 | 2.0 | 0.78 | ng/L | 1.96 | 2706-91-4 | |
| 6:2 FTSA* | 1.9 | 2.0 | 1.2 | ng/L | 1.96 | 27619-97-2 | J |
| PFOA* | 7.3 | 2.0 | 1.6 | ng/L | 1.96 | 335-67-1 | |
| PFHxS* | 6.3 | 2.0 | 1.2 | ng/L | 1.96 | 355-46-4 | |
| PFHxS-LN* | 4.1 | 2.0 | 1.2 | ng/L | 1.96 | 355-46-4-LN | |
| PFHxS-BR* | 2.2 | 2.0 | 1.2 | ng/L | 1.96 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.59 | ng/L | 1.96 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 2991-50-6 | |
| PFOS* | 6.8 | 2.0 | 1.2 | ng/L | 1.96 | 1763-23-1 | |
| PFOS-LN* | 2.4 | 2.0 | 1.2 | ng/L | 1.96 | 1763-23-1-LN | |
| PFOS-BR* | 4.7 | 2.0 | 1.2 | ng/L | 1.96 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.59 | ng/L | 1.96 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 0.39 | ng/L | 1.96 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.8 | 2.0 | ng/L | 1.96 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 0.98 | ng/L | 1.96 | 356-02-5 | |
| PFBSA* | 1.2 | 2.0 | 1.2 | ng/L | 1.96 | 30334-69-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.15 (continued)

Sample Tag: PZ-19-01312023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 21:12, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 9.5 | 2.0 | 0.98 | ng/L | 1.96 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.16

Sample Tag: PZ-31-01312023

Collected Date/Time: 01/31/2023 16:25

Matrix: Groundwater

COC Reference: 2

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.93/6.52/11 | ASTMD7979-19M | 02/03/23 15:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/14/23 17:13, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 19 | 10 | 1.6 | ng/L | 2.03 | 375-22-4 | |
| PFPeA* | 20 | 4.1 | 0.81 | ng/L | 2.03 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 0.81 | ng/L | 2.03 | 757124-72-4 | |
| PFHxA* | 11 | 2.0 | 0.41 | ng/L | 2.03 | 307-24-4 | |
| PFBS* | 3.0 | 2.0 | 0.81 | ng/L | 2.03 | 375-73-5 | |
| PFHpA* | 9.0 | 2.0 | 1.0 | ng/L | 2.03 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 0.81 | ng/L | 2.03 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 27619-97-2 | |
| PFOA* | 5.5 | 2.0 | 1.6 | ng/L | 2.03 | 335-67-1 | |
| PFHxS* | 3.2 | 2.0 | 1.2 | ng/L | 2.03 | 355-46-4 | |
| PFHxS-LN* | 2.0 | 2.0 | 1.2 | ng/L | 2.03 | 355-46-4-LN | J |
| PFHxS-BR* | 1.3 | 2.0 | 1.2 | ng/L | 2.03 | 355-46-4-BR | J |
| PFNA* | 1.1 | 2.0 | 0.81 | ng/L | 2.03 | 375-95-1 | J |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2.03 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.61 | ng/L | 2.03 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 2355-31-9 | |
| EtFOSAA* | 30 | 4.1 | 2.0 | ng/L | 2.03 | 2991-50-6 | |
| PFOS* | 22 | 2.0 | 1.2 | ng/L | 2.03 | 1763-23-1 | |
| PFOS-LN* | 15 | 2.0 | 1.2 | ng/L | 2.03 | 1763-23-1-LN | |
| PFOS-BR* | 6.4 | 2.0 | 1.2 | ng/L | 2.03 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.0 | ng/L | 2.03 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.0 | ng/L | 2.03 | 68259-12-1 | |
| PFDoDA* | Not detected | 2.0 | 0.61 | ng/L | 2.03 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.0 | ng/L | 2.03 | 72629-94-8 | |
| FOSA* | 1.1 | 2.0 | 0.81 | ng/L | 2.03 | 754-91-6 | J |
| PFTeDA* | Not detected | 4.1 | 0.41 | ng/L | 2.03 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.81 | ng/L | 2.03 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.81 | ng/L | 2.03 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 1.0 | ng/L | 2.03 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.0 | ng/L | 2.03 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.1 | 2.0 | ng/L | 2.03 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.1 | 2.0 | ng/L | 2.03 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.1 | 1.0 | ng/L | 2.03 | 356-02-5 | |
| PFBSA* | 1.3 | 2.0 | 1.2 | ng/L | 2.03 | 30334-69-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.16 (continued)

Sample Tag: PZ-31-01312023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/14/23 17:13, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 3.8 | 2.0 | 1.0 | ng/L | 2.03 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.81 | ng/L | 2.03 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.17

Sample Tag: MW-05-01312023

Collected Date/Time: 01/31/2023 17:45

Matrix: Groundwater

COC Reference: 2

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.15/6.54/9 | ASTMD7979-19M | 02/03/23 15:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 15:05, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 16 | 9.8 | 1.6 | ng/L | 1.95 | 375-22-4 | |
| PFPeA* | 10 | 3.9 | 0.78 | ng/L | 1.95 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 0.78 | ng/L | 1.95 | 757124-72-4 | |
| PFHxA* | 6.2 | 2.0 | 0.39 | ng/L | 1.95 | 307-24-4 | |
| PFBS* | 5.4 | 2.0 | 0.78 | ng/L | 1.95 | 375-73-5 | |
| PFHpA* | 2.9 | 2.0 | 0.98 | ng/L | 1.95 | 375-85-9 | |
| PFPeS* | 1.1 | 2.0 | 0.78 | ng/L | 1.95 | 2706-91-4 | J |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 27619-97-2 | |
| PFOA* | 3.2 | 2.0 | 1.6 | ng/L | 1.95 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 0.78 | ng/L | 1.95 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.98 | ng/L | 1.95 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.59 | ng/L | 1.95 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.95 | 2991-50-6 | |
| PFOS* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 0.98 | ng/L | 1.95 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 0.98 | ng/L | 1.95 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.59 | ng/L | 1.95 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 0.98 | ng/L | 1.95 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.78 | ng/L | 1.95 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 0.39 | ng/L | 1.95 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.78 | ng/L | 1.95 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.78 | ng/L | 1.95 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 0.98 | ng/L | 1.95 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.8 | 2.0 | ng/L | 1.95 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.0 | ng/L | 1.95 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.0 | ng/L | 1.95 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 0.98 | ng/L | 1.95 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.17 (continued)

Sample Tag: MW-05-01312023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 15:05, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 4.2 | 2.0 | 0.98 | ng/L | 1.95 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.78 | ng/L | 1.95 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.18

Sample Tag: MW-08-01312023

Collected Date/Time: 01/31/2023 17:55

Matrix: Groundwater

COC Reference: 2

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.99/6.50/11 | ASTMD7979-19M | 02/03/23 15:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 21:51, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 10 | 20 | 1.6 | ng/L | 2 | 375-22-4 | JX |
| PFPeA* | 6.6 | 4.0 | 0.80 | ng/L | 2 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 0.80 | ng/L | 2 | 757124-72-4 | |
| PFHxA* | 5.7 | 2.0 | 0.40 | ng/L | 2 | 307-24-4 | |
| PFBS* | 2.6 | 2.0 | 0.80 | ng/L | 2 | 375-73-5 | |
| PFHpA* | 5.2 | 2.0 | 1.0 | ng/L | 2 | 375-85-9 | |
| PFPeS* | 1.3 | 2.0 | 0.80 | ng/L | 2 | 2706-91-4 | J |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 2 | 27619-97-2 | |
| PFOA* | 20 | 2.0 | 1.6 | ng/L | 2 | 335-67-1 | |
| PFHxS* | 5.0 | 2.0 | 1.2 | ng/L | 2 | 355-46-4 | |
| PFHxS-LN* | 4.4 | 2.0 | 1.2 | ng/L | 2 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.2 | ng/L | 2 | 355-46-4-BR | |
| PFNA* | 2.3 | 2.0 | 0.80 | ng/L | 2 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2 | 39108-34-4 | |
| PFHpS* | 1.7 | 2.0 | 1.2 | ng/L | 2 | 375-92-8 | J |
| PFDA* | Not detected | 2.0 | 0.60 | ng/L | 2 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 2 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 2 | 2991-50-6 | |
| PFOS* | 160 | 2.0 | 1.2 | ng/L | 2 | 1763-23-1 | |
| PFOS-LN* | 110 | 2.0 | 1.2 | ng/L | 2 | 1763-23-1-LN | |
| PFOS-BR* | 44 | 2.0 | 1.2 | ng/L | 2 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.0 | ng/L | 2 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.0 | ng/L | 2 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.60 | ng/L | 2 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 2 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.0 | ng/L | 2 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.80 | ng/L | 2 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 0.40 | ng/L | 2 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.80 | ng/L | 2 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.80 | ng/L | 2 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 1.0 | ng/L | 2 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.0 | ng/L | 2 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 2.0 | ng/L | 2 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.0 | ng/L | 2 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.0 | ng/L | 2 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 2 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL X-Elevated reporting limit due to matrix interference



Analytical Laboratory Report

Lab Sample ID: S44975.18 (continued)

Sample Tag: MW-08-01312023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/13/23 21:51, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFECHS* | 7.2 | 2.0 | 1.0 | ng/L | 2 | 67584-42-3 | |
| PFHxSA* | 1.1 | 2.0 | 0.80 | ng/L | 2 | 41997-13-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.19

Sample Tag: MW-38-02012023

Collected Date/Time: 02/01/2023 08:40

Matrix: Groundwater

COC Reference: 2

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.76/6.50/10 | ASTMD7979-19M | 02/06/23 10:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 07:07, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 110 | 9.5 | 1.5 | ng/L | 1.9 | 375-22-4 | |
| PFPeA* | 350 | 3.8 | 0.76 | ng/L | 1.9 | 2706-90-3 | |
| 4:2 FTSA* | 3.6 | 1.9 | 0.76 | ng/L | 1.9 | 757124-72-4 | |
| PFHxA* | 280 | 1.9 | 0.38 | ng/L | 1.9 | 307-24-4 | |
| PFBS* | 24 | 1.9 | 0.76 | ng/L | 1.9 | 375-73-5 | |
| PFHpA* | 59 | 1.9 | 0.95 | ng/L | 1.9 | 375-85-9 | |
| PFPeS* | 12 | 1.9 | 0.76 | ng/L | 1.9 | 2706-91-4 | |
| 6:2 FTSA* | 140 | 1.9 | 1.1 | ng/L | 1.9 | 27619-97-2 | |
| PFOA* | 67 | 1.9 | 1.5 | ng/L | 1.9 | 335-67-1 | |
| PFHxS* | 30 | 1.9 | 1.1 | ng/L | 1.9 | 355-46-4 | |
| PFHxS-LN* | 19 | 1.9 | 1.1 | ng/L | 1.9 | 355-46-4-LN | |
| PFHxS-BR* | 9.9 | 1.9 | 1.1 | ng/L | 1.9 | 355-46-4-BR | |
| PFNA* | 5.9 | 1.9 | 0.76 | ng/L | 1.9 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 39108-34-4 | |
| PFHpS* | 1.2 | 1.9 | 1.1 | ng/L | 1.9 | 375-92-8 | J |
| PFDA* | Not detected | 1.9 | 0.57 | ng/L | 1.9 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.3 | ng/L | 1.9 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.8 | 1.9 | ng/L | 1.9 | 2991-50-6 | |
| PFOS* | 13 | 1.9 | 1.1 | ng/L | 1.9 | 1763-23-1 | |
| PFOS-LN* | 4.1 | 1.9 | 1.1 | ng/L | 1.9 | 1763-23-1-LN | |
| PFOS-BR* | 9.8 | 1.9 | 1.1 | ng/L | 1.9 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 0.57 | ng/L | 1.9 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.1 | ng/L | 1.9 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 0.76 | ng/L | 1.9 | 754-91-6 | |
| PFTeDA* | Not detected | 3.8 | 0.38 | ng/L | 1.9 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.76 | ng/L | 1.9 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.76 | ng/L | 1.9 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.5 | 1.9 | ng/L | 1.9 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.8 | 1.9 | ng/L | 1.9 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.8 | 1.9 | ng/L | 1.9 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.8 | 0.95 | ng/L | 1.9 | 356-02-5 | |
| PFBSA* | 31 | 1.9 | 1.1 | ng/L | 1.9 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.19 (continued)

Sample Tag: MW-38-02012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 07:07, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFECHS* | 11 | 1.9 | 0.95 | ng/L | 1.9 | 67584-42-3 | |
| PFHxSA* | 6.8 | 1.9 | 0.76 | ng/L | 1.9 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.20

Sample Tag: PZ-12-02012023

Collected Date/Time: 02/01/2023 09:45

Matrix: Groundwater

COC Reference: 2

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.17/6.52/9 | ASTMD7979-19M | 02/06/23 10:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 07:27, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 13 | 9.7 | 1.6 | ng/L | 1.94 | 375-22-4 | |
| PFPeA* | 25 | 3.9 | 0.78 | ng/L | 1.94 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 757124-72-4 | |
| PFHxA* | 15 | 1.9 | 0.39 | ng/L | 1.94 | 307-24-4 | |
| PFBS* | 1.0 | 1.9 | 0.78 | ng/L | 1.94 | 375-73-5 | J |
| PFHpA* | 10 | 1.9 | 0.97 | ng/L | 1.94 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 27619-97-2 | |
| PFOA* | 6.2 | 1.9 | 1.6 | ng/L | 1.94 | 335-67-1 | |
| PFHxS* | 2.6 | 1.9 | 1.2 | ng/L | 1.94 | 355-46-4 | |
| PFHxS-LN* | 2.1 | 1.9 | 1.2 | ng/L | 1.94 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 355-46-4-BR | |
| PFNA* | 2.3 | 1.9 | 0.78 | ng/L | 1.94 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 0.58 | ng/L | 1.94 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.4 | ng/L | 1.94 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 1.9 | ng/L | 1.94 | 2991-50-6 | |
| PFOS* | 8.6 | 1.9 | 1.2 | ng/L | 1.94 | 1763-23-1 | |
| PFOS-LN* | 3.1 | 1.9 | 1.2 | ng/L | 1.94 | 1763-23-1-LN | |
| PFOS-BR* | 5.7 | 1.9 | 1.2 | ng/L | 1.94 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 0.58 | ng/L | 1.94 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 0.39 | ng/L | 1.94 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.7 | 1.9 | ng/L | 1.94 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 1.9 | ng/L | 1.94 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 1.9 | ng/L | 1.94 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 0.97 | ng/L | 1.94 | 356-02-5 | |
| PFBSA* | 2.0 | 1.9 | 1.2 | ng/L | 1.94 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.20 (continued)

Sample Tag: PZ-12-02012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 07:27, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 67584-42-3 | |
| PFHxSA* | 0.89 | 1.9 | 0.78 | ng/L | 1.94 | 41997-13-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.21

Sample Tag: MW-37-02012023

Collected Date/Time: 02/01/2023 10:10

Matrix: Groundwater

COC Reference: 2

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.74/6.49/10 | ASTMD7979-19M | 02/06/23 10:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 07:46, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 210 | 9.5 | 1.5 | ng/L | 1.9 | 375-22-4 | |
| PFPeA* | 750 | 3.8 | 0.76 | ng/L | 1.9 | 2706-90-3 | |
| 4:2 FTSA* | 2.8 | 1.9 | 0.76 | ng/L | 1.9 | 757124-72-4 | |
| PFHxA* | 420 | 1.9 | 0.38 | ng/L | 1.9 | 307-24-4 | |
| PFBS* | 40 | 1.9 | 0.76 | ng/L | 1.9 | 375-73-5 | |
| PFHpA* | 66 | 1.9 | 0.95 | ng/L | 1.9 | 375-85-9 | |
| PFPeS* | 16 | 1.9 | 0.76 | ng/L | 1.9 | 2706-91-4 | |
| 6:2 FTSA* | 420 | 1.9 | 1.1 | ng/L | 1.9 | 27619-97-2 | |
| PFOA* | 33 | 1.9 | 1.5 | ng/L | 1.9 | 335-67-1 | |
| PFHxS* | 41 | 1.9 | 1.1 | ng/L | 1.9 | 355-46-4 | |
| PFHxS-LN* | 29 | 1.9 | 1.1 | ng/L | 1.9 | 355-46-4-LN | |
| PFHxS-BR* | 11 | 1.9 | 1.1 | ng/L | 1.9 | 355-46-4-BR | |
| PFNA* | 1.5 | 1.9 | 0.76 | ng/L | 1.9 | 375-95-1 | J |
| 8:2 FTSA* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.1 | ng/L | 1.9 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 0.57 | ng/L | 1.9 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.3 | ng/L | 1.9 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.8 | 1.9 | ng/L | 1.9 | 2991-50-6 | |
| PFOS* | 13 | 1.9 | 1.1 | ng/L | 1.9 | 1763-23-1 | |
| PFOS-LN* | 3.5 | 1.9 | 1.1 | ng/L | 1.9 | 1763-23-1-LN | |
| PFOS-BR* | 10 | 1.9 | 1.1 | ng/L | 1.9 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 68259-12-1 | |
| PFDoDA* | Not detected | 1.9 | 0.57 | ng/L | 1.9 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.1 | ng/L | 1.9 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 0.76 | ng/L | 1.9 | 754-91-6 | |
| PFTeDA* | Not detected | 3.8 | 0.38 | ng/L | 1.9 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.76 | ng/L | 1.9 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.76 | ng/L | 1.9 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.95 | ng/L | 1.9 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.5 | 1.9 | ng/L | 1.9 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.8 | 1.9 | ng/L | 1.9 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.8 | 1.9 | ng/L | 1.9 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.8 | 0.95 | ng/L | 1.9 | 356-02-5 | |
| PFBSA* | 22 | 1.9 | 1.1 | ng/L | 1.9 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.21 (continued)

Sample Tag: MW-37-02012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 07:46, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFECHS* | 3.0 | 1.9 | 0.95 | ng/L | 1.9 | 67584-42-3 | |
| PFHxSA* | 8.0 | 1.9 | 0.76 | ng/L | 1.9 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.22

Sample Tag: MW-36-02012023

Collected Date/Time: 02/01/2023 11:05

Matrix: Groundwater

COC Reference: 2

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.89/6.52/11 | ASTMD7979-19M | 02/06/23 10:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 08:06, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 180 | 10 | 1.6 | ng/L | 2.05 | 375-22-4 | |
| PFPeA* | 130 | 4.1 | 0.82 | ng/L | 2.05 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.1 | 0.82 | ng/L | 2.05 | 757124-72-4 | |
| PFHxA* | 88 | 2.1 | 0.41 | ng/L | 2.05 | 307-24-4 | |
| PFBS* | 17 | 2.1 | 0.82 | ng/L | 2.05 | 375-73-5 | |
| PFHpA* | 32 | 2.1 | 1.0 | ng/L | 2.05 | 375-85-9 | |
| PFPeS* | 3.6 | 2.1 | 0.82 | ng/L | 2.05 | 2706-91-4 | |
| 6:2 FTSA* | 70 | 2.1 | 1.2 | ng/L | 2.05 | 27619-97-2 | |
| PFOA* | 45 | 2.1 | 1.6 | ng/L | 2.05 | 335-67-1 | |
| PFHxS* | 12 | 2.1 | 1.2 | ng/L | 2.05 | 355-46-4 | |
| PFHxS-LN* | 8.8 | 2.1 | 1.2 | ng/L | 2.05 | 355-46-4-LN | |
| PFHxS-BR* | 3.0 | 2.1 | 1.2 | ng/L | 2.05 | 355-46-4-BR | |
| PFNA* | 2.3 | 2.1 | 0.82 | ng/L | 2.05 | 375-95-1 | |
| 8:2 FTSA* | 2.1 | 2.1 | 1.0 | ng/L | 2.05 | 39108-34-4 | |
| PFHpS* | Not detected | 2.1 | 1.2 | ng/L | 2.05 | 375-92-8 | |
| PFDA* | 1.0 | 2.1 | 0.62 | ng/L | 2.05 | 335-76-2 | J |
| N-MeFOSAA* | Not detected | 2.1 | 1.4 | ng/L | 2.05 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.1 | 2.1 | ng/L | 2.05 | 2991-50-6 | |
| PFOS* | 15 | 2.1 | 1.2 | ng/L | 2.05 | 1763-23-1 | |
| PFOS-LN* | 7.0 | 2.1 | 1.2 | ng/L | 2.05 | 1763-23-1-LN | |
| PFOS-BR* | 8.0 | 2.1 | 1.2 | ng/L | 2.05 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.1 | 1.0 | ng/L | 2.05 | 2058-94-8 | |
| PFNS* | Not detected | 2.1 | 1.0 | ng/L | 2.05 | 68259-12-1 | |
| PFDODA* | Not detected | 2.1 | 0.62 | ng/L | 2.05 | 307-55-1 | |
| PFDS* | Not detected | 2.1 | 1.2 | ng/L | 2.05 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.1 | 1.0 | ng/L | 2.05 | 72629-94-8 | |
| FOSA* | Not detected | 2.1 | 0.82 | ng/L | 2.05 | 754-91-6 | |
| PFTeDA* | Not detected | 4.1 | 0.41 | ng/L | 2.05 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.1 | 0.82 | ng/L | 2.05 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.1 | 0.82 | ng/L | 2.05 | 756426-58-1 | |
| ADONA* | Not detected | 2.1 | 1.0 | ng/L | 2.05 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.1 | ng/L | 2.05 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.1 | 2.1 | ng/L | 2.05 | 812-70-4 | |
| FPePA (5:3 FTCA)* | 7.9 | 4.1 | 2.1 | ng/L | 2.05 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.1 | 1.0 | ng/L | 2.05 | 356-02-5 | |
| PFBSA* | 8.9 | 2.1 | 1.2 | ng/L | 2.05 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.22 (continued)

Sample Tag: MW-36-02012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 08:06, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFECHS* | 5.3 | 2.1 | 1.0 | ng/L | 2.05 | 67584-42-3 | |
| PFHxSA* | 2.4 | 2.1 | 0.82 | ng/L | 2.05 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.23

Sample Tag: MW-04-02012023

Collected Date/Time: 02/01/2023 11:15

Matrix: Groundwater

COC Reference: 2

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 10.60/6.51/8 | ASTMD7979-19M | 02/06/23 10:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 08:25, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 100 | 9.8 | 1.6 | ng/L | 1.96 | 375-22-4 | |
| PFPeA* | 390 | 3.9 | 0.78 | ng/L | 1.96 | 2706-90-3 | |
| 4:2 FTSA* | 1.8 | 2.0 | 0.78 | ng/L | 1.96 | 757124-72-4 | J |
| PFHxA* | 170 | 2.0 | 0.39 | ng/L | 1.96 | 307-24-4 | |
| PFBS* | 24 | 2.0 | 0.78 | ng/L | 1.96 | 375-73-5 | |
| PFHpA* | 11 | 2.0 | 0.98 | ng/L | 1.96 | 375-85-9 | |
| PFPeS* | 5.1 | 2.0 | 0.78 | ng/L | 1.96 | 2706-91-4 | |
| 6:2 FTSA* | 9.7 | 2.0 | 1.2 | ng/L | 1.96 | 27619-97-2 | |
| PFOA* | 12 | 2.0 | 1.6 | ng/L | 1.96 | 335-67-1 | |
| PFHxS* | 6.8 | 2.0 | 1.2 | ng/L | 1.96 | 355-46-4 | |
| PFHxS-LN* | 4.0 | 2.0 | 1.2 | ng/L | 1.96 | 355-46-4-LN | |
| PFHxS-BR* | 2.8 | 2.0 | 1.2 | ng/L | 1.96 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.59 | ng/L | 1.96 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 2991-50-6 | |
| PFOS* | 13 | 2.0 | 1.2 | ng/L | 1.96 | 1763-23-1 | |
| PFOS-LN* | 6.8 | 2.0 | 1.2 | ng/L | 1.96 | 1763-23-1-LN | |
| PFOS-BR* | 6.7 | 2.0 | 1.2 | ng/L | 1.96 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.59 | ng/L | 1.96 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 0.39 | ng/L | 1.96 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.8 | 2.0 | ng/L | 1.96 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 0.98 | ng/L | 1.96 | 356-02-5 | |
| PFBSA* | 5.1 | 2.0 | 1.2 | ng/L | 1.96 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.23 (continued)

Sample Tag: MW-04-02012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 08:25, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 7.4 | 2.0 | 0.98 | ng/L | 1.96 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.24

Sample Tag: DUP-02-02012023

Collected Date/Time: 02/01/2023 00:00

Matrix: Groundwater

COC Reference: 2

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.22/6.50/11 | ASTMD7979-19M | 02/06/23 10:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 08:45, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 220 | 9.6 | 1.5 | ng/L | 1.92 | 375-22-4 | |
| PFPeA* | 770 | 3.8 | 0.77 | ng/L | 1.92 | 2706-90-3 | |
| 4:2 FTSA* | 2.4 | 1.9 | 0.77 | ng/L | 1.92 | 757124-72-4 | |
| PFHxA* | 460 | 1.9 | 0.38 | ng/L | 1.92 | 307-24-4 | |
| PFBS* | 43 | 1.9 | 0.77 | ng/L | 1.92 | 375-73-5 | |
| PFHpA* | 68 | 1.9 | 0.96 | ng/L | 1.92 | 375-85-9 | |
| PFPeS* | 17 | 1.9 | 0.77 | ng/L | 1.92 | 2706-91-4 | |
| 6:2 FTSA* | 450 | 1.9 | 1.2 | ng/L | 1.92 | 27619-97-2 | |
| PFOA* | 35 | 1.9 | 1.5 | ng/L | 1.92 | 335-67-1 | |
| PFHxS* | 42 | 1.9 | 1.2 | ng/L | 1.92 | 355-46-4 | |
| PFHxS-LN* | 29 | 1.9 | 1.2 | ng/L | 1.92 | 355-46-4-LN | |
| PFHxS-BR* | 11 | 1.9 | 1.2 | ng/L | 1.92 | 355-46-4-BR | |
| PFNA* | 1.6 | 1.9 | 0.77 | ng/L | 1.92 | 375-95-1 | J |
| 8:2 FTSA* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 0.58 | ng/L | 1.92 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.8 | 1.9 | ng/L | 1.92 | 2991-50-6 | |
| PFOS* | 17 | 1.9 | 1.2 | ng/L | 1.92 | 1763-23-1 | |
| PFOS-LN* | 5.7 | 1.9 | 1.2 | ng/L | 1.92 | 1763-23-1-LN | |
| PFOS-BR* | 11 | 1.9 | 1.2 | ng/L | 1.92 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 0.58 | ng/L | 1.92 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 0.77 | ng/L | 1.92 | 754-91-6 | |
| PFTeDA* | Not detected | 3.8 | 0.38 | ng/L | 1.92 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.77 | ng/L | 1.92 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.77 | ng/L | 1.92 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.6 | 1.9 | ng/L | 1.92 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.8 | 1.9 | ng/L | 1.92 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.8 | 1.9 | ng/L | 1.92 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.8 | 0.96 | ng/L | 1.92 | 356-02-5 | |
| PFBSA* | 24 | 1.9 | 1.2 | ng/L | 1.92 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.24 (continued)

Sample Tag: DUP-02-02012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 08:45, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFECHS* | 3.4 | 1.9 | 0.96 | ng/L | 1.92 | 67584-42-3 | |
| PFHxSA* | 7.2 | 1.9 | 0.77 | ng/L | 1.92 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.25

Sample Tag: MW-03-02012023

Collected Date/Time: 02/01/2023 12:30

Matrix: Groundwater

COC Reference: 3

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.24/6.58/9 | ASTMD7979-19M | 02/06/23 10:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 09:04, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 13 | 9.7 | 1.5 | ng/L | 1.93 | 375-22-4 | |
| PFPeA* | 4.7 | 3.9 | 0.77 | ng/L | 1.93 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 0.77 | ng/L | 1.93 | 757124-72-4 | |
| PFHxA* | 3.1 | 1.9 | 0.39 | ng/L | 1.93 | 307-24-4 | |
| PFBS* | 1.9 | 1.9 | 0.77 | ng/L | 1.93 | 375-73-5 | J |
| PFHpA* | 1.9 | 1.9 | 0.97 | ng/L | 1.93 | 375-85-9 | J |
| PFPeS* | 1.7 | 1.9 | 0.77 | ng/L | 1.93 | 2706-91-4 | J |
| 6:2 FTSA* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 27619-97-2 | |
| PFOA* | 11 | 1.9 | 1.5 | ng/L | 1.93 | 335-67-1 | |
| PFHxS* | 8.5 | 1.9 | 1.2 | ng/L | 1.93 | 355-46-4 | |
| PFHxS-LN* | 6.7 | 1.9 | 1.2 | ng/L | 1.93 | 355-46-4-LN | |
| PFHxS-BR* | 1.6 | 1.9 | 1.2 | ng/L | 1.93 | 355-46-4-BR | J |
| PFNA* | Not detected | 1.9 | 0.77 | ng/L | 1.93 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 39108-34-4 | |
| PFHpS* | 2.1 | 1.9 | 1.2 | ng/L | 1.93 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 0.58 | ng/L | 1.93 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 1.9 | ng/L | 1.93 | 2991-50-6 | |
| PFOS* | 91 | 1.9 | 1.2 | ng/L | 1.93 | 1763-23-1 | |
| PFOS-LN* | 44 | 1.9 | 1.2 | ng/L | 1.93 | 1763-23-1-LN | |
| PFOS-BR* | 47 | 1.9 | 1.2 | ng/L | 1.93 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 0.58 | ng/L | 1.93 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 0.77 | ng/L | 1.93 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 0.39 | ng/L | 1.93 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.77 | ng/L | 1.93 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.77 | ng/L | 1.93 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.7 | 1.9 | ng/L | 1.93 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 1.9 | ng/L | 1.93 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 1.9 | ng/L | 1.93 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 0.97 | ng/L | 1.93 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.25 (continued)

Sample Tag: MW-03-02012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 09:04, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFECHS* | 14 | 1.9 | 0.97 | ng/L | 1.93 | 67584-42-3 | |
| PFHxSA* | 1.9 | 1.9 | 0.77 | ng/L | 1.93 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.26

Sample Tag: PZ-20-02012023

Collected Date/Time: 02/01/2023 13:05

Matrix: Groundwater

COC Reference: 3

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.90/6.54/10 | ASTMD7979-19M | 02/06/23 10:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 09:24, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 20 | 9.4 | 1.5 | ng/L | 1.87 | 375-22-4 | |
| PFPeA* | 43 | 3.7 | 0.75 | ng/L | 1.87 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 0.75 | ng/L | 1.87 | 757124-72-4 | |
| PFHxA* | 19 | 1.9 | 0.37 | ng/L | 1.87 | 307-24-4 | |
| PFBS* | 3.3 | 1.9 | 0.75 | ng/L | 1.87 | 375-73-5 | |
| PFHpA* | 12 | 1.9 | 0.94 | ng/L | 1.87 | 375-85-9 | |
| PFPeS* | 1.3 | 1.9 | 0.75 | ng/L | 1.87 | 2706-91-4 | J |
| 6:2 FTSA* | 5.6 | 1.9 | 1.1 | ng/L | 1.87 | 27619-97-2 | |
| PFOA* | 9.7 | 1.9 | 1.5 | ng/L | 1.87 | 335-67-1 | |
| PFHxS* | 5.6 | 1.9 | 1.1 | ng/L | 1.87 | 355-46-4 | |
| PFHxS-LN* | 4.1 | 1.9 | 1.1 | ng/L | 1.87 | 355-46-4-LN | |
| PFHxS-BR* | 1.2 | 1.9 | 1.1 | ng/L | 1.87 | 355-46-4-BR | J |
| PFNA* | 1.4 | 1.9 | 0.75 | ng/L | 1.87 | 375-95-1 | J |
| 8:2 FTSA* | Not detected | 1.9 | 0.94 | ng/L | 1.87 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.1 | ng/L | 1.87 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 0.56 | ng/L | 1.87 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.3 | ng/L | 1.87 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.7 | 1.9 | ng/L | 1.87 | 2991-50-6 | |
| PFOS* | 8.2 | 1.9 | 1.1 | ng/L | 1.87 | 1763-23-1 | |
| PFOS-LN* | 2.4 | 1.9 | 1.1 | ng/L | 1.87 | 1763-23-1-LN | |
| PFOS-BR* | 6.2 | 1.9 | 1.1 | ng/L | 1.87 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 0.94 | ng/L | 1.87 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.94 | ng/L | 1.87 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 0.56 | ng/L | 1.87 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.1 | ng/L | 1.87 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.94 | ng/L | 1.87 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 0.75 | ng/L | 1.87 | 754-91-6 | |
| PFTeDA* | Not detected | 3.7 | 0.37 | ng/L | 1.87 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.75 | ng/L | 1.87 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.75 | ng/L | 1.87 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.94 | ng/L | 1.87 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.4 | 1.9 | ng/L | 1.87 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.7 | 1.9 | ng/L | 1.87 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.7 | 1.9 | ng/L | 1.87 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.7 | 0.94 | ng/L | 1.87 | 356-02-5 | |
| PFBSA* | 1.3 | 1.9 | 1.1 | ng/L | 1.87 | 30334-69-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.26 (continued)

Sample Tag: PZ-20-02012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 09:24, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 2.9 | 1.9 | 0.94 | ng/L | 1.87 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.9 | 0.75 | ng/L | 1.87 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.27

Sample Tag: MW-39-02012023

Collected Date/Time: 02/01/2023 14:10

Matrix: Groundwater

COC Reference: 3

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.68/6.50/10 | ASTMD7979-19M | 02/06/23 10:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 09:43, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 110 | 9.7 | 1.5 | ng/L | 1.93 | 375-22-4 | |
| PFPeA* | 530 | 3.9 | 0.77 | ng/L | 1.93 | 2706-90-3 | |
| 4:2 FTSA* | 2.1 | 1.9 | 0.77 | ng/L | 1.93 | 757124-72-4 | |
| PFHxA* | 240 | 1.9 | 0.39 | ng/L | 1.93 | 307-24-4 | |
| PFBS* | 21 | 1.9 | 0.77 | ng/L | 1.93 | 375-73-5 | |
| PFHpA* | 39 | 1.9 | 0.97 | ng/L | 1.93 | 375-85-9 | |
| PFPeS* | 10 | 1.9 | 0.77 | ng/L | 1.93 | 2706-91-4 | |
| 6:2 FTSA* | 180 | 1.9 | 1.2 | ng/L | 1.93 | 27619-97-2 | |
| PFOA* | 17 | 1.9 | 1.5 | ng/L | 1.93 | 335-67-1 | |
| PFHxS* | 22 | 1.9 | 1.2 | ng/L | 1.93 | 355-46-4 | |
| PFHxS-LN* | 12 | 1.9 | 1.2 | ng/L | 1.93 | 355-46-4-LN | |
| PFHxS-BR* | 9.6 | 1.9 | 1.2 | ng/L | 1.93 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 0.77 | ng/L | 1.93 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 0.58 | ng/L | 1.93 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 1.9 | ng/L | 1.93 | 2991-50-6 | |
| PFOS* | 12 | 1.9 | 1.2 | ng/L | 1.93 | 1763-23-1 | |
| PFOS-LN* | 4.2 | 1.9 | 1.2 | ng/L | 1.93 | 1763-23-1-LN | |
| PFOS-BR* | 8.0 | 1.9 | 1.2 | ng/L | 1.93 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 0.58 | ng/L | 1.93 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 0.77 | ng/L | 1.93 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 0.39 | ng/L | 1.93 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.77 | ng/L | 1.93 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.77 | ng/L | 1.93 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.7 | 1.9 | ng/L | 1.93 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 1.9 | ng/L | 1.93 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 1.9 | ng/L | 1.93 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 0.97 | ng/L | 1.93 | 356-02-5 | |
| PFBSA* | 14 | 1.9 | 1.2 | ng/L | 1.93 | 30334-69-1 | |
| PFECHS* | 5.1 | 1.9 | 0.97 | ng/L | 1.93 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S44975.27 (continued)

Sample Tag: MW-39-02012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 09:43, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 1.9 | 0.77 | ng/L | 1.93 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.28

Sample Tag: MW-39-02012023 MS

Collected Date/Time: 02/01/2023 14:10

Matrix: Groundwater

COC Reference: 3

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.67/6.49/10 | ASTMD7979-19M | 02/06/23 10:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 10:03, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------|-----|------|-------|----------|--------------|-------|
| PFBA* | 210 | 9.7 | 1.5 | ng/L | 1.93 | 375-22-4 | 1 |
| PFPeA* | 620 | 3.9 | 0.77 | ng/L | 1.93 | 2706-90-3 | 1 |
| 4:2 FTSA* | 93 | 1.9 | 0.77 | ng/L | 1.93 | 757124-72-4 | 1 |
| PFHxA* | 330 | 1.9 | 0.39 | ng/L | 1.93 | 307-24-4 | 1 |
| PFBS* | 130 | 1.9 | 0.77 | ng/L | 1.93 | 375-73-5 | 1 |
| PFHpA* | 130 | 1.9 | 0.97 | ng/L | 1.93 | 375-85-9 | 1 |
| PFPeS* | 120 | 1.9 | 0.77 | ng/L | 1.93 | 2706-91-4 | 1 |
| 6:2 FTSA* | 250 | 1.9 | 1.2 | ng/L | 1.93 | 27619-97-2 | 1 |
| PFOA* | 99 | 1.9 | 1.5 | ng/L | 1.93 | 335-67-1 | 1 |
| PFHxS* | 120 | 1.9 | 1.2 | ng/L | 1.93 | 355-46-4 | 1 |
| PFHxS-LN* | 93 | 1.9 | 1.2 | ng/L | 1.93 | 355-46-4-LN | 1 |
| PFHxS-BR* | 24 | 1.9 | 1.2 | ng/L | 1.93 | 355-46-4-BR | 1 |
| PFNA* | 93 | 1.9 | 0.77 | ng/L | 1.93 | 375-95-1 | 1 |
| 8:2 FTSA* | 76 | 1.9 | 0.97 | ng/L | 1.93 | 39108-34-4 | 1 |
| PFHpS* | 100 | 1.9 | 1.2 | ng/L | 1.93 | 375-92-8 | 1 |
| PFDA* | 97 | 1.9 | 0.58 | ng/L | 1.93 | 335-76-2 | 1 |
| N-MeFOSAA* | 89 | 1.9 | 1.4 | ng/L | 1.93 | 2355-31-9 | 1 |
| EtFOSAA* | 96 | 3.9 | 1.9 | ng/L | 1.93 | 2991-50-6 | 1 |
| PFOS* | 110 | 1.9 | 1.2 | ng/L | 1.93 | 1763-23-1 | 1 |
| PFOS-LN* | 74 | 1.9 | 1.2 | ng/L | 1.93 | 1763-23-1-LN | 1 |
| PFOS-BR* | 37 | 1.9 | 1.2 | ng/L | 1.93 | 1763-23-1-BR | 1 |
| PFUnDA* | 99 | 1.9 | 0.97 | ng/L | 1.93 | 2058-94-8 | 1 |
| PFNS* | 88 | 1.9 | 0.97 | ng/L | 1.93 | 68259-12-1 | 1 |
| PFDODA* | 98 | 1.9 | 0.58 | ng/L | 1.93 | 307-55-1 | 1 |
| PFDS* | 96 | 1.9 | 1.2 | ng/L | 1.93 | 335-77-3 | 1 |
| PFTDA* | 97 | 1.9 | 0.97 | ng/L | 1.93 | 72629-94-8 | 1 |
| FOSA* | 89 | 1.9 | 0.77 | ng/L | 1.93 | 754-91-6 | 1 |
| PFTeDA* | 97 | 3.9 | 0.39 | ng/L | 1.93 | 376-06-7 | 1 |
| 11Cl-PF3OUdS* | 91 | 1.9 | 0.77 | ng/L | 1.93 | 763051-92-9 | 1 |
| 9Cl-PF3ONS* | 88 | 1.9 | 0.77 | ng/L | 1.93 | 756426-58-1 | 1 |
| ADONA* | 93 | 1.9 | 0.97 | ng/L | 1.93 | 919005-14-4 | 1 |
| HFPO-DA* | 110 | 9.7 | 1.9 | ng/L | 1.93 | 13252-13-6 | 1 |
| FHpPA (7:3 FTCA)* | 97 | 3.9 | 1.9 | ng/L | 1.93 | 812-70-4 | 1 |
| FPePA (5:3 FTCA)* | 98 | 3.9 | 1.9 | ng/L | 1.93 | 914637-49-3 | 1 |
| FPrPA (3:3 FTCA)* | 99 | 3.9 | 0.97 | ng/L | 1.93 | 356-02-5 | 1 |
| PFBSA* | 120 | 1.9 | 1.2 | ng/L | 1.93 | 30334-69-1 | 1 |

1-spiked @ 96.5ng/L



Analytical Laboratory Report

Lab Sample ID: S44975.28 (continued)

Sample Tag: MW-39-02012023 MS

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 10:03, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFECHS* | 110 | 1.9 | 0.97 | ng/L | 1.93 | 67584-42-3 | 1 |
| PFHxSA* | 92 | 1.9 | 0.77 | ng/L | 1.93 | 41997-13-1 | 1 |

1-spiked @ 96.5ng/L



Analytical Laboratory Report

Lab Sample ID: S44975.29

Sample Tag: MW-39-02012023 MSD

Collected Date/Time: 02/01/2023 14:10

Matrix: Groundwater

COC Reference: 3

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.10/6.53/11 | ASTMD7979-19M | 02/06/23 10:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 10:22, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------|-----|------|-------|----------|--------------|-------|
| PFBA* | 210 | 9.9 | 1.6 | ng/L | 1.97 | 375-22-4 | 1 |
| PFPeA* | 620 | 3.9 | 0.79 | ng/L | 1.97 | 2706-90-3 | 1 |
| 4:2 FTSA* | 96 | 2.0 | 0.79 | ng/L | 1.97 | 757124-72-4 | 1 |
| PFHxA* | 310 | 2.0 | 0.39 | ng/L | 1.97 | 307-24-4 | 1 |
| PFBS* | 130 | 2.0 | 0.79 | ng/L | 1.97 | 375-73-5 | 1 |
| PFHpA* | 140 | 2.0 | 0.99 | ng/L | 1.97 | 375-85-9 | 1 |
| PFPeS* | 110 | 2.0 | 0.79 | ng/L | 1.97 | 2706-91-4 | 1 |
| 6:2 FTSA* | 310 | 2.0 | 1.2 | ng/L | 1.97 | 27619-97-2 | 1 |
| PFOA* | 120 | 2.0 | 1.6 | ng/L | 1.97 | 335-67-1 | 1 |
| PFHxS* | 110 | 2.0 | 1.2 | ng/L | 1.97 | 355-46-4 | 1 |
| PFHxS-LN* | 93 | 2.0 | 1.2 | ng/L | 1.97 | 355-46-4-LN | 1 |
| PFHxS-BR* | 22 | 2.0 | 1.2 | ng/L | 1.97 | 355-46-4-BR | 1 |
| PFNA* | 100 | 2.0 | 0.79 | ng/L | 1.97 | 375-95-1 | 1 |
| 8:2 FTSA* | 93 | 2.0 | 0.99 | ng/L | 1.97 | 39108-34-4 | 1 |
| PFHpS* | 95 | 2.0 | 1.2 | ng/L | 1.97 | 375-92-8 | 1 |
| PFDA* | 95 | 2.0 | 0.59 | ng/L | 1.97 | 335-76-2 | 1 |
| N-MeFOSAA* | 97 | 2.0 | 1.4 | ng/L | 1.97 | 2355-31-9 | 1 |
| EtFOSAA* | 100 | 3.9 | 2.0 | ng/L | 1.97 | 2991-50-6 | 1 |
| PFOS* | 110 | 2.0 | 1.2 | ng/L | 1.97 | 1763-23-1 | 1 |
| PFOS-LN* | 76 | 2.0 | 1.2 | ng/L | 1.97 | 1763-23-1-LN | 1 |
| PFOS-BR* | 35 | 2.0 | 1.2 | ng/L | 1.97 | 1763-23-1-BR | 1 |
| PFUnDA* | 100 | 2.0 | 0.99 | ng/L | 1.97 | 2058-94-8 | 1 |
| PFNS* | 96 | 2.0 | 0.99 | ng/L | 1.97 | 68259-12-1 | 1 |
| PFDODA* | 110 | 2.0 | 0.59 | ng/L | 1.97 | 307-55-1 | 1 |
| PFDS* | 100 | 2.0 | 1.2 | ng/L | 1.97 | 335-77-3 | 1 |
| PFTDA* | 110 | 2.0 | 0.99 | ng/L | 1.97 | 72629-94-8 | 1 |
| FOSA* | 85 | 2.0 | 0.79 | ng/L | 1.97 | 754-91-6 | 1 |
| PFTeDA* | 100 | 3.9 | 0.39 | ng/L | 1.97 | 376-06-7 | 1 |
| 11Cl-PF3OUdS* | 98 | 2.0 | 0.79 | ng/L | 1.97 | 763051-92-9 | 1 |
| 9Cl-PF3ONS* | 98 | 2.0 | 0.79 | ng/L | 1.97 | 756426-58-1 | 1 |
| ADONA* | 95 | 2.0 | 0.99 | ng/L | 1.97 | 919005-14-4 | 1 |
| HFPO-DA* | 120 | 9.9 | 2.0 | ng/L | 1.97 | 13252-13-6 | 1 |
| FHpPA (7:3 FTCA)* | 110 | 3.9 | 2.0 | ng/L | 1.97 | 812-70-4 | 1 |
| FPePA (5:3 FTCA)* | 89 | 3.9 | 2.0 | ng/L | 1.97 | 914637-49-3 | 1 |
| FPrPA (3:3 FTCA)* | 97 | 3.9 | 0.99 | ng/L | 1.97 | 356-02-5 | 1 |
| PFBSA* | 120 | 2.0 | 1.2 | ng/L | 1.97 | 30334-69-1 | 1 |

1-spiked @ 98.5ng/L



Analytical Laboratory Report

Lab Sample ID: S44975.29 (continued)

Sample Tag: MW-39-02012023 MSD

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 10:22, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFECHS* | 110 | 2.0 | 0.99 | ng/L | 1.97 | 67584-42-3 | 1 |
| PFHxSA* | 98 | 2.0 | 0.79 | ng/L | 1.97 | 41997-13-1 | 1 |

1-spiked @ 98.5ng/L



Analytical Laboratory Report

Lab Sample ID: S44975.30

Sample Tag: MW-02-02012023

Collected Date/Time: 02/01/2023 14:10

Matrix: Groundwater

COC Reference: 3

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.19/6.51/9 | ASTMD7979-19M | 02/06/23 10:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 10:42, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 58 | 1.5 | ng/L | 1.92 | 375-22-4 | X |
| PFPeA* | Not detected | 29 | 0.77 | ng/L | 1.92 | 2706-90-3 | X |
| 4:2 FTSA* | Not detected | 1.9 | 0.77 | ng/L | 1.92 | 757124-72-4 | I |
| PFHxA* | 13 | 1.9 | 0.38 | ng/L | 1.92 | 307-24-4 | |
| PFBS* | Not detected | 1.9 | 0.77 | ng/L | 1.92 | 375-73-5 | |
| PFHpA* | 2.0 | 1.9 | 0.96 | ng/L | 1.92 | 375-85-9 | |
| PFPeS* | 1.7 | 1.9 | 0.77 | ng/L | 1.92 | 2706-91-4 | J |
| 6:2 FTSA* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 27619-97-2 | |
| PFOA* | 13 | 1.9 | 1.5 | ng/L | 1.92 | 335-67-1 | |
| PFHxS* | 5.5 | 1.9 | 1.2 | ng/L | 1.92 | 355-46-4 | |
| PFHxS-LN* | 3.3 | 1.9 | 1.2 | ng/L | 1.92 | 355-46-4-LN | |
| PFHxS-BR* | 2.2 | 1.9 | 1.2 | ng/L | 1.92 | 355-46-4-BR | |
| PFNA* | 0.94 | 1.9 | 0.77 | ng/L | 1.92 | 375-95-1 | J |
| 8:2 FTSA* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 0.58 | ng/L | 1.92 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.3 | ng/L | 1.92 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.8 | 1.9 | ng/L | 1.92 | 2991-50-6 | |
| PFOS* | 54 | 1.9 | 1.2 | ng/L | 1.92 | 1763-23-1 | |
| PFOS-LN* | 31 | 1.9 | 1.2 | ng/L | 1.92 | 1763-23-1-LN | |
| PFOS-BR* | 22 | 1.9 | 1.2 | ng/L | 1.92 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 0.58 | ng/L | 1.92 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 0.77 | ng/L | 1.92 | 754-91-6 | |
| PFTeDA* | Not detected | 3.8 | 0.38 | ng/L | 1.92 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.77 | ng/L | 1.92 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.77 | ng/L | 1.92 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.96 | ng/L | 1.92 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.6 | 1.9 | ng/L | 1.92 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.8 | 1.9 | ng/L | 1.92 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.8 | 1.9 | ng/L | 1.92 | 914637-49-3 | |

X-Elevated reporting limit due to matrix interference

I-Matrix interference with internal standard

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.30 (continued)

Sample Tag: MW-02-02012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 10:42, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|------------|-------|
| FPtPA (3:3 FTCA)* | Not detected | 3.8 | 0.96 | ng/L | 1.92 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.2 | ng/L | 1.92 | 30334-69-1 | |
| PFECHS* | 18 | 1.9 | 0.96 | ng/L | 1.92 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.9 | 0.77 | ng/L | 1.92 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.31

Sample Tag: PZ-11-02012023

Collected Date/Time: 02/01/2023 15:02

Matrix: Groundwater

COC Reference: 3

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.58/6.51/10 | ASTMD7979-19M | 02/06/23 10:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 11:01, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 6.9 | 9.9 | 1.6 | ng/L | 1.97 | 375-22-4 | J |
| PFPeA* | Not detected | 3.9 | 0.79 | ng/L | 1.97 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 0.79 | ng/L | 1.97 | 757124-72-4 | |
| PFHxA* | Not detected | 2.0 | 0.39 | ng/L | 1.97 | 307-24-4 | |
| PFBS* | 2.3 | 2.0 | 0.79 | ng/L | 1.97 | 375-73-5 | |
| PFHpA* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 0.79 | ng/L | 1.97 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 27619-97-2 | |
| PFOA* | 2.1 | 2.0 | 1.6 | ng/L | 1.97 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 0.79 | ng/L | 1.97 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.59 | ng/L | 1.97 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.97 | 2991-50-6 | |
| PFOS* | 9.5 | 2.0 | 1.2 | ng/L | 1.97 | 1763-23-1 | |
| PFOS-LN* | 5.0 | 2.0 | 1.2 | ng/L | 1.97 | 1763-23-1-LN | |
| PFOS-BR* | 4.8 | 2.0 | 1.2 | ng/L | 1.97 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.59 | ng/L | 1.97 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.79 | ng/L | 1.97 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 0.39 | ng/L | 1.97 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.79 | ng/L | 1.97 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.79 | ng/L | 1.97 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.9 | 2.0 | ng/L | 1.97 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.0 | ng/L | 1.97 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.0 | ng/L | 1.97 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 0.99 | ng/L | 1.97 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.31 (continued)

Sample Tag: PZ-11-02012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 11:01, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 3.1 | 2.0 | 0.99 | ng/L | 1.97 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.79 | ng/L | 1.97 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.32

Sample Tag: MW-40-02012023

Collected Date/Time: 02/01/2023 15:15

Matrix: Groundwater

COC Reference: 3

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.08/6.52/11 | ASTMD7979-19M | 02/06/23 10:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 11:21, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 99 | 1.6 | ng/L | 1.98 | 375-22-4 | X |
| PFPeA* | 120 | 4.0 | 0.79 | ng/L | 1.98 | 2706-90-3 | |
| 4:2 FTSA* | 9.2 | 2.0 | 0.79 | ng/L | 1.98 | 757124-72-4 | I |
| PFHxA* | 120 | 2.0 | 0.40 | ng/L | 1.98 | 307-24-4 | |
| PFBS* | 15 | 2.0 | 0.79 | ng/L | 1.98 | 375-73-5 | |
| PFHpA* | 15 | 2.0 | 0.99 | ng/L | 1.98 | 375-85-9 | |
| PFPeS* | 6.2 | 2.0 | 0.79 | ng/L | 1.98 | 2706-91-4 | |
| 6:2 FTSA* | 420 | 2.0 | 1.2 | ng/L | 1.98 | 27619-97-2 | |
| PFOA* | 21 | 2.0 | 1.6 | ng/L | 1.98 | 335-67-1 | |
| PFHxS* | 21 | 2.0 | 1.2 | ng/L | 1.98 | 355-46-4 | |
| PFHxS-LN* | 15 | 2.0 | 1.2 | ng/L | 1.98 | 355-46-4-LN | |
| PFHxS-BR* | 5.2 | 2.0 | 1.2 | ng/L | 1.98 | 355-46-4-BR | |
| PFNA* | 1.3 | 2.0 | 0.79 | ng/L | 1.98 | 375-95-1 | J |
| 8:2 FTSA* | 25 | 2.0 | 0.99 | ng/L | 1.98 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 1.98 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.59 | ng/L | 1.98 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 1.98 | 2991-50-6 | |
| PFOS* | 25 | 2.0 | 1.2 | ng/L | 1.98 | 1763-23-1 | |
| PFOS-LN* | 13 | 2.0 | 1.2 | ng/L | 1.98 | 1763-23-1-LN | |
| PFOS-BR* | 13 | 2.0 | 1.2 | ng/L | 1.98 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 0.99 | ng/L | 1.98 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 0.99 | ng/L | 1.98 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.59 | ng/L | 1.98 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 1.98 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 0.99 | ng/L | 1.98 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.79 | ng/L | 1.98 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 0.40 | ng/L | 1.98 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.79 | ng/L | 1.98 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.79 | ng/L | 1.98 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 0.99 | ng/L | 1.98 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.9 | 2.0 | ng/L | 1.98 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 2.0 | ng/L | 1.98 | 812-70-4 | |
| FPePA (5:3 FTCA)* | 15 | 4.0 | 2.0 | ng/L | 1.98 | 914637-49-3 | |

X-Elevated reporting limit due to matrix interference

I-Matrix interference with internal standard

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.32 (continued)

Sample Tag: MW-40-02012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 11:21, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|------------|-------|
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 0.99 | ng/L | 1.98 | 356-02-5 | |
| PFBSA* | 11 | 2.0 | 1.2 | ng/L | 1.98 | 30334-69-1 | |
| PFECHS* | 1.5 | 2.0 | 0.99 | ng/L | 1.98 | 67584-42-3 | J |
| PFHxSA* | 14 | 2.0 | 0.79 | ng/L | 1.98 | 41997-13-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.33

Sample Tag: MW-06-02012023

Collected Date/Time: 02/01/2023 16:55

Matrix: Groundwater

COC Reference: 3

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 10.94/6.58/9 | ASTMD7979-19M | 02/06/23 10:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 11:40, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 24 | 10 | 1.6 | ng/L | 2.06 | 375-22-4 | |
| PFPeA* | 14 | 4.1 | 0.82 | ng/L | 2.06 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.1 | 0.82 | ng/L | 2.06 | 757124-72-4 | |
| PFHxA* | 6.4 | 2.1 | 0.41 | ng/L | 2.06 | 307-24-4 | |
| PFBS* | 1.9 | 2.1 | 0.82 | ng/L | 2.06 | 375-73-5 | J |
| PFHpA* | 1.5 | 2.1 | 1.0 | ng/L | 2.06 | 375-85-9 | J |
| PFPeS* | 0.87 | 2.1 | 0.82 | ng/L | 2.06 | 2706-91-4 | J |
| 6:2 FTSA* | Not detected | 2.1 | 1.2 | ng/L | 2.06 | 27619-97-2 | |
| PFOA* | 6.5 | 2.1 | 1.6 | ng/L | 2.06 | 335-67-1 | |
| PFHxS* | 1.6 | 2.1 | 1.2 | ng/L | 2.06 | 355-46-4 | J |
| PFHxS-LN* | Not detected | 2.1 | 1.2 | ng/L | 2.06 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.1 | 1.2 | ng/L | 2.06 | 355-46-4-BR | |
| PFNA* | Not detected | 2.1 | 0.82 | ng/L | 2.06 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.1 | 1.0 | ng/L | 2.06 | 39108-34-4 | |
| PFHpS* | Not detected | 2.1 | 1.2 | ng/L | 2.06 | 375-92-8 | |
| PFDA* | Not detected | 2.1 | 0.62 | ng/L | 2.06 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.1 | 1.4 | ng/L | 2.06 | 2355-31-9 | |
| EtFOSAA* | 4.0 | 4.1 | 2.1 | ng/L | 2.06 | 2991-50-6 | J |
| PFOS* | 17 | 2.1 | 1.2 | ng/L | 2.06 | 1763-23-1 | |
| PFOS-LN* | 9.3 | 2.1 | 1.2 | ng/L | 2.06 | 1763-23-1-LN | |
| PFOS-BR* | 8.2 | 2.1 | 1.2 | ng/L | 2.06 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.1 | 1.0 | ng/L | 2.06 | 2058-94-8 | |
| PFNS* | Not detected | 2.1 | 1.0 | ng/L | 2.06 | 68259-12-1 | |
| PFDODA* | Not detected | 2.1 | 0.62 | ng/L | 2.06 | 307-55-1 | |
| PFDS* | Not detected | 2.1 | 1.2 | ng/L | 2.06 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.1 | 1.0 | ng/L | 2.06 | 72629-94-8 | |
| FOSA* | Not detected | 2.1 | 0.82 | ng/L | 2.06 | 754-91-6 | |
| PFTeDA* | Not detected | 4.1 | 0.41 | ng/L | 2.06 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.1 | 0.82 | ng/L | 2.06 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.1 | 0.82 | ng/L | 2.06 | 756426-58-1 | |
| ADONA* | Not detected | 2.1 | 1.0 | ng/L | 2.06 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.1 | ng/L | 2.06 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.1 | 2.1 | ng/L | 2.06 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.1 | 2.1 | ng/L | 2.06 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.1 | 1.0 | ng/L | 2.06 | 356-02-5 | |
| PFBSA* | Not detected | 2.1 | 1.2 | ng/L | 2.06 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.33 (continued)

Sample Tag: MW-06-02012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 11:40, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 6.4 | 2.1 | 1.0 | ng/L | 2.06 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.1 | 0.82 | ng/L | 2.06 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.34

Sample Tag: MW-10-02012023

Collected Date/Time: 02/01/2023 17:44

Matrix: Groundwater

COC Reference: 3

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.18/6.58/9 | ASTMD7979-19M | 02/06/23 10:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 12:00, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 13 | 9.8 | 1.6 | ng/L | 1.96 | 375-22-4 | |
| PFPeA* | 6.7 | 3.9 | 0.78 | ng/L | 1.96 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 757124-72-4 | |
| PFHxA* | 4.9 | 2.0 | 0.39 | ng/L | 1.96 | 307-24-4 | |
| PFBS* | 1.2 | 2.0 | 0.78 | ng/L | 1.96 | 375-73-5 | J |
| PFHpA* | 3.4 | 2.0 | 0.98 | ng/L | 1.96 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 27619-97-2 | |
| PFOA* | 6.0 | 2.0 | 1.6 | ng/L | 1.96 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 355-46-4-BR | |
| PFNA* | 1.4 | 2.0 | 0.78 | ng/L | 1.96 | 375-95-1 | J |
| 8:2 FTSA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.59 | ng/L | 1.96 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 2355-31-9 | |
| EtFOSAA* | 5.3 | 3.9 | 2.0 | ng/L | 1.96 | 2991-50-6 | |
| PFOS* | 30 | 2.0 | 1.2 | ng/L | 1.96 | 1763-23-1 | |
| PFOS-LN* | 18 | 2.0 | 1.2 | ng/L | 1.96 | 1763-23-1-LN | |
| PFOS-BR* | 11 | 2.0 | 1.2 | ng/L | 1.96 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.59 | ng/L | 1.96 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 0.39 | ng/L | 1.96 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.8 | 2.0 | ng/L | 1.96 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 0.98 | ng/L | 1.96 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.34 (continued)

Sample Tag: MW-10-02012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 12:00, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 1.2 | 2.0 | 0.98 | ng/L | 1.96 | 67584-42-3 | J |
| PFHxSA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 41997-13-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.35

Sample Tag: MW-35-02012023

Collected Date/Time: 02/01/2023 17:50

Matrix: Groundwater

COC Reference: 3

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.20/6.52/11 | ASTMD7979-19M | 02/06/23 10:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 12:19, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 10 | 9.7 | 1.6 | ng/L | 1.94 | 375-22-4 | |
| PFPeA* | 8.2 | 3.9 | 0.78 | ng/L | 1.94 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 757124-72-4 | |
| PFHxA* | 10 | 1.9 | 0.39 | ng/L | 1.94 | 307-24-4 | |
| PFBS* | 11 | 1.9 | 0.78 | ng/L | 1.94 | 375-73-5 | |
| PFHpA* | 6.2 | 1.9 | 0.97 | ng/L | 1.94 | 375-85-9 | |
| PFPeS* | 2.3 | 1.9 | 0.78 | ng/L | 1.94 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 27619-97-2 | |
| PFOA* | 71 | 1.9 | 1.6 | ng/L | 1.94 | 335-67-1 | |
| PFHxS* | 11 | 1.9 | 1.2 | ng/L | 1.94 | 355-46-4 | |
| PFHxS-LN* | 8.1 | 1.9 | 1.2 | ng/L | 1.94 | 355-46-4-LN | |
| PFHxS-BR* | 2.0 | 1.9 | 1.2 | ng/L | 1.94 | 355-46-4-BR | |
| PFNA* | 1.8 | 1.9 | 0.78 | ng/L | 1.94 | 375-95-1 | J |
| 8:2 FTSA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 39108-34-4 | |
| PFHpS* | 1.3 | 1.9 | 1.2 | ng/L | 1.94 | 375-92-8 | J |
| PFDA* | 0.81 | 1.9 | 0.58 | ng/L | 1.94 | 335-76-2 | J |
| N-MeFOSAA* | 3.4 | 1.9 | 1.4 | ng/L | 1.94 | 2355-31-9 | |
| EtFOSAA* | 21 | 3.9 | 1.9 | ng/L | 1.94 | 2991-50-6 | |
| PFOS* | 80 | 1.9 | 1.2 | ng/L | 1.94 | 1763-23-1 | |
| PFOS-LN* | 49 | 1.9 | 1.2 | ng/L | 1.94 | 1763-23-1-LN | |
| PFOS-BR* | 32 | 1.9 | 1.2 | ng/L | 1.94 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 68259-12-1 | |
| PFDoDA* | Not detected | 1.9 | 0.58 | ng/L | 1.94 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 72629-94-8 | |
| FOSA* | 0.85 | 1.9 | 0.78 | ng/L | 1.94 | 754-91-6 | J |
| PFTeDA* | Not detected | 3.9 | 0.39 | ng/L | 1.94 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.7 | 1.9 | ng/L | 1.94 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 1.9 | ng/L | 1.94 | 812-70-4 | |
| FPePA (5:3 FTCA)* | 3.8 | 3.9 | 1.9 | ng/L | 1.94 | 914637-49-3 | J |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 0.97 | ng/L | 1.94 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.35 (continued)

Sample Tag: MW-35-02012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 12:19, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 19 | 1.9 | 0.97 | ng/L | 1.94 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.36

Sample Tag: DUP-03-02012023

Collected Date/Time: 02/01/2023 00:00

Matrix: Groundwater

COC Reference: 3

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.10/6.50/11 | ASTMD7979-19M | 02/06/23 10:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 12:39, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 12 | 9.8 | 1.6 | ng/L | 1.96 | 375-22-4 | |
| PFPeA* | 7.7 | 3.9 | 0.78 | ng/L | 1.96 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 757124-72-4 | |
| PFHxA* | 9.8 | 2.0 | 0.39 | ng/L | 1.96 | 307-24-4 | |
| PFBS* | 11 | 2.0 | 0.78 | ng/L | 1.96 | 375-73-5 | |
| PFHpA* | 6.7 | 2.0 | 0.98 | ng/L | 1.96 | 375-85-9 | |
| PFPeS* | 2.1 | 2.0 | 0.78 | ng/L | 1.96 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 27619-97-2 | |
| PFOA* | 63 | 2.0 | 1.6 | ng/L | 1.96 | 335-67-1 | |
| PFHxS* | 11 | 2.0 | 1.2 | ng/L | 1.96 | 355-46-4 | |
| PFHxS-LN* | 7.6 | 2.0 | 1.2 | ng/L | 1.96 | 355-46-4-LN | |
| PFHxS-BR* | 2.1 | 2.0 | 1.2 | ng/L | 1.96 | 355-46-4-BR | |
| PFNA* | 1.7 | 2.0 | 0.78 | ng/L | 1.96 | 375-95-1 | J |
| 8:2 FTSA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.59 | ng/L | 1.96 | 335-76-2 | |
| N-MeFOSAA* | 3.4 | 2.0 | 1.4 | ng/L | 1.96 | 2355-31-9 | |
| EtFOSAA* | 19 | 3.9 | 2.0 | ng/L | 1.96 | 2991-50-6 | |
| PFOS* | 74 | 2.0 | 1.2 | ng/L | 1.96 | 1763-23-1 | |
| PFOS-LN* | 43 | 2.0 | 1.2 | ng/L | 1.96 | 1763-23-1-LN | |
| PFOS-BR* | 30 | 2.0 | 1.2 | ng/L | 1.96 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 68259-12-1 | |
| PFDoDA* | Not detected | 2.0 | 0.59 | ng/L | 1.96 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 0.39 | ng/L | 1.96 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.8 | 2.0 | ng/L | 1.96 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | 3.2 | 3.9 | 2.0 | ng/L | 1.96 | 812-70-4 | J |
| FPePA (5:3 FTCA)* | 3.7 | 3.9 | 2.0 | ng/L | 1.96 | 914637-49-3 | J |
| FPrPA (3:3 FTCA)* | 3.0 | 3.9 | 0.98 | ng/L | 1.96 | 356-02-5 | J |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.36 (continued)

Sample Tag: DUP-03-02012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 12:39, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 17 | 2.0 | 0.98 | ng/L | 1.96 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.37

Sample Tag: MW-01R-02022023

Collected Date/Time: 02/02/2023 10:05

Matrix: Groundwater

COC Reference: 3

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 10.51/6.46/8 | ASTMD7979-19M | 02/06/23 10:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 12:58, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 20 | 1.6 | ng/L | 1.98 | 375-22-4 | X |
| PFPeA* | 6.3 | 4.0 | 0.79 | ng/L | 1.98 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 0.79 | ng/L | 1.98 | 757124-72-4 | |
| PFHxA* | 3.7 | 2.0 | 0.40 | ng/L | 1.98 | 307-24-4 | |
| PFBS* | 1.7 | 2.0 | 0.79 | ng/L | 1.98 | 375-73-5 | J |
| PFHpA* | 1.1 | 2.0 | 0.99 | ng/L | 1.98 | 375-85-9 | J |
| PFPeS* | Not detected | 2.0 | 0.79 | ng/L | 1.98 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 1.98 | 27619-97-2 | |
| PFOA* | 2.6 | 2.0 | 1.6 | ng/L | 1.98 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.2 | ng/L | 1.98 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.2 | ng/L | 1.98 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.2 | ng/L | 1.98 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 0.79 | ng/L | 1.98 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.99 | ng/L | 1.98 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 1.98 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.59 | ng/L | 1.98 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 1.98 | 2991-50-6 | |
| PFOS* | 9.6 | 2.0 | 1.2 | ng/L | 1.98 | 1763-23-1 | |
| PFOS-LN* | 4.9 | 2.0 | 1.2 | ng/L | 1.98 | 1763-23-1-LN | |
| PFOS-BR* | 5.0 | 2.0 | 1.2 | ng/L | 1.98 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 0.99 | ng/L | 1.98 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 0.99 | ng/L | 1.98 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.59 | ng/L | 1.98 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 1.98 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 0.99 | ng/L | 1.98 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.79 | ng/L | 1.98 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 0.40 | ng/L | 1.98 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.79 | ng/L | 1.98 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.79 | ng/L | 1.98 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 0.99 | ng/L | 1.98 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.9 | 2.0 | ng/L | 1.98 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 2.0 | ng/L | 1.98 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.0 | ng/L | 1.98 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 0.99 | ng/L | 1.98 | 356-02-5 | |

X-Elevated reporting limit due to matrix interference

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.37 (continued)

Sample Tag: MW-01R-02022023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 12:58, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.98 | 30334-69-1 | |
| PFECHS* | 4.1 | 2.0 | 0.99 | ng/L | 1.98 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.79 | ng/L | 1.98 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.38

Sample Tag: PZ-16-02022023

Collected Date/Time: 02/02/2023 11:25

Matrix: Groundwater

COC Reference: 3

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.13/6.47/11 | ASTMD7979-19M | 02/06/23 10:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 13:18, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 12 | 9.7 | 1.6 | ng/L | 1.94 | 375-22-4 | |
| PFPeA* | 4.8 | 3.9 | 0.78 | ng/L | 1.94 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 757124-72-4 | |
| PFHxA* | 3.6 | 1.9 | 0.39 | ng/L | 1.94 | 307-24-4 | |
| PFBS* | 4.7 | 1.9 | 0.78 | ng/L | 1.94 | 375-73-5 | |
| PFHpA* | 3.8 | 1.9 | 0.97 | ng/L | 1.94 | 375-85-9 | |
| PFPeS* | 0.95 | 1.9 | 0.78 | ng/L | 1.94 | 2706-91-4 | J |
| 6:2 FTSA* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 27619-97-2 | |
| PFOA* | 3.3 | 1.9 | 1.6 | ng/L | 1.94 | 335-67-1 | |
| PFHxS* | 1.5 | 1.9 | 1.2 | ng/L | 1.94 | 355-46-4 | J |
| PFHxS-LN* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 0.58 | ng/L | 1.94 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.4 | ng/L | 1.94 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 1.9 | ng/L | 1.94 | 2991-50-6 | |
| PFOS* | 2.9 | 1.9 | 1.2 | ng/L | 1.94 | 1763-23-1 | |
| PFOS-LN* | 1.2 | 1.9 | 1.2 | ng/L | 1.94 | 1763-23-1-LN | J |
| PFOS-BR* | 2.0 | 1.9 | 1.2 | ng/L | 1.94 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 0.58 | ng/L | 1.94 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 0.39 | ng/L | 1.94 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.7 | 1.9 | ng/L | 1.94 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 1.9 | ng/L | 1.94 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 1.9 | ng/L | 1.94 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 0.97 | ng/L | 1.94 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.38 (continued)

Sample Tag: PZ-16-02022023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 13:18, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 1.7 | 1.9 | 0.97 | ng/L | 1.94 | 67584-42-3 | J |
| PFHxSA* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 41997-13-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.39

Sample Tag: MW-09-02022023

Collected Date/Time: 02/02/2023 11:35

Matrix: Groundwater

COC Reference: 4

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.29/6.54/9 | ASTMD7979-19M | 02/06/23 10:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 13:37, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 6.5 | 9.5 | 1.5 | ng/L | 1.89 | 375-22-4 | J |
| PFPeA* | Not detected | 3.8 | 0.76 | ng/L | 1.89 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 0.76 | ng/L | 1.89 | 757124-72-4 | |
| PFHxA* | Not detected | 1.9 | 0.38 | ng/L | 1.89 | 307-24-4 | |
| PFBS* | 1.5 | 1.9 | 0.76 | ng/L | 1.89 | 375-73-5 | J |
| PFHpA* | Not detected | 1.9 | 0.95 | ng/L | 1.89 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 0.76 | ng/L | 1.89 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.1 | ng/L | 1.89 | 27619-97-2 | |
| PFOA* | 2.5 | 1.9 | 1.5 | ng/L | 1.89 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.1 | ng/L | 1.89 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.1 | ng/L | 1.89 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.1 | ng/L | 1.89 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 0.76 | ng/L | 1.89 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.95 | ng/L | 1.89 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.1 | ng/L | 1.89 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 0.57 | ng/L | 1.89 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.3 | ng/L | 1.89 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.8 | 1.9 | ng/L | 1.89 | 2991-50-6 | |
| PFOS* | 30 | 1.9 | 1.1 | ng/L | 1.89 | 1763-23-1 | |
| PFOS-LN* | 19 | 1.9 | 1.1 | ng/L | 1.89 | 1763-23-1-LN | |
| PFOS-BR* | 11 | 1.9 | 1.1 | ng/L | 1.89 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 0.95 | ng/L | 1.89 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.95 | ng/L | 1.89 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 0.57 | ng/L | 1.89 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.1 | ng/L | 1.89 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.95 | ng/L | 1.89 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 0.76 | ng/L | 1.89 | 754-91-6 | |
| PFTeDA* | Not detected | 3.8 | 0.38 | ng/L | 1.89 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.76 | ng/L | 1.89 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.76 | ng/L | 1.89 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.95 | ng/L | 1.89 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.5 | 1.9 | ng/L | 1.89 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.8 | 1.9 | ng/L | 1.89 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.8 | 1.9 | ng/L | 1.89 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.8 | 0.95 | ng/L | 1.89 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.1 | ng/L | 1.89 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.39 (continued)

Sample Tag: MW-09-02022023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 13:37, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 2.7 | 1.9 | 0.95 | ng/L | 1.89 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.9 | 0.76 | ng/L | 1.89 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.40

Sample Tag: PZ-15-02022023

Collected Date/Time: 02/02/2023 12:45

Matrix: Groundwater

COC Reference: 4

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.95/6.50/11 | ASTMD7979-19M | 02/06/23 10:00 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 13:56, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 6.0 | 10 | 1.6 | ng/L | 2.02 | 375-22-4 | J |
| PFPeA* | Not detected | 4.0 | 0.81 | ng/L | 2.02 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 0.81 | ng/L | 2.02 | 757124-72-4 | |
| PFHxA* | 1.6 | 2.0 | 0.40 | ng/L | 2.02 | 307-24-4 | J |
| PFBS* | 1.8 | 2.0 | 0.81 | ng/L | 2.02 | 375-73-5 | J |
| PFHpA* | 1.2 | 2.0 | 1.0 | ng/L | 2.02 | 375-85-9 | J |
| PFPeS* | Not detected | 2.0 | 0.81 | ng/L | 2.02 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 27619-97-2 | |
| PFOA* | Not detected | 2.0 | 1.6 | ng/L | 2.02 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 0.81 | ng/L | 2.02 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.61 | ng/L | 2.02 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 2.02 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 2.02 | 2991-50-6 | |
| PFOS* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.61 | ng/L | 2.02 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.81 | ng/L | 2.02 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 0.40 | ng/L | 2.02 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.81 | ng/L | 2.02 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.81 | ng/L | 2.02 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.0 | ng/L | 2.02 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 2.0 | ng/L | 2.02 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.0 | ng/L | 2.02 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.0 | ng/L | 2.02 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.40 (continued)

Sample Tag: PZ-15-02022023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/11/23 13:56, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.81 | ng/L | 2.02 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.41

Sample Tag: PZ-17-02022023

Collected Date/Time: 02/02/2023 12:50

Matrix: Groundwater

COC Reference: 4

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.16/6.53/9 | ASTMD7979-19M | 02/13/23 10:30 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/14/23 00:46, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 120 | 9.7 | 1.6 | ng/L | 1.94 | 375-22-4 | |
| PFPeA* | 390 | 3.9 | 0.78 | ng/L | 1.94 | 2706-90-3 | |
| 4:2 FTSA* | 3.3 | 1.9 | 0.78 | ng/L | 1.94 | 757124-72-4 | |
| PFHxA* | 220 | 1.9 | 0.39 | ng/L | 1.94 | 307-24-4 | |
| PFBS* | 24 | 1.9 | 0.78 | ng/L | 1.94 | 375-73-5 | |
| PFHpA* | 43 | 1.9 | 0.97 | ng/L | 1.94 | 375-85-9 | |
| PFPeS* | 12 | 1.9 | 0.78 | ng/L | 1.94 | 2706-91-4 | |
| 6:2 FTSA* | 93 | 1.9 | 1.2 | ng/L | 1.94 | 27619-97-2 | |
| PFOA* | 24 | 1.9 | 1.6 | ng/L | 1.94 | 335-67-1 | |
| PFHxS* | 28 | 1.9 | 1.2 | ng/L | 1.94 | 355-46-4 | |
| PFHxS-LN* | 19 | 1.9 | 1.2 | ng/L | 1.94 | 355-46-4-LN | |
| PFHxS-BR* | 9.1 | 1.9 | 1.2 | ng/L | 1.94 | 355-46-4-BR | |
| PFNA* | 1.1 | 1.9 | 0.78 | ng/L | 1.94 | 375-95-1 | J |
| 8:2 FTSA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 375-92-8 | |
| PFDA* | 0.85 | 1.9 | 0.58 | ng/L | 1.94 | 335-76-2 | J |
| N-MeFOSAA* | Not detected | 1.9 | 1.4 | ng/L | 1.94 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 1.9 | ng/L | 1.94 | 2991-50-6 | |
| PFOS* | 13 | 1.9 | 1.2 | ng/L | 1.94 | 1763-23-1 | |
| PFOS-LN* | 4.7 | 1.9 | 1.2 | ng/L | 1.94 | 1763-23-1-LN | |
| PFOS-BR* | 8.0 | 1.9 | 1.2 | ng/L | 1.94 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 0.58 | ng/L | 1.94 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 0.39 | ng/L | 1.94 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.78 | ng/L | 1.94 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 919005-14-4 | |
| HFPO-DA* | Not detected | 9.7 | 1.9 | ng/L | 1.94 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 1.9 | ng/L | 1.94 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 1.9 | ng/L | 1.94 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 0.97 | ng/L | 1.94 | 356-02-5 | |
| PFBSA* | 10 | 1.9 | 1.2 | ng/L | 1.94 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.41 (continued)

Sample Tag: PZ-17-02022023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/14/23 00:46, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFECHS* | 3.2 | 1.9 | 0.97 | ng/L | 1.94 | 67584-42-3 | |
| PFHxSA* | 2.2 | 1.9 | 0.78 | ng/L | 1.94 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.42

Sample Tag: PZ-14-02022023

Collected Date/Time: 02/02/2023 13:53

Matrix: Groundwater

COC Reference: 4

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.32/6.48/10 | ASTMD7979-19M | 02/13/23 10:30 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/14/23 01:25, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 4.4 | 10 | 1.7 | ng/L | 2.07 | 375-22-4 | J |
| PFPeA* | 2.8 | 4.1 | 0.83 | ng/L | 2.07 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 2.1 | 0.83 | ng/L | 2.07 | 757124-72-4 | |
| PFHxA* | 1.4 | 2.1 | 0.41 | ng/L | 2.07 | 307-24-4 | J |
| PFBS* | Not detected | 2.1 | 0.83 | ng/L | 2.07 | 375-73-5 | |
| PFHpA* | 1.0 | 2.1 | 1.0 | ng/L | 2.07 | 375-85-9 | J |
| PFPeS* | Not detected | 2.1 | 0.83 | ng/L | 2.07 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.1 | 1.2 | ng/L | 2.07 | 27619-97-2 | |
| PFOA* | Not detected | 2.1 | 1.7 | ng/L | 2.07 | 335-67-1 | |
| PFHxS* | Not detected | 2.1 | 1.2 | ng/L | 2.07 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.1 | 1.2 | ng/L | 2.07 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.1 | 1.2 | ng/L | 2.07 | 355-46-4-BR | |
| PFNA* | Not detected | 2.1 | 0.83 | ng/L | 2.07 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.1 | 1.0 | ng/L | 2.07 | 39108-34-4 | |
| PFHpS* | Not detected | 2.1 | 1.2 | ng/L | 2.07 | 375-92-8 | |
| PFDA* | Not detected | 2.1 | 0.62 | ng/L | 2.07 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.1 | 1.4 | ng/L | 2.07 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.1 | 2.1 | ng/L | 2.07 | 2991-50-6 | |
| PFOS* | 4.6 | 2.1 | 1.2 | ng/L | 2.07 | 1763-23-1 | |
| PFOS-LN* | 2.1 | 2.1 | 1.2 | ng/L | 2.07 | 1763-23-1-LN | |
| PFOS-BR* | 2.9 | 2.1 | 1.2 | ng/L | 2.07 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.1 | 1.0 | ng/L | 2.07 | 2058-94-8 | |
| PFNS* | Not detected | 2.1 | 1.0 | ng/L | 2.07 | 68259-12-1 | |
| PFDODA* | Not detected | 2.1 | 0.62 | ng/L | 2.07 | 307-55-1 | |
| PFDS* | Not detected | 2.1 | 1.2 | ng/L | 2.07 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.1 | 1.0 | ng/L | 2.07 | 72629-94-8 | |
| FOSA* | Not detected | 2.1 | 0.83 | ng/L | 2.07 | 754-91-6 | |
| PFTeDA* | Not detected | 4.1 | 0.41 | ng/L | 2.07 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.1 | 0.83 | ng/L | 2.07 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.1 | 0.83 | ng/L | 2.07 | 756426-58-1 | |
| ADONA* | Not detected | 2.1 | 1.0 | ng/L | 2.07 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.1 | ng/L | 2.07 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.1 | 2.1 | ng/L | 2.07 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.1 | 2.1 | ng/L | 2.07 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.1 | 1.0 | ng/L | 2.07 | 356-02-5 | |
| PFBSA* | Not detected | 2.1 | 1.2 | ng/L | 2.07 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.42 (continued)

Sample Tag: PZ-14-02022023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/14/23 01:25, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 2.1 | 1.0 | ng/L | 2.07 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.1 | 0.83 | ng/L | 2.07 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S44975.43

Sample Tag: PZ-29-02022023

Collected Date/Time: 02/02/2023 15:25

Matrix: Groundwater

COC Reference: 4

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 2.0 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.51/6.50/10 | ASTMD7979-19M | 02/13/23 10:30 | PTW | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/14/23 02:04, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 23 | 10 | 1.6 | ng/L | 2 | 375-22-4 | |
| PFPeA* | 11 | 4.0 | 0.80 | ng/L | 2 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 0.80 | ng/L | 2 | 757124-72-4 | |
| PFHxA* | 8.5 | 2.0 | 0.40 | ng/L | 2 | 307-24-4 | |
| PFBS* | 3.1 | 2.0 | 0.80 | ng/L | 2 | 375-73-5 | |
| PFHpA* | 5.6 | 2.0 | 1.0 | ng/L | 2 | 375-85-9 | |
| PFPeS* | 0.90 | 2.0 | 0.80 | ng/L | 2 | 2706-91-4 | J |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 2 | 27619-97-2 | |
| PFOA* | 11 | 2.0 | 1.6 | ng/L | 2 | 335-67-1 | |
| PFHxS* | 3.0 | 2.0 | 1.2 | ng/L | 2 | 355-46-4 | |
| PFHxS-LN* | 2.1 | 2.0 | 1.2 | ng/L | 2 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.2 | ng/L | 2 | 355-46-4-BR | |
| PFNA* | 1.3 | 2.0 | 0.80 | ng/L | 2 | 375-95-1 | J |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 2 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.60 | ng/L | 2 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 2 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 2 | 2991-50-6 | |
| PFOS* | 14 | 2.0 | 1.2 | ng/L | 2 | 1763-23-1 | |
| PFOS-LN* | 6.7 | 2.0 | 1.2 | ng/L | 2 | 1763-23-1-LN | |
| PFOS-BR* | 7.2 | 2.0 | 1.2 | ng/L | 2 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.0 | ng/L | 2 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.0 | ng/L | 2 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.60 | ng/L | 2 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 2 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.0 | ng/L | 2 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.80 | ng/L | 2 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 0.40 | ng/L | 2 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.80 | ng/L | 2 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.80 | ng/L | 2 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 1.0 | ng/L | 2 | 919005-14-4 | |
| HFPO-DA* | Not detected | 10 | 2.0 | ng/L | 2 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 2.0 | ng/L | 2 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.0 | ng/L | 2 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.0 | ng/L | 2 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 2 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S44975.43 (continued)

Sample Tag: PZ-29-02022023

34 PFAs, Method: ASTMD7979-19M, Run Date: 02/14/23 02:04, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 7.6 | 2.0 | 1.0 | ng/L | 2 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.80 | ng/L | 2 | 41997-13-1 | |

Merit Laboratories Login Checklist

Lab Set ID:S44975

Client:WSP (WSP)

Project: Former JB Sims Generating Station, Harbor Island, GrandHaven

Submitted:02/03/2023 08:15 Login User: MMC

Attention: Saamih Bashir

Address: WSP

45850 Magellan Drive, Suite 190
Novi, MI 48377

Phone: n/a

FAX:

Email: Saamih.Bashir@wsp.com

| Selection | Description | Note |
|--------------------------|--|--|
| Sample Receiving | | |
| 01. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 2.0 |
| 02. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun |
| 03. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped |
| 04. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box |
| 05. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |
| Chain of Custody | | |
| 06. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out |
| 07. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab |
| 08. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC |
| 09. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to: |
| Preservation | | |
| 10. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation |
| 11. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs) |
| 12. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab? |
| Bottle Conditions | | |
| 13. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact |
| 14. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used |
| 15. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used |
| 16. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received |
| 17. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration |
| 18. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time |
| 19. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace |

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

WSP USA Environment & Infrastructure Inc.
 46850 Magellan Drive, Suite 190
 Novi, Michigan 48377
 (248) 926-4008

CHAIN OF CUSTODY

SHIP TO:
 Merit Laboratories, Inc.
 2680 East Lansing Drive
 East Lansing, MI 48823
 Atten: Johanna Murray
 Lab Phone# 517-827-2755

DATE: 2/3/2023

COC #: _____

PAGE: 1 OF 4

| | | | |
|--|---------------------------------------|---|-----------------------------------|
| Project Name: Former JB Sims Generating Station, Harbor Island, Grand Haven, MI | Project Contact: Jared Walbert | Bill To: WSP USA Environment & Infrastructure Inc. | Disposal Instructions: LAB |
| Project Number: 3650220203.02.02.3650 | Phone Number: 248-500-8160 | Attn: Saamih Bashir | Shipment Method: FEDEX |
| Project Manager: Saamih Bashir | Purchase Order: C012407104 | 46850 Magellan Dr., Ste 190 | Waybill Number: N/A |
| Sampler Name: Kiersten White, Andi Johns | | Novi, MI 48377 | Waybill Number: N/A |

MATRIX Code W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL SW=SURFACE WATER
 L=LIQUID SD=SEDIMENT SL=SLUDGE DW=DRINKING WATER O=OIL A=AIR WS=WASTE

| | | | |
|---------------------------------|------------------------------|-----------------------------------|---|
| TURNAROUND TIME REQUIRED | 2 Days | 5 Days | <input checked="" type="checkbox"/> Standard (10 TAT) |
| DELIVERABLES REQUIRED | <input type="checkbox"/> STD | <input type="checkbox"/> Level II | <input type="checkbox"/> Level III <input checked="" type="checkbox"/> Level IV <input checked="" type="checkbox"/> EDD |

| Sample Information | | | | | | | Methods for Analysis | | | | RUSH | | | | |
|--------------------|----------|-----------------|-----------|-------|--------|--------------|------------------------------|--|--|--|------|---------|---------|---------|--------|
| No. | Lab ID | Sample ID | Date | Time | Matrix | # of Bottles | PFAS ASTM D7979 Per Contract | | | | | 24 Hour | 48 Hour | 72 Hour | 5 Days |
| 1 | 44975.01 | PZ-26-01302023 | 1/30/2023 | 12:35 | GW | 3 | X | | | | | | | | |
| 2 | .02 | PZ-24-01302023 | 1/30/2023 | 15:05 | GW | 3 | X | | | | | | | | |
| 3 | .03 | PZ-23-01302023 | 1/30/2023 | 15:54 | GW | 3 | X | | | | | | | | |
| 4 | .04 | PZ-25-01302023 | 1/30/2023 | 16:10 | GW | 3 | X | | | | | | | | |
| 5 | .05 | PZ-13-01302023 | 1/30/2023 | 17:15 | GW | 3 | X | | | | | | | | |
| 6 | .06 | MW-07-01302023 | 1/30/2023 | 17:35 | GW | 3 | X | | | | | | | | |
| 7 | .07 | MW-33-01312023 | 1/31/2023 | 10:25 | GW | 3 | X | | | | | | | | |
| 8 | .08 | MW-34-01312023 | 1/31/2023 | 10:55 | GW | 3 | X | | | | | | | | |
| 9 | .09 | PZ-27-01312023 | 1/31/2023 | 12:05 | GW | 3 | X | | | | | | | | |
| 10 | .10 | PZ-28-01312023 | 1/31/2023 | 12:10 | GW | 3 | X | | | | | | | | |
| 11 | .11 | PZ-30-01312023 | 1/31/2023 | 13:25 | GW | 3 | X | | | | | | | | |
| 12 | .12 | DUP-01-01312023 | 1/31/2023 | 0:00 | GW | 3 | X | | | | | | | | |

| | | | | | |
|--|---------------------|-------------------|--------------------------------|--------|--|
| Relinquished By/Affiliation: <i>Kirst White</i> | Date: 2/2/23 | Time: 1900 | For Lab Use | | Comments: X MS/MSD collected for MW-39-02012023 |
| Received By: | Date: | Time: | Does COC match samples: | Y or N | |
| Relinquished By/Affiliation: | Date: | Time: | Broken Container: | Y or N | |
| Received By: | Date: | Time: | COC seal intact: | Y or N | |
| Relinquished By/Affiliation: | Date: | Time: | Other problems: | Y or N | NUMBER OF COOLERS SENT: 1 |
| Received By: | Date: | Time: | WSDOT contacted: | Y or N | |
| Relinquished By/Affiliation: Merit Drop Box | Date: 2/3/23 | Time: 0815 | Date contacted: | | |
| Received By (LAB): <i>M. Chalko</i> | Date: 2/3/23 | Time: 0815 | Cooler Temperature at receipt: | 2.0 °C | |

WSP USA Environment & Infrastructure Inc.
 46850 Magellan Drive, Suite 190
 Novi, Michigan 48377
 (248) 926-4008

CHAIN OF CUSTODY

SHIP TO:
 Merit Laboratories, Inc.
 2680 East Lansing Drive
 East Lansing, MI 48823
 Atten: Johanna Murray
 Lab Phone# 517-827-2755

DATE: 2/3/2023
 COC #: _____
 PAGE: 4 OF 4

| | | | |
|--|---------------------------------------|---|-----------------------------------|
| Project Name: Former JB Sims Generating Station, Harbor Island, Grand Haven, MI | Project Contact: Jared Walbert | Bill To: WSP USA Environment & Infrastructure Inc. | Disposal Instructions: LAB |
| Project Number: 3650220203.02.02.3650 | Phone Number: 248-500-8160 | Attn: Saamih Bashir | Shipment Method: FEDEX |
| Project Manager: Saamih Bashir | Purchase Order: C012407104 | 46850 Magellan Dr., Ste 190 Novi, MI 48377 | Waybill Number: N/A |
| Sampler Name: Kiersten White, Andi Johns | | | Waybill Number: N/A |

MATRIX Code W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL SW=SURFACE WATER
 L=LIQUID SD=SEDIMENT SL=SLUDGE DW=DRINKING WATER O=OIL A=AIR WS=WASTE

TURNAROUND TIME REQUIRED: 2 Days 5 Days Standard (10 TAT)

DELIVERABLES REQUIRED: STD Level II Level III Level IV EDD

| Sample Information | | | | | | Methods for Analysis | | | | RUSH | | | | |
|--------------------|----------|----------------|----------|-------|--------|----------------------|------|------|-------|--------------|---------|---------|---------|--------|
| No. | Lab ID | Sample ID | Date | Time | Matrix | # of Bottles | PFAS | ASTM | D7979 | Per Contract | 24 Hour | 48 Hour | 72 Hour | 5 Days |
| 1 | 44075.39 | MW-09-02022023 | 2/2/2023 | 11:35 | GW | 3 | x | | | | | | | |
| 2 | 40 | PZ-15-02022023 | 2/2/2023 | 12:45 | GW | 3 | x | | | | | | | |
| 3 | 41 | PZ-17-02022023 | 2/2/2023 | 12:50 | GW | 3 | x | | | | | | | |
| 4 | 42 | PZ-14-02022023 | 2/2/2023 | 13:53 | GW | 3 | x | | | | | | | |
| 5 | 43 | PZ-29-02022023 | 2/2/2023 | 15:25 | GW | 3 | x | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |

| | | | | | |
|---|---------------------|-------------------|--------------------------------------|---------------------------|--|
| Relinquished By/Affiliation: <i>Kiersten White</i> | Date: 2/2/23 | Time: 1900 | For Lab Use | | Comments: X MS/MSD collected for MW-39-02012023 |
| Received By: | Date: | Time: | Does COC match samples: Y or N | NUMBER OF COOLERS SENT: 1 | |
| Relinquished By/Affiliation: | Date: | Time: | Broken Container: Y or N | | |
| Received By: | Date: | Time: | COC seal intact: Y or N | | |
| Relinquished By/Affiliation: | Date: | Time: | Other problems: Y or N | | |
| Received By (LAB): <i>M. Calcutt</i> | Date: 2/3/23 | Time: 0815 | WSDOT contacted: Y or N | | |
| | Date: 2/3/23 | Time: 0815 | WSDOT contacted: Y or N | | |
| | | | Date contacted: _____ | | |
| | | | Cooler Temperature at receipt: 20 °C | | |



Analytical Laboratory Report

Report ID: S48122.01(01)
Generated on 05/30/2023

Report to

Attention: Wendi Michael
WSP
45850 Magellan Drive, Suite 190
Novi, MI 48377

Phone: 947-465-6243 FAX:
Email: Wendi.Michael@wsp.com

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S48122.01-S48122.30
Project: 3650220203 / Former J.B. Sims Generating Station
Collected Date(s): 05/01/2023 - 05/03/2023
Submitted Date/Time: 05/03/2023 14:00
Sampled by: Lara Devine
P.O. #: C012407104

Table of Contents

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- General Report Notes (Page 2)
- Report Narrative (Page 2)
- Laboratory Certifications (Page 3)
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- Method Summary (Page 4)
- Sample Summary (Page 5)

Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Certifications

| Authority | Certification ID |
|---------------------|------------------|
| Michigan DEQ | #9956 |
| DOD ELAP/ISO 17025 | #69699 |
| WBENC | #2005110032 |
| Ohio VAP | #CL0002 |
| Indiana DOH | #C-MI-07 |
| New York NELAC | #11814 |
| North Carolina DENR | #680 |
| North Carolina DOH | #26702 |
| Alaska CSLAP | #17-001 |
| Pennsylvania DEP | #68-05884 |
| Wisconsin DNR | FID# 399147320 |

Qualifier Descriptions

| Qualifier | Description |
|-----------|---|
| ! | Result is outside of stated limit criteria |
| B | Compound also found in associated method blank |
| E | Concentration exceeds calibration range |
| F | Analysis run outside of holding time |
| G | Estimated result due to extraction run outside of holding time |
| H | Sample submitted and run outside of holding time |
| I | Matrix interference with internal standard |
| J | Estimated value less than reporting limit, but greater than MDL |
| L | Elevated reporting limit due to low sample amount |
| M | Result reported to MDL not RDL |
| O | Analysis performed by outside laboratory. See attached report. |
| R | Preliminary result |
| S | Surrogate recovery outside of control limits |
| T | No correction for total solids |
| X | Elevated reporting limit due to matrix interference |
| Y | Elevated reporting limit due to high target concentration |
| b | Value detected less than reporting limit, but greater than MDL |
| e | Reported value estimated due to interference |
| j | Analyte also found in associated method blank |
| p | Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak. |
| x | Preserved from bulk sample |

Glossary of Abbreviations

| Abbreviation | Description |
|--------------|--|
| RL/RDL | Reporting Limit |
| MDL | Method Detection Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| SW | EPA SW 846 (Soil and Wastewater) Methods |
| E | EPA Methods |
| SM | Standard Methods |
| LN | Linear |
| BR | Branched |



Analytical Laboratory Report

Method Summary

| Method | Version |
|---------------|---|
| ASTMD7979-19M | ASTM Method D7979 - 19 Modified (Isotopic Dilution) |

Parameter Summary

| Parameter | Synonym | Cas # |
|------------------|--|--------------|
| PFBA | Perfluorobutanoic Acid | 375-22-4 |
| PFPeA | Perfluoropentanoic Acid | 2706-90-3 |
| 4:2 FTSA | 4:2 Fluorotelomer Sulfonic Acid | 757124-72-4 |
| PFHxA | Perfluorohexanoic Acid | 307-24-4 |
| PFBS | Perfluorobutane sulfonic Acid | 375-73-5 |
| PFFHpA | Perfluoroheptanoic Acid | 375-85-9 |
| PFPeS | Perfluoropentane Sulfonic Acid | 2706-91-4 |
| 6:2 FTSA | 6:2 Fluorotelomer Sulfonic Acid | 27619-97-2 |
| PFOA | Perfluorooctanoic Acid | 335-67-1 |
| PFHxS | Perfluorohexane Sulfonic Acid | 355-46-4 |
| PFHxS-LN | Perfluorohexane Sulfonic Acid - LN | 355-46-4-LN |
| PFHxS-BR | Perfluorohexane Sulfonic Acid - BR | 355-46-4-BR |
| PFNA | Perfluorononanoic Acid | 375-95-1 |
| 8:2 FTSA | 8:2 Fluorotelomer Sulfonic Acid | 39108-34-4 |
| PFFHpS | Perfluoroheptane Sulfonic Acid | 375-92-8 |
| PFDA | Perfluorodecanoic Acid | 335-76-2 |
| N-MeFOSAA | N-methyl perfluorooctanesulfonamidoacetic acid | 2355-31-9 |
| EtFOSAA | N-Ethyl Perfluorooctane Sulfonamidoacetic Acid | 2991-50-6 |
| PFOS | Perfluorooctane Sulfonic Acid | 1763-23-1 |
| PFOS-LN | Perfluorooctane Sulfonic Acid - LN | 1763-23-1-LN |
| PFOS-BR | Perfluorooctane Sulfonic Acid - BR | 1763-23-1-BR |
| PFUnDA | Perfluoroundecanoic Acid | 2058-94-8 |
| PFNS | Perfluorononane Sulfonic Acid | 68259-12-1 |
| PFDoDA | Perfluorododecanoic Acid | 307-55-1 |
| PFDS | Perfluorodecane Sulfonic Acid | 335-77-3 |
| PFFTrDA | Perfluorotridecanoic Acid | 72629-94-8 |
| FOSA | Perfluorooctane Sulfonamide | 754-91-6 |
| PFFTeDA | Perfluorotetradecanoic Acid | 376-06-7 |
| 11Cl-PF3OUdS | 11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid | 763051-92-9 |
| 9Cl-PF3ONS | 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid | 756426-58-1 |
| ADONA | 4,8-dioxa-3H-perfluorononanoic acid | 919005-14-4 |
| HFPO-DA | Hexafluoropropylene oxide dimer | 13252-13-6 |
| FHpPA (7:3 FTCA) | 3-Perfluoroheptyl propanoic acid | 812-70-4 |
| FPePA (5:3 FTCA) | 3-Perfluoropentyl propanoic acid | 914637-49-3 |
| FPrPA (3:3 FTCA) | 3-Perfluoropropyl propanoic acid | 356-02-5 |
| PFBSA | Perfluorobutanesulfonamide | 30334-69-1 |
| PFECHS | Perfluoro-4-ethylcyclohexanesulfonate | 67584-42-3 |
| PFHxSA | Perfluorohexanesulfonamide | 41997-13-1 |



Analytical Laboratory Report

Sample Summary (30 samples)

| Sample ID | Sample Tag | Matrix | Collected Date/Time |
|-----------|-----------------------------|-------------|---------------------|
| S48122.01 | SW-01-05012023 | Water | 05/01/23 11:45 |
| S48122.02 | SW-02-05012023 | Water | 05/01/23 12:00 |
| S48122.03 | SW-03-05012023 | Water | 05/01/23 12:15 |
| S48122.04 | SW-04-05012023 | Water | 05/01/23 12:30 |
| S48122.05 | SW-06-05012023 | Water | 05/01/23 13:00 |
| S48122.06 | SW-05-05012023 | Water | 05/01/23 13:45 |
| S48122.07 | Foam-01-05012023 | Water | 05/01/23 13:45 |
| S48122.08 | MW-38-05012023 | Groundwater | 05/01/23 14:18 |
| S48122.09 | MW-37-05012023 | Groundwater | 05/01/23 15:18 |
| S48122.10 | MW-36-05012023 | Groundwater | 05/01/23 16:10 |
| S48122.11 | MW-39-05012023 | Groundwater | 05/01/23 17:03 |
| S48122.12 | MW-40-05012023 | Groundwater | 05/01/23 17:50 |
| S48122.13 | PZ-14-05022023 | Groundwater | 05/02/23 09:05 |
| S48122.14 | PZ-13-05022023 | Groundwater | 05/02/23 09:50 |
| S48122.15 | MW-04-05022023 | Groundwater | 05/02/23 10:50 |
| S48122.16 | MW-03-05022023 | Groundwater | 05/02/23 11:33 |
| S48122.17 | MW-01R-05022023 | Groundwater | 05/02/23 12:20 |
| S48122.18 | Equipment Blank-01-05022023 | Groundwater | 05/02/23 12:20 |
| S48122.19 | MW-10-05022023 | Groundwater | 05/02/23 13:18 |
| S48122.20 | PZ-32-05022023 | Groundwater | 05/02/23 14:16 |
| S48122.21 | MW-08-05022023 | Groundwater | 05/02/23 15:05 |
| S48122.22 | MW-08-05022023 MS | Groundwater | 05/02/23 15:05 |
| S48122.23 | MW-08-05022023 MSD | Groundwater | 05/02/23 15:05 |
| S48122.24 | PZ-28-05022023 | Groundwater | 05/02/23 15:55 |
| S48122.25 | DUP-01-05022023 | Groundwater | 05/02/23 12:00 |
| S48122.26 | MW-35-05022023 | Groundwater | 05/02/23 16:48 |
| S48122.27 | MW-34-05032023 | Groundwater | 05/03/23 09:08 |
| S48122.28 | MW-33-05032023 | Groundwater | 05/03/23 10:28 |
| S48122.29 | PZ-23-05032023 | Groundwater | 05/03/23 11:21 |
| S48122.30 | DUP-02-05032023 | Groundwater | 05/03/23 12:00 |



Analytical Laboratory Report

Lab Sample ID: S48122.01

Sample Tag: SW-01-05012023

Collected Date/Time: 05/01/2023 11:45

Matrix: Water

COC Reference: 155425

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.12/6.52/11 | ASTMD7979-19M | 05/04/23 14:00 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/05/23 02:04, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 1.6 | 9.8 | 1.6 | ng/L | 1.96 | 375-22-4 | J |
| PFPeA* | 1.5 | 3.9 | 0.78 | ng/L | 1.96 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 757124-72-4 | |
| PFHxA* | 2.0 | 2.0 | 0.39 | ng/L | 1.96 | 307-24-4 | |
| PFBS* | 2.0 | 2.0 | 0.78 | ng/L | 1.96 | 375-73-5 | |
| PFHpA* | 1.5 | 2.0 | 0.98 | ng/L | 1.96 | 375-85-9 | J |
| PFPeS* | 0.92 | 2.0 | 0.78 | ng/L | 1.96 | 2706-91-4 | J |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 27619-97-2 | |
| PFOA* | 2.2 | 2.0 | 1.6 | ng/L | 1.96 | 335-67-1 | |
| PFHxS* | 1.6 | 2.0 | 1.2 | ng/L | 1.96 | 355-46-4 | J |
| PFHxS-LN* | 1.3 | 2.0 | 1.2 | ng/L | 1.96 | 355-46-4-LN | J |
| PFHxS-BR* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 355-46-4-BR | |
| PFNA* | 1.2 | 2.0 | 0.78 | ng/L | 1.96 | 375-95-1 | J |
| 8:2 FTSA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.59 | ng/L | 1.96 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 2991-50-6 | |
| PFOS* | 12 | 2.0 | 1.2 | ng/L | 1.96 | 1763-23-1 | |
| PFOS-LN* | 5.7 | 2.0 | 1.2 | ng/L | 1.96 | 1763-23-1-LN | |
| PFOS-BR* | 6.2 | 2.0 | 1.2 | ng/L | 1.96 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 68259-12-1 | |
| PFDoDA* | Not detected | 2.0 | 0.59 | ng/L | 1.96 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 0.39 | ng/L | 1.96 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 919005-14-4 | |
| HFPO-DA* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 0.98 | ng/L | 1.96 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.01 (continued)

Sample Tag: SW-01-05012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/05/23 02:04, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 1.8 | 2.0 | 0.98 | ng/L | 1.96 | 67584-42-3 | J |
| PFHxSA* | Not detected | 2.0 | 0.78 | ng/L | 1.96 | 41997-13-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.02

Sample Tag: SW-02-05012023

Collected Date/Time: 05/01/2023 12:00

Matrix: Water

COC Reference: 155425

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.64/6.52/10 | ASTMD7979-19M | 05/04/23 14:00 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/05/23 02:24, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 7.3 | 9.8 | 1.6 | ng/L | 1.95 | 375-22-4 | J |
| PFPeA* | 6.6 | 3.9 | 0.78 | ng/L | 1.95 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 0.78 | ng/L | 1.95 | 757124-72-4 | |
| PFHxA* | 5.7 | 2.0 | 0.39 | ng/L | 1.95 | 307-24-4 | |
| PFBS* | 2.7 | 2.0 | 0.78 | ng/L | 1.95 | 375-73-5 | |
| PFHpA* | 2.5 | 2.0 | 0.98 | ng/L | 1.95 | 375-85-9 | |
| PFPeS* | 0.98 | 2.0 | 0.78 | ng/L | 1.95 | 2706-91-4 | J |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 27619-97-2 | |
| PFOA* | 3.2 | 2.0 | 1.6 | ng/L | 1.95 | 335-67-1 | |
| PFHxS* | 2.0 | 2.0 | 1.2 | ng/L | 1.95 | 355-46-4 | |
| PFHxS-LN* | 1.7 | 2.0 | 1.2 | ng/L | 1.95 | 355-46-4-LN | J |
| PFHxS-BR* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 355-46-4-BR | |
| PFNA* | 1.1 | 2.0 | 0.78 | ng/L | 1.95 | 375-95-1 | J |
| 8:2 FTSA* | Not detected | 2.0 | 0.98 | ng/L | 1.95 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.59 | ng/L | 1.95 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 1.95 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.95 | 2991-50-6 | |
| PFOS* | 5.6 | 2.0 | 1.2 | ng/L | 1.95 | 1763-23-1 | |
| PFOS-LN* | 3.3 | 2.0 | 1.2 | ng/L | 1.95 | 1763-23-1-LN | |
| PFOS-BR* | 2.7 | 2.0 | 1.2 | ng/L | 1.95 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 0.98 | ng/L | 1.95 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 0.98 | ng/L | 1.95 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.59 | ng/L | 1.95 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 1.95 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 0.98 | ng/L | 1.95 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.78 | ng/L | 1.95 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 0.39 | ng/L | 1.95 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.78 | ng/L | 1.95 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.78 | ng/L | 1.95 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 0.98 | ng/L | 1.95 | 919005-14-4 | |
| HFPO-DA* | Not detected | 2.0 | 2.0 | ng/L | 1.95 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.0 | ng/L | 1.95 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.0 | ng/L | 1.95 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 0.98 | ng/L | 1.95 | 356-02-5 | |
| PFBSA* | 1.6 | 2.0 | 1.2 | ng/L | 1.95 | 30334-69-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.02 (continued)

Sample Tag: SW-02-05012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/05/23 02:24, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 2.2 | 2.0 | 0.98 | ng/L | 1.95 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.78 | ng/L | 1.95 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S48122.03

Sample Tag: SW-03-05012023

Collected Date/Time: 05/01/2023 12:15

Matrix: Water

COC Reference: 155425

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.87/6.48/11 | ASTMD7979-19M | 05/04/23 14:00 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/05/23 02:43, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 6.3 | 10 | 1.6 | ng/L | 2.04 | 375-22-4 | J |
| PFPeA* | 4.5 | 4.1 | 0.82 | ng/L | 2.04 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 0.82 | ng/L | 2.04 | 757124-72-4 | |
| PFHxA* | 4.3 | 2.0 | 0.41 | ng/L | 2.04 | 307-24-4 | |
| PFBS* | 2.2 | 2.0 | 0.82 | ng/L | 2.04 | 375-73-5 | |
| PFHpA* | 2.2 | 2.0 | 1.0 | ng/L | 2.04 | 375-85-9 | |
| PFPeS* | 0.98 | 2.0 | 0.82 | ng/L | 2.04 | 2706-91-4 | J |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 2.04 | 27619-97-2 | |
| PFOA* | 2.3 | 2.0 | 1.6 | ng/L | 2.04 | 335-67-1 | |
| PFHxS* | 1.8 | 2.0 | 1.2 | ng/L | 2.04 | 355-46-4 | J |
| PFHxS-LN* | 1.5 | 2.0 | 1.2 | ng/L | 2.04 | 355-46-4-LN | J |
| PFHxS-BR* | Not detected | 2.0 | 1.2 | ng/L | 2.04 | 355-46-4-BR | |
| PFNA* | 1.00 | 2.0 | 0.82 | ng/L | 2.04 | 375-95-1 | J |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2.04 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 2.04 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.61 | ng/L | 2.04 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 2.04 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.1 | 2.0 | ng/L | 2.04 | 2991-50-6 | |
| PFOS* | 5.2 | 2.0 | 1.2 | ng/L | 2.04 | 1763-23-1 | |
| PFOS-LN* | 2.4 | 2.0 | 1.2 | ng/L | 2.04 | 1763-23-1-LN | |
| PFOS-BR* | 3.2 | 2.0 | 1.2 | ng/L | 2.04 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.0 | ng/L | 2.04 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.0 | ng/L | 2.04 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.61 | ng/L | 2.04 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 2.04 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.0 | ng/L | 2.04 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.82 | ng/L | 2.04 | 754-91-6 | |
| PFTeDA* | Not detected | 4.1 | 0.41 | ng/L | 2.04 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.82 | ng/L | 2.04 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.82 | ng/L | 2.04 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 1.0 | ng/L | 2.04 | 919005-14-4 | |
| HFPO-DA* | Not detected | 2.0 | 2.0 | ng/L | 2.04 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.1 | 2.0 | ng/L | 2.04 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.1 | 2.0 | ng/L | 2.04 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.1 | 1.0 | ng/L | 2.04 | 356-02-5 | |
| PFBSA* | 1.4 | 2.0 | 1.2 | ng/L | 2.04 | 30334-69-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.03 (continued)

Sample Tag: SW-03-05012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/05/23 02:43, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 1.9 | 2.0 | 1.0 | ng/L | 2.04 | 67584-42-3 | J |
| PFHxSA* | Not detected | 2.0 | 0.82 | ng/L | 2.04 | 41997-13-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.04

Sample Tag: SW-04-05012023

Collected Date/Time: 05/01/2023 12:30

Matrix: Water

COC Reference: 155425

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.84/6.49/10 | ASTMD7979-19M | 05/04/23 14:00 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/05/23 03:03, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 3.8 | 9.4 | 1.5 | ng/L | 1.87 | 375-22-4 | J |
| PFPeA* | 3.9 | 3.7 | 0.75 | ng/L | 1.87 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 0.75 | ng/L | 1.87 | 757124-72-4 | |
| PFHxA* | 3.6 | 1.9 | 0.37 | ng/L | 1.87 | 307-24-4 | |
| PFBS* | 2.2 | 1.9 | 0.75 | ng/L | 1.87 | 375-73-5 | |
| PFHpA* | 2.1 | 1.9 | 0.94 | ng/L | 1.87 | 375-85-9 | |
| PFPeS* | 0.90 | 1.9 | 0.75 | ng/L | 1.87 | 2706-91-4 | J |
| 6:2 FTSA* | Not detected | 1.9 | 1.1 | ng/L | 1.87 | 27619-97-2 | |
| PFOA* | 2.6 | 1.9 | 1.5 | ng/L | 1.87 | 335-67-1 | |
| PFHxS* | 1.7 | 1.9 | 1.1 | ng/L | 1.87 | 355-46-4 | J |
| PFHxS-LN* | 1.5 | 1.9 | 1.1 | ng/L | 1.87 | 355-46-4-LN | J |
| PFHxS-BR* | Not detected | 1.9 | 1.1 | ng/L | 1.87 | 355-46-4-BR | |
| PFNA* | 1.1 | 1.9 | 0.75 | ng/L | 1.87 | 375-95-1 | J |
| 8:2 FTSA* | Not detected | 1.9 | 0.94 | ng/L | 1.87 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.1 | ng/L | 1.87 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 0.56 | ng/L | 1.87 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.3 | ng/L | 1.87 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.7 | 1.9 | ng/L | 1.87 | 2991-50-6 | |
| PFOS* | 4.9 | 1.9 | 1.1 | ng/L | 1.87 | 1763-23-1 | |
| PFOS-LN* | 2.5 | 1.9 | 1.1 | ng/L | 1.87 | 1763-23-1-LN | |
| PFOS-BR* | 2.7 | 1.9 | 1.1 | ng/L | 1.87 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 0.94 | ng/L | 1.87 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 0.94 | ng/L | 1.87 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 0.56 | ng/L | 1.87 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.1 | ng/L | 1.87 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 0.94 | ng/L | 1.87 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 0.75 | ng/L | 1.87 | 754-91-6 | |
| PFTeDA* | Not detected | 3.7 | 0.37 | ng/L | 1.87 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 0.75 | ng/L | 1.87 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 0.75 | ng/L | 1.87 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 0.94 | ng/L | 1.87 | 919005-14-4 | |
| HFPO-DA* | Not detected | 1.9 | 1.9 | ng/L | 1.87 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.7 | 1.9 | ng/L | 1.87 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.7 | 1.9 | ng/L | 1.87 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.7 | 0.94 | ng/L | 1.87 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.1 | ng/L | 1.87 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.04 (continued)

Sample Tag: SW-04-05012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/05/23 03:03, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 1.3 | 1.9 | 0.94 | ng/L | 1.87 | 67584-42-3 | J |
| PFHxSA* | Not detected | 1.9 | 0.75 | ng/L | 1.87 | 41997-13-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.05

Sample Tag: SW-06-05012023

Collected Date/Time: 05/01/2023 13:00

Matrix: Water

COC Reference: 155425

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.94/6.48/11 | ASTMD7979-19M | 05/04/23 14:00 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/05/23 03:22, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 380 | 10 | 1.6 | ng/L | 2.01 | 375-22-4 | |
| PFPeA* | 350 | 4.0 | 0.80 | ng/L | 2.01 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 0.80 | ng/L | 2.01 | 757124-72-4 | |
| PFHxA* | 880 | 2.0 | 0.40 | ng/L | 2.01 | 307-24-4 | |
| PFBS* | 1,500 | 2.0 | 0.80 | ng/L | 2.01 | 375-73-5 | |
| PFHpA* | 92 | 2.0 | 1.0 | ng/L | 2.01 | 375-85-9 | |
| PFPeS* | 940 | 2.0 | 0.80 | ng/L | 2.01 | 2706-91-4 | |
| 6:2 FTSA* | 1.3 | 2.0 | 1.2 | ng/L | 2.01 | 27619-97-2 | J |
| PFOA* | 94 | 2.0 | 1.6 | ng/L | 2.01 | 335-67-1 | |
| PFHxS* | 2,600 | 2.0 | 1.2 | ng/L | 2.01 | 355-46-4 | |
| PFHxS-LN* | 2,100 | 2.0 | 1.2 | ng/L | 2.01 | 355-46-4-LN | |
| PFHxS-BR* | 550 | 2.0 | 1.2 | ng/L | 2.01 | 355-46-4-BR | |
| PFNA* | 2.5 | 2.0 | 0.80 | ng/L | 2.01 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 39108-34-4 | |
| PFHpS* | 21 | 2.0 | 1.2 | ng/L | 2.01 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.60 | ng/L | 2.01 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 2.01 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 2.01 | 2991-50-6 | |
| PFOS* | 300 | 2.0 | 1.2 | ng/L | 2.01 | 1763-23-1 | |
| PFOS-LN* | 99 | 2.0 | 1.2 | ng/L | 2.01 | 1763-23-1-LN | |
| PFOS-BR* | 210 | 2.0 | 1.2 | ng/L | 2.01 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.60 | ng/L | 2.01 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.80 | ng/L | 2.01 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 0.40 | ng/L | 2.01 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.80 | ng/L | 2.01 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.80 | ng/L | 2.01 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 919005-14-4 | |
| HFPO-DA* | Not detected | 2.0 | 2.0 | ng/L | 2.01 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 2.0 | ng/L | 2.01 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.0 | ng/L | 2.01 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.0 | ng/L | 2.01 | 356-02-5 | |
| PFBSA* | 310 | 2.0 | 1.2 | ng/L | 2.01 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.05 (continued)

Sample Tag: SW-06-05012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/05/23 03:22, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFECHS* | 1.9 | 2.0 | 1.0 | ng/L | 2.01 | 67584-42-3 | J |
| PFHxSA* | 83 | 2.0 | 0.80 | ng/L | 2.01 | 41997-13-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.06

Sample Tag: SW-05-05012023

Collected Date/Time: 05/01/2023 13:45

Matrix: Water

COC Reference: 155425

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.89/6.47/11 | ASTMD7979-19M | 05/04/23 14:00 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/05/23 03:42, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 5.0 | 10 | 1.6 | ng/L | 2.03 | 375-22-4 | J |
| PFPeA* | 11 | 4.1 | 0.81 | ng/L | 2.03 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 0.81 | ng/L | 2.03 | 757124-72-4 | |
| PFHxA* | 5.9 | 2.0 | 0.41 | ng/L | 2.03 | 307-24-4 | |
| PFBS* | 1.1 | 2.0 | 0.81 | ng/L | 2.03 | 375-73-5 | J |
| PFHpA* | 6.8 | 2.0 | 1.0 | ng/L | 2.03 | 375-85-9 | |
| PFPeS* | 1.1 | 2.0 | 0.81 | ng/L | 2.03 | 2706-91-4 | J |
| 6:2 FTSA* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 27619-97-2 | |
| PFOA* | 5.1 | 2.0 | 1.6 | ng/L | 2.03 | 335-67-1 | |
| PFHxS* | 3.8 | 2.0 | 1.2 | ng/L | 2.03 | 355-46-4 | |
| PFHxS-LN* | 3.1 | 2.0 | 1.2 | ng/L | 2.03 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 355-46-4-BR | |
| PFNA* | 3.2 | 2.0 | 0.81 | ng/L | 2.03 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2.03 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 0.61 | ng/L | 2.03 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 1.4 | ng/L | 2.03 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.1 | 2.0 | ng/L | 2.03 | 2991-50-6 | |
| PFOS* | 6.6 | 2.0 | 1.2 | ng/L | 2.03 | 1763-23-1 | |
| PFOS-LN* | 3.9 | 2.0 | 1.2 | ng/L | 2.03 | 1763-23-1-LN | |
| PFOS-BR* | 3.1 | 2.0 | 1.2 | ng/L | 2.03 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.0 | ng/L | 2.03 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.0 | ng/L | 2.03 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 0.61 | ng/L | 2.03 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.2 | ng/L | 2.03 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.0 | ng/L | 2.03 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 0.81 | ng/L | 2.03 | 754-91-6 | |
| PFTeDA* | Not detected | 4.1 | 0.41 | ng/L | 2.03 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 0.81 | ng/L | 2.03 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 0.81 | ng/L | 2.03 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 1.0 | ng/L | 2.03 | 919005-14-4 | |
| HFPO-DA* | Not detected | 2.0 | 2.0 | ng/L | 2.03 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.1 | 2.0 | ng/L | 2.03 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.1 | 2.0 | ng/L | 2.03 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.1 | 1.0 | ng/L | 2.03 | 356-02-5 | |
| PFBSA* | 1.6 | 2.0 | 1.2 | ng/L | 2.03 | 30334-69-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.06 (continued)

Sample Tag: SW-05-05012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/05/23 03:42, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 2.0 | 1.0 | ng/L | 2.03 | 67584-42-3 | |
| PFHxSA* | 1.1 | 2.0 | 0.81 | ng/L | 2.03 | 41997-13-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.07

Sample Tag: Foam-01-05012023

Collected Date/Time: 05/01/2023 13:45

Matrix: Water

COC Reference: 155425

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|--------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 9.02/6.40/10 | ASTMD7979-19M | 05/10/23 12:30 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 21:13, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | Not detected | 150 | 96 | ng/L | 19.1 | 375-22-4 | XY |
| PFPeA* | Not detected | 38 | 9.6 | ng/L | 19.1 | 2706-90-3 | Y |
| 4:2 FTSA* | Not detected | 19 | 15 | ng/L | 19.1 | 757124-72-4 | Y |
| PFHxA* | 27 | 19 | 13 | ng/L | 19.1 | 307-24-4 | Y |
| PFBS* | Not detected | 19 | 13 | ng/L | 19.1 | 375-73-5 | Y |
| PFHpA* | 63 | 19 | 13 | ng/L | 19.1 | 375-85-9 | Y |
| PFPeS* | Not detected | 19 | 17 | ng/L | 19.1 | 2706-91-4 | Y |
| 6:2 FTSA* | 120 | 19 | 19 | ng/L | 19.1 | 27619-97-2 | IY |
| PFOA* | 360 | 19 | 15 | ng/L | 19.1 | 335-67-1 | Y |
| PFHxS* | 61 | 19 | 15 | ng/L | 19.1 | 355-46-4 | Y |
| PFHxS-LN* | 57 | 19 | 15 | ng/L | 19.1 | 355-46-4-LN | Y |
| PFHxS-BR* | Not detected | 19 | 15 | ng/L | 19.1 | 355-46-4-BR | Y |
| PFNA* | 5,300 | 19 | 17 | ng/L | 19.1 | 375-95-1 | Y |
| 8:2 FTSA* | 510 | 19 | 9.6 | ng/L | 19.1 | 39108-34-4 | IY |
| PFHpS* | 83 | 19 | 19 | ng/L | 19.1 | 375-92-8 | Y |
| PFDA* | 1,000 | 19 | 19 | ng/L | 19.1 | 335-76-2 | Y |
| N-MeFOSAA* | 73 | 19 | 19 | ng/L | 19.1 | 2355-31-9 | Y |
| EtFOSAA* | 280 | 38 | 19 | ng/L | 19.1 | 2991-50-6 | Y |
| PFOS* | 31,000 | 19 | 19 | ng/L | 19.1 | 1763-23-1 | Y |
| PFOS-LN* | 20,000 | 19 | 19 | ng/L | 19.1 | 1763-23-1-LN | Y |
| PFOS-BR* | 11,000 | 19 | 19 | ng/L | 19.1 | 1763-23-1-BR | Y |
| PFUnDA* | 350 | 19 | 13 | ng/L | 19.1 | 2058-94-8 | Y |
| PFNS* | Not detected | 19 | 13 | ng/L | 19.1 | 68259-12-1 | Y |
| PFDoDA* | 100 | 19 | 15 | ng/L | 19.1 | 307-55-1 | IY |
| PFDS* | 84 | 19 | 13 | ng/L | 19.1 | 335-77-3 | Y |
| PFTTrDA* | 20 | 19 | 11 | ng/L | 19.1 | 72629-94-8 | IY |
| FOSA* | 76 | 19 | 17 | ng/L | 19.1 | 754-91-6 | Y |
| PFTeDA* | Not detected | 38 | 17 | ng/L | 19.1 | 376-06-7 | Y |
| 11Cl-PF3OUdS* | Not detected | 19 | 17 | ng/L | 19.1 | 763051-92-9 | Y |
| 9Cl-PF3ONS* | Not detected | 19 | 13 | ng/L | 19.1 | 756426-58-1 | Y |
| ADONA* | Not detected | 19 | 19 | ng/L | 19.1 | 919005-14-4 | Y |
| HFPO-DA* | Not detected | 19 | 19 | ng/L | 19.1 | 13252-13-6 | Y |
| FHpPA (7:3 FTCA)* | Not detected | 44 | 29 | ng/L | 19.1 | 812-70-4 | XY |
| FPePA (5:3 FTCA)* | Not detected | 38 | 21 | ng/L | 19.1 | 914637-49-3 | Y |
| FPrPA (3:3 FTCA)* | Not detected | 38 | 11 | ng/L | 19.1 | 356-02-5 | Y |

X-Elevated reporting limit due to matrix interference Y-Elevated reporting limit due to high target concentration
I-Matrix interference with internal standard



Analytical Laboratory Report

Lab Sample ID: S48122.07 (continued)

Sample Tag: Foam-01-05012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 21:13, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|----|-----|-------|----------|------------|-------|
| PFBSA* | Not detected | 19 | 11 | ng/L | 19.1 | 30334-69-1 | Y |
| PFECHS* | 36 | 19 | 11 | ng/L | 19.1 | 67584-42-3 | Y |
| PFHxSA* | 170 | 19 | 9.6 | ng/L | 19.1 | 41997-13-1 | Y |

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S48122.08

Sample Tag: MW-38-05012023

Collected Date/Time: 05/01/2023 14:18

Matrix: Groundwater

COC Reference: 155425

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.55/6.54/10 | ASTMD7979-19M | 05/10/23 12:30 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 13:43, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | 36 | 10 | 10 | ng/L | 2 | 375-22-4 | |
| PFPeA* | 120 | 4.0 | 1.0 | ng/L | 2 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 2 | 757124-72-4 | I |
| PFHxA* | 100 | 2.0 | 1.4 | ng/L | 2 | 307-24-4 | |
| PFBS* | 9.9 | 2.0 | 1.4 | ng/L | 2 | 375-73-5 | |
| PFHpA* | 40 | 2.0 | 1.4 | ng/L | 2 | 375-85-9 | |
| PFPeS* | 8.1 | 2.0 | 1.8 | ng/L | 2 | 2706-91-4 | |
| 6:2 FTSA* | 64 | 2.0 | 2.0 | ng/L | 2 | 27619-97-2 | I |
| PFOA* | 64 | 2.0 | 1.6 | ng/L | 2 | 335-67-1 | |
| PFHxS* | 28 | 2.0 | 1.6 | ng/L | 2 | 355-46-4 | |
| PFHxS-LN* | 20 | 2.0 | 1.6 | ng/L | 2 | 355-46-4-LN | |
| PFHxS-BR* | 6.9 | 2.0 | 1.6 | ng/L | 2 | 355-46-4-BR | |
| PFNA* | 4.3 | 2.0 | 1.8 | ng/L | 2 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 2 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 2 | 2991-50-6 | |
| PFOS* | 13 | 2.0 | 2.0 | ng/L | 2 | 1763-23-1 | |
| PFOS-LN* | 4.2 | 2.0 | 2.0 | ng/L | 2 | 1763-23-1-LN | |
| PFOS-BR* | 8.4 | 2.0 | 2.0 | ng/L | 2 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 2 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 2 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 2 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 2 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 2 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 2 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 919005-14-4 | |
| HFPO-DA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 2 | 812-70-4 | |
| FPePA (5:3 FTCA)* | 7.5 | 4.0 | 2.2 | ng/L | 2 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 2 | 356-02-5 | |
| PFBSA* | 15 | 2.0 | 1.2 | ng/L | 2 | 30334-69-1 | |

I-Matrix interference with internal standard



Analytical Laboratory Report

Lab Sample ID: S48122.08 (continued)

Sample Tag: MW-38-05012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 13:43, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|-----|-------|----------|------------|-------|
| PFECHS* | 10 | 2.0 | 1.2 | ng/L | 2 | 67584-42-3 | |
| PFHxSA* | 9.7 | 2.0 | 1.0 | ng/L | 2 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S48122.09

Sample Tag: MW-37-05012023

Collected Date/Time: 05/01/2023 15:18

Matrix: Groundwater

COC Reference: 155425

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.13/6.52/11 | ASTMD7979-19M | 05/10/23 12:30 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 14:03, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 85 | 9.8 | 9.8 | ng/L | 1.96 | 375-22-4 | |
| PFPeA* | 270 | 3.9 | 0.98 | ng/L | 1.96 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.96 | 757124-72-4 | |
| PFHxA* | 170 | 2.0 | 1.4 | ng/L | 1.96 | 307-24-4 | |
| PFBS* | 26 | 2.0 | 1.4 | ng/L | 1.96 | 375-73-5 | |
| PFHpA* | 48 | 2.0 | 1.4 | ng/L | 1.96 | 375-85-9 | |
| PFPeS* | 9.4 | 2.0 | 1.8 | ng/L | 1.96 | 2706-91-4 | |
| 6:2 FTSA* | 53 | 2.0 | 2.0 | ng/L | 1.96 | 27619-97-2 | |
| PFOA* | 23 | 2.0 | 1.6 | ng/L | 1.96 | 335-67-1 | |
| PFHxS* | 17 | 2.0 | 1.6 | ng/L | 1.96 | 355-46-4 | |
| PFHxS-LN* | 8.9 | 2.0 | 1.6 | ng/L | 1.96 | 355-46-4-LN | |
| PFHxS-BR* | 7.1 | 2.0 | 1.6 | ng/L | 1.96 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.96 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.98 | ng/L | 1.96 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 2.0 | ng/L | 1.96 | 2991-50-6 | |
| PFOS* | 2.7 | 2.0 | 1.9 | ng/L | 1.96 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 1.9 | ng/L | 1.96 | 1763-23-1-LN | |
| PFOS-BR* | 2.0 | 2.0 | 1.9 | ng/L | 1.96 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.96 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.96 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.96 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.8 | ng/L | 1.96 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.96 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.96 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 919005-14-4 | |
| HFPO-DA* | Not detected | 2.0 | 2.0 | ng/L | 1.96 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.9 | ng/L | 1.96 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.2 | ng/L | 1.96 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.96 | 356-02-5 | |
| PFBSA* | 8.9 | 2.0 | 1.2 | ng/L | 1.96 | 30334-69-1 | |
| PFCHS* | 2.1 | 2.0 | 1.2 | ng/L | 1.96 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S48122.09 (continued)

Sample Tag: MW-37-05012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 14:03, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFHxSA* | 1.6 | 2.0 | 0.98 | ng/L | 1.96 | 41997-13-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.10

Sample Tag: MW-36-05012023

Collected Date/Time: 05/01/2023 16:10

Matrix: Groundwater

COC Reference: 155425

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.96/6.47/11 | ASTMD7979-19M | 05/10/23 12:30 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 14:23, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | 130 | 10 | 10 | ng/L | 2 | 375-22-4 | |
| PFPeA* | 99 | 4.0 | 1.0 | ng/L | 2 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 2 | 757124-72-4 | |
| PFHxA* | 98 | 2.0 | 1.4 | ng/L | 2 | 307-24-4 | |
| PFBS* | 13 | 2.0 | 1.4 | ng/L | 2 | 375-73-5 | |
| PFHpA* | 36 | 2.0 | 1.4 | ng/L | 2 | 375-85-9 | |
| PFPeS* | 3.2 | 2.0 | 1.8 | ng/L | 2 | 2706-91-4 | |
| 6:2 FTSA* | 64 | 2.0 | 2.0 | ng/L | 2 | 27619-97-2 | |
| PFOA* | 52 | 2.0 | 1.6 | ng/L | 2 | 335-67-1 | |
| PFHxS* | 13 | 2.0 | 1.6 | ng/L | 2 | 355-46-4 | |
| PFHxS-LN* | 9.1 | 2.0 | 1.6 | ng/L | 2 | 355-46-4-LN | |
| PFHxS-BR* | 2.6 | 2.0 | 1.6 | ng/L | 2 | 355-46-4-BR | |
| PFNA* | 2.8 | 2.0 | 1.8 | ng/L | 2 | 375-95-1 | |
| 8:2 FTSA* | 3.7 | 2.0 | 1.0 | ng/L | 2 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 2 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 2 | 2991-50-6 | |
| PFOS* | 19 | 2.0 | 2.0 | ng/L | 2 | 1763-23-1 | |
| PFOS-LN* | 8.2 | 2.0 | 2.0 | ng/L | 2 | 1763-23-1-LN | |
| PFOS-BR* | 10 | 2.0 | 2.0 | ng/L | 2 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 2 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 68259-12-1 | |
| PFDoDA* | Not detected | 2.0 | 1.6 | ng/L | 2 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 2 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 2 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 2 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 2 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 919005-14-4 | |
| HFPO-DA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 2 | 812-70-4 | |
| FPePA (5:3 FTCA)* | 9.9 | 4.0 | 2.2 | ng/L | 2 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 2 | 356-02-5 | |
| PFBSA* | 9.4 | 2.0 | 1.2 | ng/L | 2 | 30334-69-1 | |
| PFECHS* | 6.1 | 2.0 | 1.2 | ng/L | 2 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S48122.10 (continued)

Sample Tag: MW-36-05012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 14:23, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|-----|-------|----------|------------|-------|
| PFHxSA* | 3.6 | 2.0 | 1.0 | ng/L | 2 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S48122.11

Sample Tag: MW-39-05012023

Collected Date/Time: 05/01/2023 17:03

Matrix: Groundwater

COC Reference: 155425

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.03/6.47/11 | ASTMD7979-19M | 05/10/23 12:30 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 14:42, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 60 | 9.9 | 9.9 | ng/L | 1.98 | 375-22-4 | |
| PFPeA* | 260 | 4.0 | 0.99 | ng/L | 1.98 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.98 | 757124-72-4 | |
| PFHxA* | 160 | 2.0 | 1.4 | ng/L | 1.98 | 307-24-4 | |
| PFBS* | 12 | 2.0 | 1.4 | ng/L | 1.98 | 375-73-5 | |
| PFHpA* | 37 | 2.0 | 1.4 | ng/L | 1.98 | 375-85-9 | |
| PFPeS* | 8.0 | 2.0 | 1.8 | ng/L | 1.98 | 2706-91-4 | |
| 6:2 FTSA* | 110 | 2.0 | 2.0 | ng/L | 1.98 | 27619-97-2 | |
| PFOA* | 19 | 2.0 | 1.6 | ng/L | 1.98 | 335-67-1 | |
| PFHxS* | 15 | 2.0 | 1.6 | ng/L | 1.98 | 355-46-4 | |
| PFHxS-LN* | 8.7 | 2.0 | 1.6 | ng/L | 1.98 | 355-46-4-LN | |
| PFHxS-BR* | 5.9 | 2.0 | 1.6 | ng/L | 1.98 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.98 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.99 | ng/L | 1.98 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 1.98 | 2991-50-6 | |
| PFOS* | 12 | 2.0 | 1.9 | ng/L | 1.98 | 1763-23-1 | |
| PFOS-LN* | 3.7 | 2.0 | 1.9 | ng/L | 1.98 | 1763-23-1-LN | |
| PFOS-BR* | 7.3 | 2.0 | 1.9 | ng/L | 1.98 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.98 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.98 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.98 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 1.98 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.98 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 919005-14-4 | |
| HFPO-DA* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 1.98 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 1.98 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 1.98 | 356-02-5 | |
| PFBSA* | 8.6 | 2.0 | 1.2 | ng/L | 1.98 | 30334-69-1 | |
| PFCHS* | 4.3 | 2.0 | 1.2 | ng/L | 1.98 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S48122.11 (continued)

Sample Tag: MW-39-05012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 14:42, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFHxSA* | 0.99 | 2.0 | 0.99 | ng/L | 1.98 | 41997-13-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.12

Sample Tag: MW-40-05012023

Collected Date/Time: 05/01/2023 17:50

Matrix: Groundwater

COC Reference: 155425

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.05/6.50/11 | ASTMD7979-19M | 05/10/23 12:30 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 15:02, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 460 | 9.9 | ng/L | 1.98 | 375-22-4 | X |
| PFPeA* | 88 | 4.0 | 0.99 | ng/L | 1.98 | 2706-90-3 | |
| 4:2 FTSA* | 5.6 | 2.0 | 1.6 | ng/L | 1.98 | 757124-72-4 | |
| PFHxA* | 79 | 2.0 | 1.4 | ng/L | 1.98 | 307-24-4 | |
| PFBS* | 8.9 | 2.0 | 1.4 | ng/L | 1.98 | 375-73-5 | |
| PFHpA* | 14 | 2.0 | 1.4 | ng/L | 1.98 | 375-85-9 | |
| PFPeS* | 3.4 | 2.0 | 1.8 | ng/L | 1.98 | 2706-91-4 | |
| 6:2 FTSA* | 250 | 2.0 | 2.0 | ng/L | 1.98 | 27619-97-2 | |
| PFOA* | 16 | 2.0 | 1.6 | ng/L | 1.98 | 335-67-1 | |
| PFHxS* | 12 | 2.0 | 1.6 | ng/L | 1.98 | 355-46-4 | |
| PFHxS-LN* | 7.9 | 2.0 | 1.6 | ng/L | 1.98 | 355-46-4-LN | |
| PFHxS-BR* | 3.9 | 2.0 | 1.6 | ng/L | 1.98 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.98 | 375-95-1 | |
| 8:2 FTSA* | 12 | 2.0 | 0.99 | ng/L | 1.98 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 1.98 | 2991-50-6 | |
| PFOS* | 7.4 | 2.0 | 1.9 | ng/L | 1.98 | 1763-23-1 | |
| PFOS-LN* | 2.6 | 2.0 | 1.9 | ng/L | 1.98 | 1763-23-1-LN | |
| PFOS-BR* | 4.8 | 2.0 | 1.9 | ng/L | 1.98 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.98 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.98 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.98 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 1.98 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.98 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 919005-14-4 | |
| HFPO-DA* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 1.98 | 812-70-4 | |
| FPePA (5:3 FTCA)* | 8.0 | 4.0 | 2.2 | ng/L | 1.98 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 1.98 | 356-02-5 | |
| PFBSA* | 7.4 | 2.0 | 1.2 | ng/L | 1.98 | 30334-69-1 | |

X-Elevated reporting limit due to matrix interference



Analytical Laboratory Report

Lab Sample ID: S48122.12 (continued)

Sample Tag: MW-40-05012023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 15:02, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 2.0 | 1.2 | ng/L | 1.98 | 67584-42-3 | |
| PFHxSA* | 8.6 | 2.0 | 0.99 | ng/L | 1.98 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S48122.13

Sample Tag: PZ-14-05022023

Collected Date/Time: 05/02/2023 09:05

Matrix: Groundwater

COC Reference: 158523

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.06/6.50/11 | ASTMD7979-19M | 05/10/23 12:30 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 15:21, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.9 | 9.9 | ng/L | 1.98 | 375-22-4 | |
| PFPeA* | 2.4 | 4.0 | 0.99 | ng/L | 1.98 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.98 | 757124-72-4 | |
| PFHxA* | 2.1 | 2.0 | 1.4 | ng/L | 1.98 | 307-24-4 | |
| PFBS* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 375-73-5 | |
| PFHpA* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 1.98 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 27619-97-2 | |
| PFOA* | Not detected | 2.0 | 1.6 | ng/L | 1.98 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.6 | ng/L | 1.98 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.6 | ng/L | 1.98 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 1.98 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.98 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.99 | ng/L | 1.98 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 1.98 | 2991-50-6 | |
| PFOS* | 4.5 | 2.0 | 1.9 | ng/L | 1.98 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 1.9 | ng/L | 1.98 | 1763-23-1-LN | |
| PFOS-BR* | 2.8 | 2.0 | 1.9 | ng/L | 1.98 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.98 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.98 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.98 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 1.98 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.98 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.98 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 919005-14-4 | |
| HFPO-DA* | Not detected | 2.0 | 2.0 | ng/L | 1.98 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 1.98 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 1.98 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 1.98 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.98 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.13 (continued)

Sample Tag: PZ-14-05022023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 15:21, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | Not detected | 2.0 | 1.2 | ng/L | 1.98 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.99 | ng/L | 1.98 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S48122.14

Sample Tag: PZ-13-05022023

Collected Date/Time: 05/02/2023 09:50

Matrix: Groundwater

COC Reference: 158523

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.81/6.49/11 | ASTMD7979-19M | 05/10/23 12:30 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 15:41, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | 400 | 10 | 10 | ng/L | 2.07 | 375-22-4 | |
| PFPeA* | 1,900 | 4.1 | 1.0 | ng/L | 2.07 | 2706-90-3 | |
| 4:2 FTSA* | 13 | 2.1 | 1.7 | ng/L | 2.07 | 757124-72-4 | |
| PFHxA* | 1,200 | 2.1 | 1.4 | ng/L | 2.07 | 307-24-4 | |
| PFBS* | 50 | 2.1 | 1.4 | ng/L | 2.07 | 375-73-5 | |
| PFHpA* | 180 | 2.1 | 1.4 | ng/L | 2.07 | 375-85-9 | |
| PFPeS* | 37 | 2.1 | 1.9 | ng/L | 2.07 | 2706-91-4 | |
| 6:2 FTSA* | 1,500 | 2.1 | 2.1 | ng/L | 2.07 | 27619-97-2 | |
| PFOA* | 73 | 2.1 | 1.7 | ng/L | 2.07 | 335-67-1 | |
| PFHxS* | 140 | 2.1 | 1.7 | ng/L | 2.07 | 355-46-4 | |
| PFHxS-LN* | 98 | 2.1 | 1.7 | ng/L | 2.07 | 355-46-4-LN | |
| PFHxS-BR* | 37 | 2.1 | 1.7 | ng/L | 2.07 | 355-46-4-BR | |
| PFNA* | 3.6 | 2.1 | 1.9 | ng/L | 2.07 | 375-95-1 | |
| 8:2 FTSA* | 9.6 | 2.1 | 1.0 | ng/L | 2.07 | 39108-34-4 | |
| PFHpS* | 5.8 | 2.1 | 2.1 | ng/L | 2.07 | 375-92-8 | |
| PFDA* | Not detected | 2.1 | 2.1 | ng/L | 2.07 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.1 | 2.1 | ng/L | 2.07 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.1 | 2.1 | ng/L | 2.07 | 2991-50-6 | |
| PFOS* | 120 | 2.1 | 2.0 | ng/L | 2.07 | 1763-23-1 | |
| PFOS-LN* | 37 | 2.1 | 2.0 | ng/L | 2.07 | 1763-23-1-LN | |
| PFOS-BR* | 86 | 2.1 | 2.0 | ng/L | 2.07 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.1 | 1.4 | ng/L | 2.07 | 2058-94-8 | |
| PFNS* | Not detected | 2.1 | 1.4 | ng/L | 2.07 | 68259-12-1 | |
| PFDoDA* | Not detected | 2.1 | 1.7 | ng/L | 2.07 | 307-55-1 | |
| PFDS* | Not detected | 2.1 | 1.4 | ng/L | 2.07 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.1 | 1.2 | ng/L | 2.07 | 72629-94-8 | |
| FOSA* | Not detected | 2.1 | 1.9 | ng/L | 2.07 | 754-91-6 | |
| PFTeDA* | Not detected | 4.1 | 1.9 | ng/L | 2.07 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.1 | 1.9 | ng/L | 2.07 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.1 | 1.4 | ng/L | 2.07 | 756426-58-1 | |
| ADONA* | Not detected | 2.1 | 2.1 | ng/L | 2.07 | 919005-14-4 | |
| HFPO-DA* | Not detected | 2.1 | 2.1 | ng/L | 2.07 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.1 | 3.1 | ng/L | 2.07 | 812-70-4 | |
| FPePA (5:3 FTCA)* | 13 | 4.1 | 2.3 | ng/L | 2.07 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.1 | 1.2 | ng/L | 2.07 | 356-02-5 | |
| PFBSA* | 100 | 2.1 | 1.2 | ng/L | 2.07 | 30334-69-1 | |
| PFECHS* | 1.7 | 2.1 | 1.2 | ng/L | 2.07 | 67584-42-3 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.14 (continued)

Sample Tag: PZ-13-05022023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 15:41, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|-----|-------|----------|------------|-------|
| PFHxSA* | 93 | 2.1 | 1.0 | ng/L | 2.07 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S48122.15

Sample Tag: MW-04-05022023

Collected Date/Time: 05/02/2023 10:50

Matrix: Groundwater

COC Reference: 158523

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.05/6.52/11 | ASTMD7979-19M | 05/10/23 12:30 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 16:00, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|------|------|-------|----------|--------------|-------|
| PFBA* | 140 | 10.0 | 10.0 | ng/L | 1.99 | 375-22-4 | |
| PFPeA* | 490 | 4.0 | 1.00 | ng/L | 1.99 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 757124-72-4 | |
| PFHxA* | 170 | 2.0 | 1.4 | ng/L | 1.99 | 307-24-4 | |
| PFBS* | 21 | 2.0 | 1.4 | ng/L | 1.99 | 375-73-5 | |
| PFHpA* | 9.9 | 2.0 | 1.4 | ng/L | 1.99 | 375-85-9 | |
| PFPeS* | 4.3 | 2.0 | 1.8 | ng/L | 1.99 | 2706-91-4 | |
| 6:2 FTSA* | 7.1 | 2.0 | 2.0 | ng/L | 1.99 | 27619-97-2 | |
| PFOA* | 12 | 2.0 | 1.6 | ng/L | 1.99 | 335-67-1 | |
| PFHxS* | 7.7 | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4 | |
| PFHxS-LN* | 4.9 | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4-LN | |
| PFHxS-BR* | 1.8 | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4-BR | J |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 1.99 | 2991-50-6 | |
| PFOS* | 14 | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1 | |
| PFOS-LN* | 6.2 | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1-LN | |
| PFOS-BR* | 7.5 | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 1.99 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 919005-14-4 | |
| HFPO-DA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 1.99 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 1.99 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 1.99 | 356-02-5 | |
| PFBSA* | 4.6 | 2.0 | 1.2 | ng/L | 1.99 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.15 (continued)

Sample Tag: MW-04-05022023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 16:00, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 4.6 | 2.0 | 1.2 | ng/L | 1.99 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S48122.16

Sample Tag: MW-03-05022023

Collected Date/Time: 05/02/2023 11:33

Matrix: Groundwater

COC Reference: 158523

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.22/6.53/11 | ASTMD7979-19M | 05/10/23 12:30 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 16:20, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.7 | 9.7 | ng/L | 1.93 | 375-22-4 | |
| PFPeA* | 2.4 | 3.9 | 0.97 | ng/L | 1.93 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 757124-72-4 | |
| PFHxA* | 2.4 | 1.9 | 1.4 | ng/L | 1.93 | 307-24-4 | |
| PFBS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 375-73-5 | |
| PFHpA* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 27619-97-2 | |
| PFOA* | 10 | 1.9 | 1.5 | ng/L | 1.93 | 335-67-1 | |
| PFHxS* | 8.0 | 1.9 | 1.5 | ng/L | 1.93 | 355-46-4 | |
| PFHxS-LN* | 6.7 | 1.9 | 1.5 | ng/L | 1.93 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.97 | ng/L | 1.93 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 2355-31-9 | |
| EtFOSAA* | 5.5 | 3.9 | 1.9 | ng/L | 1.93 | 2991-50-6 | |
| PFOS* | 88 | 1.9 | 1.9 | ng/L | 1.93 | 1763-23-1 | |
| PFOS-LN* | 44 | 1.9 | 1.9 | ng/L | 1.93 | 1763-23-1-LN | |
| PFOS-BR* | 42 | 1.9 | 1.9 | ng/L | 1.93 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.5 | ng/L | 1.93 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.7 | ng/L | 1.93 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.93 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.4 | ng/L | 1.93 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 919005-14-4 | |
| HFPO-DA* | Not detected | 1.9 | 1.9 | ng/L | 1.93 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.9 | ng/L | 1.93 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.1 | ng/L | 1.93 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.93 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.2 | ng/L | 1.93 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.16 (continued)

Sample Tag: MW-03-05022023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 16:20, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|------|-------|----------|------------|-------|
| PFECHS* | 9.2 | 1.9 | 1.2 | ng/L | 1.93 | 67584-42-3 | |
| PFHxSA* | 1.5 | 1.9 | 0.97 | ng/L | 1.93 | 41997-13-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.17

Sample Tag: MW-01R-05022023

Collected Date/Time: 05/02/2023 12:20

Matrix: Groundwater

COC Reference: 158523

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.02/6.55/11 | ASTMD7979-19M | 05/10/23 12:30 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 16:39, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | Not detected | 11 | 10 | ng/L | 2.01 | 375-22-4 | X |
| PFPeA* | 3.3 | 4.0 | 1.0 | ng/L | 2.01 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 2.01 | 757124-72-4 | I |
| PFHxA* | 2.8 | 2.0 | 1.4 | ng/L | 2.01 | 307-24-4 | |
| PFBS* | Not detected | 2.0 | 1.4 | ng/L | 2.01 | 375-73-5 | |
| PFHpA* | Not detected | 2.0 | 1.4 | ng/L | 2.01 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 2.01 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 2.01 | 27619-97-2 | |
| PFOA* | 1.7 | 2.0 | 1.6 | ng/L | 2.01 | 335-67-1 | J |
| PFHxS* | 2.3 | 2.0 | 1.6 | ng/L | 2.01 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.6 | ng/L | 2.01 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 2.01 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 2.01 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 2.01 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 2.01 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 2.01 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 2.01 | 2991-50-6 | |
| PFOS* | 11 | 2.0 | 2.0 | ng/L | 2.01 | 1763-23-1 | |
| PFOS-LN* | 5.4 | 2.0 | 2.0 | ng/L | 2.01 | 1763-23-1-LN | |
| PFOS-BR* | 5.0 | 2.0 | 2.0 | ng/L | 2.01 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 2.01 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 2.01 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 2.01 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 2.01 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 2.01 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 2.01 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 2.01 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 2.01 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 2.01 | 919005-14-4 | |
| HFPO-DA* | Not detected | 2.0 | 2.0 | ng/L | 2.01 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 2.01 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 2.01 | 914637-49-3 | |

X-Elevated reporting limit due to matrix interference

J-Estimated value less than reporting limit, but greater than MDL

I-Matrix interference with internal standard



Analytical Laboratory Report

Lab Sample ID: S48122.17 (continued)

Sample Tag: MW-01R-05022023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 16:39, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|------------|-------|
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 2.01 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 30334-69-1 | |
| PFECHS* | 4.7 | 2.0 | 1.2 | ng/L | 2.01 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S48122.18

Sample Tag: Equipment Blank-01-05022023

Collected Date/Time: 05/02/2023 12:20

Matrix: Groundwater

COC Reference: 158523

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.01/6.51/11 | ASTMD7979-19M | 05/10/23 12:30 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 16:59, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | Not detected | 10 | 10 | ng/L | 2 | 375-22-4 | |
| PFPeA* | Not detected | 4.0 | 1.0 | ng/L | 2 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 2 | 757124-72-4 | |
| PFHxA* | Not detected | 2.0 | 1.4 | ng/L | 2 | 307-24-4 | |
| PFBS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 375-73-5 | |
| PFHpA* | Not detected | 2.0 | 1.4 | ng/L | 2 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 2 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 27619-97-2 | |
| PFOA* | Not detected | 2.0 | 1.6 | ng/L | 2 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.6 | ng/L | 2 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.6 | ng/L | 2 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 2 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 2 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 2 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 2 | 2991-50-6 | |
| PFOS* | Not detected | 2.0 | 2.0 | ng/L | 2 | 1763-23-1 | |
| PFOS-LN* | Not detected | 2.0 | 2.0 | ng/L | 2 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 2.0 | 2.0 | ng/L | 2 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 2 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 2 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 2 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 2 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 2 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 2 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 919005-14-4 | |
| HFPO-DA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 2 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 2 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 2 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 2 | 30334-69-1 | |
| PFECHS* | Not detected | 2.0 | 1.2 | ng/L | 2 | 67584-42-3 | |



Analytical Laboratory Report

Lab Sample ID: S48122.18 (continued)

Sample Tag: Equipment Blank-01-05022023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 16:59, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|-----|-------|----------|------------|-------|
| PFHxSA* | Not detected | 2.0 | 1.0 | ng/L | 2 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S48122.19

Sample Tag: MW-10-05022023

Collected Date/Time: 05/02/2023 13:18

Matrix: Groundwater

COC Reference: 158523

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.16/6.50/11 | ASTMD7979-19M | 05/10/23 12:30 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 17:18, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 13 | 9.7 | ng/L | 1.94 | 375-22-4 | X |
| PFPeA* | 4.0 | 3.9 | 0.97 | ng/L | 1.94 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 1.6 | ng/L | 1.94 | 757124-72-4 | |
| PFHxA* | 2.9 | 1.9 | 1.4 | ng/L | 1.94 | 307-24-4 | |
| PFBS* | Not detected | 1.9 | 1.4 | ng/L | 1.94 | 375-73-5 | |
| PFHpA* | 1.7 | 1.9 | 1.4 | ng/L | 1.94 | 375-85-9 | J |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.94 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 27619-97-2 | |
| PFOA* | 3.3 | 1.9 | 1.6 | ng/L | 1.94 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.6 | ng/L | 1.94 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.6 | ng/L | 1.94 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.6 | ng/L | 1.94 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 1.7 | ng/L | 1.94 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 2355-31-9 | |
| EtFOSAA* | 3.1 | 3.9 | 1.9 | ng/L | 1.94 | 2991-50-6 | J |
| PFOS* | 13 | 1.9 | 1.9 | ng/L | 1.94 | 1763-23-1 | |
| PFOS-LN* | 7.6 | 1.9 | 1.9 | ng/L | 1.94 | 1763-23-1-LN | |
| PFOS-BR* | 5.5 | 1.9 | 1.9 | ng/L | 1.94 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.4 | ng/L | 1.94 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.4 | ng/L | 1.94 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.6 | ng/L | 1.94 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.4 | ng/L | 1.94 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.94 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.7 | ng/L | 1.94 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.94 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.4 | ng/L | 1.94 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 919005-14-4 | |
| HFPO-DA* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.9 | ng/L | 1.94 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.1 | ng/L | 1.94 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.94 | 356-02-5 | |

X-Elevated reporting limit due to matrix interference

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.19 (continued)

Sample Tag: MW-10-05022023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 17:18, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFBSA* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 30334-69-1 | |
| PFECHS* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 67584-42-3 | |
| PFHxSA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S48122.20

Sample Tag: PZ-32-05022023

Collected Date/Time: 05/02/2023 14:16

Matrix: Groundwater

COC Reference: 158523

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.05/6.46/11 | ASTMD7979-19M | 05/10/23 12:30 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 17:38, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.9 | 9.9 | ng/L | 1.97 | 375-22-4 | |
| PFPeA* | 13 | 3.9 | 0.99 | ng/L | 1.97 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 757124-72-4 | |
| PFHxA* | 9.9 | 2.0 | 1.4 | ng/L | 1.97 | 307-24-4 | |
| PFBS* | 2.8 | 2.0 | 1.4 | ng/L | 1.97 | 375-73-5 | |
| PFHpA* | 4.5 | 2.0 | 1.4 | ng/L | 1.97 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 1.97 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 27619-97-2 | |
| PFOA* | 12 | 2.0 | 1.6 | ng/L | 1.97 | 335-67-1 | |
| PFHxS* | 6.3 | 2.0 | 1.6 | ng/L | 1.97 | 355-46-4 | |
| PFHxS-LN* | 5.0 | 2.0 | 1.6 | ng/L | 1.97 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.97 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 2355-31-9 | |
| EtFOSAA* | 3.0 | 3.9 | 2.0 | ng/L | 1.97 | 2991-50-6 | J |
| PFOS* | 110 | 2.0 | 1.9 | ng/L | 1.97 | 1763-23-1 | |
| PFOS-LN* | 68 | 2.0 | 1.9 | ng/L | 1.97 | 1763-23-1-LN | |
| PFOS-BR* | 41 | 2.0 | 1.9 | ng/L | 1.97 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.97 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.8 | ng/L | 1.97 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.97 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 919005-14-4 | |
| HFPO-DA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 3.0 | ng/L | 1.97 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.2 | ng/L | 1.97 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.97 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.20 (continued)

Sample Tag: PZ-32-05022023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 17:38, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 14 | 2.0 | 1.2 | ng/L | 1.97 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S48122.21

Sample Tag: MW-08-05022023

Collected Date/Time: 05/02/2023 15:05

Matrix: Groundwater

COC Reference: 158523

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.90/6.44/11 | ASTMD7979-19M | 05/10/23 12:30 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 17:57, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | Not detected | 10 | 10 | ng/L | 2.01 | 375-22-4 | |
| PFPeA* | 7.0 | 4.0 | 1.0 | ng/L | 2.01 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 2.01 | 757124-72-4 | |
| PFHxA* | 6.5 | 2.0 | 1.4 | ng/L | 2.01 | 307-24-4 | |
| PFBS* | 1.8 | 2.0 | 1.4 | ng/L | 2.01 | 375-73-5 | J |
| PFHpA* | 5.3 | 2.0 | 1.4 | ng/L | 2.01 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 2.01 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 2.01 | 27619-97-2 | |
| PFOA* | 20 | 2.0 | 1.6 | ng/L | 2.01 | 335-67-1 | |
| PFHxS* | 4.5 | 2.0 | 1.6 | ng/L | 2.01 | 355-46-4 | |
| PFHxS-LN* | 3.6 | 2.0 | 1.6 | ng/L | 2.01 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 2.01 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 2.01 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 2.01 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 2.01 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 2.01 | 2355-31-9 | |
| EtFOSAA* | 5.9 | 4.0 | 2.0 | ng/L | 2.01 | 2991-50-6 | |
| PFOS* | 99 | 2.0 | 2.0 | ng/L | 2.01 | 1763-23-1 | |
| PFOS-LN* | 63 | 2.0 | 2.0 | ng/L | 2.01 | 1763-23-1-LN | |
| PFOS-BR* | 33 | 2.0 | 2.0 | ng/L | 2.01 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 2.01 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 2.01 | 68259-12-1 | |
| PFDoDA* | Not detected | 2.0 | 1.6 | ng/L | 2.01 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 2.01 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 2.01 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 2.01 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 2.01 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 2.01 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 2.01 | 919005-14-4 | |
| HFPO-DA* | Not detected | 2.0 | 2.0 | ng/L | 2.01 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 2.01 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 2.01 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 2.01 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.21 (continued)

Sample Tag: MW-08-05022023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 17:57, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|-----|-------|----------|------------|-------|
| PFECHS* | 6.4 | 2.0 | 1.2 | ng/L | 2.01 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S48122.22

Sample Tag: MW-08-05022023 MS

Collected Date/Time: 05/02/2023 15:05

Matrix: Groundwater

COC Reference: 158523

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.87/6.42/11 | ASTMD7979-19M | 05/10/23 12:30 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 18:57, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------|-----|-----|-------|----------|--------------|-------|
| PFBA* | 92 | 10 | 10 | ng/L | 2.02 | 375-22-4 | 1 |
| PFPeA* | 94 | 4.0 | 1.0 | ng/L | 2.02 | 2706-90-3 | 1 |
| 4:2 FTSA* | 95 | 2.0 | 1.6 | ng/L | 2.02 | 757124-72-4 | 1 |
| PFHxA* | 97 | 2.0 | 1.4 | ng/L | 2.02 | 307-24-4 | 1 |
| PFBS* | 77 | 2.0 | 1.4 | ng/L | 2.02 | 375-73-5 | 1 |
| PFHpA* | 100 | 2.0 | 1.4 | ng/L | 2.02 | 375-85-9 | 1 |
| PFPeS* | 73 | 2.0 | 1.8 | ng/L | 2.02 | 2706-91-4 | 1 |
| 6:2 FTSA* | 73 | 2.0 | 2.0 | ng/L | 2.02 | 27619-97-2 | 1 |
| PFOA* | 110 | 2.0 | 1.6 | ng/L | 2.02 | 335-67-1 | 1 |
| PFHxS* | 100 | 2.0 | 1.6 | ng/L | 2.02 | 355-46-4 | 1 |
| PFHxS-LN* | 87 | 2.0 | 1.6 | ng/L | 2.02 | 355-46-4-LN | 1 |
| PFHxS-BR* | 15 | 2.0 | 1.6 | ng/L | 2.02 | 355-46-4-BR | 1 |
| PFNA* | 88 | 2.0 | 1.8 | ng/L | 2.02 | 375-95-1 | 1 |
| 8:2 FTSA* | 75 | 2.0 | 1.0 | ng/L | 2.02 | 39108-34-4 | 1 |
| PFHpS* | 79 | 2.0 | 2.0 | ng/L | 2.02 | 375-92-8 | 1 |
| PFDA* | 81 | 2.0 | 2.0 | ng/L | 2.02 | 335-76-2 | 1 |
| N-MeFOSAA* | 82 | 2.0 | 2.0 | ng/L | 2.02 | 2355-31-9 | 1 |
| EtFOSAA* | 84 | 4.0 | 2.0 | ng/L | 2.02 | 2991-50-6 | 1 |
| PFOS* | 200 | 2.0 | 2.0 | ng/L | 2.02 | 1763-23-1 | 1 |
| PFOS-LN* | 130 | 2.0 | 2.0 | ng/L | 2.02 | 1763-23-1-LN | 1 |
| PFOS-BR* | 63 | 2.0 | 2.0 | ng/L | 2.02 | 1763-23-1-BR | 1 |
| PFUnDA* | 98 | 2.0 | 1.4 | ng/L | 2.02 | 2058-94-8 | 1 |
| PFNS* | 88 | 2.0 | 1.4 | ng/L | 2.02 | 68259-12-1 | 1 |
| PFDODA* | 94 | 2.0 | 1.6 | ng/L | 2.02 | 307-55-1 | 1 |
| PFDS* | 91 | 2.0 | 1.4 | ng/L | 2.02 | 335-77-3 | 1 |
| PFTDA* | 110 | 2.0 | 1.2 | ng/L | 2.02 | 72629-94-8 | 1 |
| FOSA* | 99 | 2.0 | 1.8 | ng/L | 2.02 | 754-91-6 | 1 |
| PFTeDA* | 90 | 4.0 | 1.8 | ng/L | 2.02 | 376-06-7 | 1 |
| 11Cl-PF3OUdS* | 85 | 2.0 | 1.8 | ng/L | 2.02 | 763051-92-9 | 1 |
| 9Cl-PF3ONS* | 88 | 2.0 | 1.4 | ng/L | 2.02 | 756426-58-1 | 1 |
| ADONA* | 110 | 2.0 | 2.0 | ng/L | 2.02 | 919005-14-4 | 1 |
| HFPO-DA* | 100 | 2.0 | 2.0 | ng/L | 2.02 | 13252-13-6 | 1 |
| FHpPA (7:3 FTCA)* | 150 | 4.0 | 3.0 | ng/L | 2.02 | 812-70-4 | 1 |
| FPePA (5:3 FTCA)* | 130 | 4.0 | 2.2 | ng/L | 2.02 | 914637-49-3 | 1 |
| FPrPA (3:3 FTCA)* | 130 | 4.0 | 1.2 | ng/L | 2.02 | 356-02-5 | 1 |
| PFBSA* | 100 | 2.0 | 1.2 | ng/L | 2.02 | 30334-69-1 | 1 |

1-spiked @ 101 ng/L



Analytical Laboratory Report

Lab Sample ID: S48122.22 (continued)

Sample Tag: MW-08-05022023 MS

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 18:57, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|-----|-------|----------|------------|-------|
| PFECHS* | 86 | 2.0 | 1.2 | ng/L | 2.02 | 67584-42-3 | 1 |
| PFHxSA* | 96 | 2.0 | 1.0 | ng/L | 2.02 | 41997-13-1 | 1 |

1-spiked @ 101 ng/L



Analytical Laboratory Report

Lab Sample ID: S48122.23

Sample Tag: MW-08-05022023 MSD

Collected Date/Time: 05/02/2023 15:05

Matrix: Groundwater

COC Reference: 158523

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.84/6.48/11 | ASTMD7979-19M | 05/10/23 12:30 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 19:16, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------|-----|-----|-------|----------|--------------|-------|
| PFBA* | 88 | 10 | 10 | ng/L | 2.05 | 375-22-4 | 1 |
| PFPeA* | 89 | 4.1 | 1.0 | ng/L | 2.05 | 2706-90-3 | 1 |
| 4:2 FTSA* | 75 | 2.1 | 1.6 | ng/L | 2.05 | 757124-72-4 | 1 |
| PFHxA* | 90 | 2.1 | 1.4 | ng/L | 2.05 | 307-24-4 | 1 |
| PFBS* | 87 | 2.1 | 1.4 | ng/L | 2.05 | 375-73-5 | 1 |
| PFHpA* | 110 | 2.1 | 1.4 | ng/L | 2.05 | 375-85-9 | 1 |
| PFPeS* | 84 | 2.1 | 1.8 | ng/L | 2.05 | 2706-91-4 | 1 |
| 6:2 FTSA* | 76 | 2.1 | 2.1 | ng/L | 2.05 | 27619-97-2 | 1 |
| PFOA* | 110 | 2.1 | 1.6 | ng/L | 2.05 | 335-67-1 | 1 |
| PFHxS* | 98 | 2.1 | 1.6 | ng/L | 2.05 | 355-46-4 | 1 |
| PFHxS-LN* | 83 | 2.1 | 1.6 | ng/L | 2.05 | 355-46-4-LN | 1 |
| PFHxS-BR* | 14 | 2.1 | 1.6 | ng/L | 2.05 | 355-46-4-BR | 1 |
| PFNA* | 95 | 2.1 | 1.8 | ng/L | 2.05 | 375-95-1 | 1 |
| 8:2 FTSA* | 67 | 2.1 | 1.0 | ng/L | 2.05 | 39108-34-4 | 1 |
| PFHpS* | 97 | 2.1 | 2.1 | ng/L | 2.05 | 375-92-8 | 1 |
| PFDA* | 100 | 2.1 | 2.1 | ng/L | 2.05 | 335-76-2 | 1 |
| N-MeFOSAA* | 73 | 2.1 | 2.1 | ng/L | 2.05 | 2355-31-9 | 1 |
| EtFOSAA* | 93 | 4.1 | 2.1 | ng/L | 2.05 | 2991-50-6 | 1 |
| PFOS* | 200 | 2.1 | 2.0 | ng/L | 2.05 | 1763-23-1 | 1 |
| PFOS-LN* | 130 | 2.1 | 2.0 | ng/L | 2.05 | 1763-23-1-LN | 1 |
| PFOS-BR* | 70 | 2.1 | 2.0 | ng/L | 2.05 | 1763-23-1-BR | 1 |
| PFUnDA* | 92 | 2.1 | 1.4 | ng/L | 2.05 | 2058-94-8 | 1 |
| PFNS* | 100 | 2.1 | 1.4 | ng/L | 2.05 | 68259-12-1 | 1 |
| PFDODA* | 84 | 2.1 | 1.6 | ng/L | 2.05 | 307-55-1 | 1 |
| PFDS* | 96 | 2.1 | 1.4 | ng/L | 2.05 | 335-77-3 | 1 |
| PFTTrDA* | 92 | 2.1 | 1.2 | ng/L | 2.05 | 72629-94-8 | 1 |
| FOSA* | 100 | 2.1 | 1.8 | ng/L | 2.05 | 754-91-6 | 1 |
| PFTeDA* | 91 | 4.1 | 1.8 | ng/L | 2.05 | 376-06-7 | 1 |
| 11Cl-PF3OUdS* | 92 | 2.1 | 1.8 | ng/L | 2.05 | 763051-92-9 | 1 |
| 9Cl-PF3ONS* | 87 | 2.1 | 1.4 | ng/L | 2.05 | 756426-58-1 | 1 |
| ADONA* | 100 | 2.1 | 2.1 | ng/L | 2.05 | 919005-14-4 | 1 |
| HFPO-DA* | 86 | 2.1 | 2.1 | ng/L | 2.05 | 13252-13-6 | 1 |
| FHpPA (7:3 FTCA)* | 140 | 4.1 | 3.1 | ng/L | 2.05 | 812-70-4 | 1 |
| FPePA (5:3 FTCA)* | 120 | 4.1 | 2.3 | ng/L | 2.05 | 914637-49-3 | 1 |
| FPrPA (3:3 FTCA)* | 130 | 4.1 | 1.2 | ng/L | 2.05 | 356-02-5 | 1 |
| PFBSA* | 97 | 2.1 | 1.2 | ng/L | 2.05 | 30334-69-1 | 1 |

1-spiked @ 103 ng/L



Analytical Laboratory Report

Lab Sample ID: S48122.23 (continued)

Sample Tag: MW-08-05022023 MSD

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 19:16, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|-----|-------|----------|------------|-------|
| PFECHS* | 94 | 2.1 | 1.2 | ng/L | 2.05 | 67584-42-3 | 1 |
| PFHxSA* | 87 | 2.1 | 1.0 | ng/L | 2.05 | 41997-13-1 | 1 |

1-spiked @ 103 ng/L



Analytical Laboratory Report

Lab Sample ID: S48122.24

Sample Tag: PZ-28-05022023

Collected Date/Time: 05/02/2023 15:55

Matrix: Groundwater

COC Reference: 158523

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.00/6.46/11 | ASTMD7979-19M | 05/10/23 12:30 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 19:36, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|------|------|-------|----------|--------------|-------|
| PFBA* | 10.0 | 10.0 | 10.0 | ng/L | 1.99 | 375-22-4 | |
| PFPeA* | 7.0 | 4.0 | 1.00 | ng/L | 1.99 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 757124-72-4 | |
| PFHxA* | 6.3 | 2.0 | 1.4 | ng/L | 1.99 | 307-24-4 | |
| PFBS* | 4.7 | 2.0 | 1.4 | ng/L | 1.99 | 375-73-5 | |
| PFHpA* | 3.4 | 2.0 | 1.4 | ng/L | 1.99 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 27619-97-2 | |
| PFOA* | 9.9 | 2.0 | 1.6 | ng/L | 1.99 | 335-67-1 | |
| PFHxS* | 3.3 | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4 | |
| PFHxS-LN* | 2.2 | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 1.99 | 2991-50-6 | |
| PFOS* | 19 | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1 | |
| PFOS-LN* | 6.3 | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1-LN | |
| PFOS-BR* | 12 | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 1.99 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 919005-14-4 | |
| HFPO-DA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 1.99 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 1.99 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 1.99 | 356-02-5 | |
| PFBSA* | 1.2 | 2.0 | 1.2 | ng/L | 1.99 | 30334-69-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.24 (continued)

Sample Tag: PZ-28-05022023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 19:36, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 2.3 | 2.0 | 1.2 | ng/L | 1.99 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S48122.25

Sample Tag: DUP-01-05022023

Collected Date/Time: 05/02/2023 12:00

Matrix: Groundwater

COC Reference: 158523

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.98/6.54/11 | ASTMD7979-19M | 05/10/23 12:30 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 19:55, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | Not detected | 10 | 10 | ng/L | 2.02 | 375-22-4 | |
| PFPeA* | 2.1 | 4.0 | 1.0 | ng/L | 2.02 | 2706-90-3 | J |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 2.02 | 757124-72-4 | |
| PFHxA* | 2.4 | 2.0 | 1.4 | ng/L | 2.02 | 307-24-4 | |
| PFBS* | Not detected | 2.0 | 1.4 | ng/L | 2.02 | 375-73-5 | |
| PFHpA* | Not detected | 2.0 | 1.4 | ng/L | 2.02 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 2.02 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 2.02 | 27619-97-2 | |
| PFOA* | Not detected | 2.0 | 1.6 | ng/L | 2.02 | 335-67-1 | |
| PFHxS* | Not detected | 2.0 | 1.6 | ng/L | 2.02 | 355-46-4 | |
| PFHxS-LN* | Not detected | 2.0 | 1.6 | ng/L | 2.02 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 2.02 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 2.02 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 2.02 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 2.02 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 2.02 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 2.02 | 2991-50-6 | |
| PFOS* | 4.5 | 2.0 | 2.0 | ng/L | 2.02 | 1763-23-1 | |
| PFOS-LN* | 2.0 | 2.0 | 2.0 | ng/L | 2.02 | 1763-23-1-LN | J |
| PFOS-BR* | 2.4 | 2.0 | 2.0 | ng/L | 2.02 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 2.02 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 2.02 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 2.02 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 2.02 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 2.02 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 2.02 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 2.02 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 2.02 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 2.02 | 919005-14-4 | |
| HFPO-DA* | Not detected | 2.0 | 2.0 | ng/L | 2.02 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 2.02 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 2.02 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 2.02 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.25 (continued)

Sample Tag: DUP-01-05022023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 19:55, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|-----|-------|----------|------------|-------|
| PFECHS* | Not detected | 2.0 | 1.2 | ng/L | 2.02 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 1.0 | ng/L | 2.02 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S48122.26

Sample Tag: MW-35-05022023

Collected Date/Time: 05/02/2023 16:48

Matrix: Groundwater

COC Reference: 158523

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.06/6.52/11 | ASTMD7979-19M | 05/10/23 12:30 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 20:15, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|------|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 10.0 | 10.0 | ng/L | 1.99 | 375-22-4 | |
| PFPeA* | 4.5 | 4.0 | 1.00 | ng/L | 1.99 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 757124-72-4 | |
| PFHxA* | 7.5 | 2.0 | 1.4 | ng/L | 1.99 | 307-24-4 | |
| PFBS* | 11 | 2.0 | 1.4 | ng/L | 1.99 | 375-73-5 | |
| PFHpA* | 4.4 | 2.0 | 1.4 | ng/L | 1.99 | 375-85-9 | |
| PFPeS* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 27619-97-2 | |
| PFOA* | 57 | 2.0 | 1.6 | ng/L | 1.99 | 335-67-1 | |
| PFHxS* | 8.8 | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4 | |
| PFHxS-LN* | 6.7 | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4-LN | |
| PFHxS-BR* | 1.8 | 2.0 | 1.6 | ng/L | 1.99 | 355-46-4-BR | J |
| PFNA* | 1.9 | 2.0 | 1.8 | ng/L | 1.99 | 375-95-1 | J |
| 8:2 FTSA* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 2355-31-9 | |
| EtFOSAA* | 20 | 4.0 | 2.0 | ng/L | 1.99 | 2991-50-6 | |
| PFOS* | 68 | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1 | |
| PFOS-LN* | 41 | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1-LN | |
| PFOS-BR* | 26 | 2.0 | 2.0 | ng/L | 1.99 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.99 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 1.99 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.99 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.99 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 919005-14-4 | |
| HFPO-DA* | Not detected | 2.0 | 2.0 | ng/L | 1.99 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 1.99 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 1.99 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 1.99 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.99 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.26 (continued)

Sample Tag: MW-35-05022023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 20:15, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 11 | 2.0 | 1.2 | ng/L | 1.99 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 1.00 | ng/L | 1.99 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S48122.27

Sample Tag: MW-34-05032023

Collected Date/Time: 05/03/2023 09:08

Matrix: Groundwater

COC Reference: 158504

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 11.94/6.48/11 | ASTMD7979-19M | 05/10/23 12:30 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 20:34, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | Not detected | 10 | 10 | ng/L | 2.01 | 375-22-4 | |
| PFPeA* | 10 | 4.0 | 1.0 | ng/L | 2.01 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 2.01 | 757124-72-4 | |
| PFHxA* | 8.2 | 2.0 | 1.4 | ng/L | 2.01 | 307-24-4 | |
| PFBS* | 8.2 | 2.0 | 1.4 | ng/L | 2.01 | 375-73-5 | |
| PFHpA* | 7.3 | 2.0 | 1.4 | ng/L | 2.01 | 375-85-9 | |
| PFPeS* | 1.9 | 2.0 | 1.8 | ng/L | 2.01 | 2706-91-4 | J |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 2.01 | 27619-97-2 | |
| PFOA* | 53 | 2.0 | 1.6 | ng/L | 2.01 | 335-67-1 | |
| PFHxS* | 10 | 2.0 | 1.6 | ng/L | 2.01 | 355-46-4 | |
| PFHxS-LN* | 7.8 | 2.0 | 1.6 | ng/L | 2.01 | 355-46-4-LN | |
| PFHxS-BR* | 1.7 | 2.0 | 1.6 | ng/L | 2.01 | 355-46-4-BR | J |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 2.01 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2.01 | 39108-34-4 | |
| PFHpS* | 3.2 | 2.0 | 2.0 | ng/L | 2.01 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 2.01 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 2.01 | 2355-31-9 | |
| EtFOSAA* | 11 | 4.0 | 2.0 | ng/L | 2.01 | 2991-50-6 | |
| PFOS* | 130 | 2.0 | 2.0 | ng/L | 2.01 | 1763-23-1 | |
| PFOS-LN* | 75 | 2.0 | 2.0 | ng/L | 2.01 | 1763-23-1-LN | |
| PFOS-BR* | 51 | 2.0 | 2.0 | ng/L | 2.01 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 2.01 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 2.01 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 2.01 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 2.01 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 2.01 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 2.01 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 2.01 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 2.01 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 2.01 | 919005-14-4 | |
| HFPO-DA* | Not detected | 2.0 | 2.0 | ng/L | 2.01 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 2.01 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 2.01 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 2.01 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 2.01 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.27 (continued)

Sample Tag: MW-34-05032023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 20:34, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------|-----|-----|-------|----------|------------|-------|
| PFECHS* | 6.5 | 2.0 | 1.2 | ng/L | 2.01 | 67584-42-3 | |
| PFHxSA* | 1.1 | 2.0 | 1.0 | ng/L | 2.01 | 41997-13-1 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.28

Sample Tag: MW-33-05032023

Collected Date/Time: 05/03/2023 10:28

Matrix: Groundwater

COC Reference: 158504

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.03/6.54/11 | ASTMD7979-19M | 05/10/23 12:30 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 20:54, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|-----|-------|----------|--------------|-------|
| PFBA* | 13 | 10 | 10 | ng/L | 2 | 375-22-4 | |
| PFPeA* | 14 | 4.0 | 1.0 | ng/L | 2 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 2 | 757124-72-4 | |
| PFHxA* | 14 | 2.0 | 1.4 | ng/L | 2 | 307-24-4 | |
| PFBS* | 9.5 | 2.0 | 1.4 | ng/L | 2 | 375-73-5 | |
| PFHpA* | 7.2 | 2.0 | 1.4 | ng/L | 2 | 375-85-9 | |
| PFPeS* | 1.8 | 2.0 | 1.8 | ng/L | 2 | 2706-91-4 | J |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 27619-97-2 | |
| PFOA* | 51 | 2.0 | 1.6 | ng/L | 2 | 335-67-1 | |
| PFHxS* | 14 | 2.0 | 1.6 | ng/L | 2 | 355-46-4 | |
| PFHxS-LN* | 11 | 2.0 | 1.6 | ng/L | 2 | 355-46-4-LN | |
| PFHxS-BR* | 2.9 | 2.0 | 1.6 | ng/L | 2 | 355-46-4-BR | |
| PFNA* | 2.9 | 2.0 | 1.8 | ng/L | 2 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 1.0 | ng/L | 2 | 39108-34-4 | |
| PFHpS* | Not detected | 2.0 | 2.0 | ng/L | 2 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 2355-31-9 | |
| EtFOSAA* | Not detected | 4.0 | 2.0 | ng/L | 2 | 2991-50-6 | |
| PFOS* | 86 | 2.0 | 2.0 | ng/L | 2 | 1763-23-1 | |
| PFOS-LN* | 27 | 2.0 | 2.0 | ng/L | 2 | 1763-23-1-LN | |
| PFOS-BR* | 59 | 2.0 | 2.0 | ng/L | 2 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 2 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 2 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 2 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 2 | 754-91-6 | |
| PFTeDA* | Not detected | 4.0 | 1.8 | ng/L | 2 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 2 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 2 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 919005-14-4 | |
| HFPO-DA* | Not detected | 2.0 | 2.0 | ng/L | 2 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 4.0 | 3.0 | ng/L | 2 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 4.0 | 2.2 | ng/L | 2 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 4.0 | 1.2 | ng/L | 2 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 2 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.28 (continued)

Sample Tag: MW-33-05032023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 20:54, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|-----|-------|----------|------------|-------|
| PFECHS* | 5.5 | 2.0 | 1.2 | ng/L | 2 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 1.0 | ng/L | 2 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S48122.29

Sample Tag: PZ-23-05032023

Collected Date/Time: 05/03/2023 11:21

Matrix: Groundwater

COC Reference: 158504

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.14/6.48/11 | ASTMD7979-19M | 05/10/23 14:00 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 22:51, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | 14 | 9.7 | 9.7 | ng/L | 1.94 | 375-22-4 | |
| PFPeA* | 5.2 | 3.9 | 0.97 | ng/L | 1.94 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 1.9 | 1.6 | ng/L | 1.94 | 757124-72-4 | |
| PFHxA* | 6.6 | 1.9 | 1.4 | ng/L | 1.94 | 307-24-4 | |
| PFBS* | 2.3 | 1.9 | 1.4 | ng/L | 1.94 | 375-73-5 | |
| PFHpA* | 2.5 | 1.9 | 1.4 | ng/L | 1.94 | 375-85-9 | |
| PFPeS* | Not detected | 1.9 | 1.7 | ng/L | 1.94 | 2706-91-4 | |
| 6:2 FTSA* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 27619-97-2 | |
| PFOA* | 4.0 | 1.9 | 1.6 | ng/L | 1.94 | 335-67-1 | |
| PFHxS* | Not detected | 1.9 | 1.6 | ng/L | 1.94 | 355-46-4 | |
| PFHxS-LN* | Not detected | 1.9 | 1.6 | ng/L | 1.94 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 1.9 | 1.6 | ng/L | 1.94 | 355-46-4-BR | |
| PFNA* | Not detected | 1.9 | 1.7 | ng/L | 1.94 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 39108-34-4 | |
| PFHpS* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 375-92-8 | |
| PFDA* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 2355-31-9 | |
| EtFOSAA* | Not detected | 3.9 | 1.9 | ng/L | 1.94 | 2991-50-6 | |
| PFOS* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 1763-23-1 | |
| PFOS-LN* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 1763-23-1-LN | |
| PFOS-BR* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 1.9 | 1.4 | ng/L | 1.94 | 2058-94-8 | |
| PFNS* | Not detected | 1.9 | 1.4 | ng/L | 1.94 | 68259-12-1 | |
| PFDODA* | Not detected | 1.9 | 1.6 | ng/L | 1.94 | 307-55-1 | |
| PFDS* | Not detected | 1.9 | 1.4 | ng/L | 1.94 | 335-77-3 | |
| PFTTrDA* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 72629-94-8 | |
| FOSA* | Not detected | 1.9 | 1.7 | ng/L | 1.94 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.7 | ng/L | 1.94 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 1.9 | 1.7 | ng/L | 1.94 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 1.9 | 1.4 | ng/L | 1.94 | 756426-58-1 | |
| ADONA* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 919005-14-4 | |
| HFPO-DA* | Not detected | 1.9 | 1.9 | ng/L | 1.94 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 2.9 | ng/L | 1.94 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.1 | ng/L | 1.94 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.94 | 356-02-5 | |
| PFBSA* | Not detected | 1.9 | 1.2 | ng/L | 1.94 | 30334-69-1 | |
| PFECHS* | 1.2 | 1.9 | 1.2 | ng/L | 1.94 | 67584-42-3 | J |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.29 (continued)

Sample Tag: PZ-23-05032023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 22:51, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFHxSA* | Not detected | 1.9 | 0.97 | ng/L | 1.94 | 41997-13-1 | |



Analytical Laboratory Report

Lab Sample ID: S48122.30

Sample Tag: DUP-02-05032023

Collected Date/Time: 05/03/2023 12:00

Matrix: Groundwater

COC Reference: 158504

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|----------------------|-----------------|---------------|-------------------|---------------|
| 1 | 15ml Centrifuge Tube | None | Yes | 14.6 | IR |

Extraction / Prep.

| Parameter | Result | Method | Run Date | Analyst | Flags |
|--|---------------|---------------|----------------|---------|-------|
| Initial wt. (g) / Final wt. (g) / Volume (ml)* | 12.05/6.46/11 | ASTMD7979-19M | 05/10/23 14:00 | AB | |

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 23:10, Analyst: KCV

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-------------------|--------------|-----|------|-------|----------|--------------|-------|
| PFBA* | Not detected | 9.9 | 9.9 | ng/L | 1.97 | 375-22-4 | |
| PFPeA* | 10.0 | 3.9 | 0.99 | ng/L | 1.97 | 2706-90-3 | |
| 4:2 FTSA* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 757124-72-4 | |
| PFHxA* | 8.1 | 2.0 | 1.4 | ng/L | 1.97 | 307-24-4 | |
| PFBS* | 7.8 | 2.0 | 1.4 | ng/L | 1.97 | 375-73-5 | |
| PFHpA* | 7.0 | 2.0 | 1.4 | ng/L | 1.97 | 375-85-9 | |
| PFPeS* | 1.9 | 2.0 | 1.8 | ng/L | 1.97 | 2706-91-4 | J |
| 6:2 FTSA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 27619-97-2 | |
| PFOA* | 64 | 2.0 | 1.6 | ng/L | 1.97 | 335-67-1 | |
| PFHxS* | 9.5 | 2.0 | 1.6 | ng/L | 1.97 | 355-46-4 | |
| PFHxS-LN* | 7.7 | 2.0 | 1.6 | ng/L | 1.97 | 355-46-4-LN | |
| PFHxS-BR* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 355-46-4-BR | |
| PFNA* | Not detected | 2.0 | 1.8 | ng/L | 1.97 | 375-95-1 | |
| 8:2 FTSA* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 39108-34-4 | |
| PFHpS* | 3.0 | 2.0 | 2.0 | ng/L | 1.97 | 375-92-8 | |
| PFDA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 335-76-2 | |
| N-MeFOSAA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 2355-31-9 | |
| EtFOSAA* | 11 | 3.9 | 2.0 | ng/L | 1.97 | 2991-50-6 | |
| PFOS* | 120 | 2.0 | 1.9 | ng/L | 1.97 | 1763-23-1 | |
| PFOS-LN* | 72 | 2.0 | 1.9 | ng/L | 1.97 | 1763-23-1-LN | |
| PFOS-BR* | 44 | 2.0 | 1.9 | ng/L | 1.97 | 1763-23-1-BR | |
| PFUnDA* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 2058-94-8 | |
| PFNS* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 68259-12-1 | |
| PFDODA* | Not detected | 2.0 | 1.6 | ng/L | 1.97 | 307-55-1 | |
| PFDS* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 335-77-3 | |
| PFTTrDA* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 72629-94-8 | |
| FOSA* | Not detected | 2.0 | 1.8 | ng/L | 1.97 | 754-91-6 | |
| PFTeDA* | Not detected | 3.9 | 1.8 | ng/L | 1.97 | 376-06-7 | |
| 11Cl-PF3OUdS* | Not detected | 2.0 | 1.8 | ng/L | 1.97 | 763051-92-9 | |
| 9Cl-PF3ONS* | Not detected | 2.0 | 1.4 | ng/L | 1.97 | 756426-58-1 | |
| ADONA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 919005-14-4 | |
| HFPO-DA* | Not detected | 2.0 | 2.0 | ng/L | 1.97 | 13252-13-6 | |
| FHpPA (7:3 FTCA)* | Not detected | 3.9 | 3.0 | ng/L | 1.97 | 812-70-4 | |
| FPePA (5:3 FTCA)* | Not detected | 3.9 | 2.2 | ng/L | 1.97 | 914637-49-3 | |
| FPrPA (3:3 FTCA)* | Not detected | 3.9 | 1.2 | ng/L | 1.97 | 356-02-5 | |
| PFBSA* | Not detected | 2.0 | 1.2 | ng/L | 1.97 | 30334-69-1 | |

J-Estimated value less than reporting limit, but greater than MDL



Analytical Laboratory Report

Lab Sample ID: S48122.30 (continued)

Sample Tag: DUP-02-05032023

34 PFAs, Method: ASTMD7979-19M, Run Date: 05/16/23 23:10, Analyst: KCV (continued)

| Parameter | Result | RL | MDL | Units | Dilution | CAS# | Flags |
|-----------|--------------|-----|------|-------|----------|------------|-------|
| PFECHS* | 5.7 | 2.0 | 1.2 | ng/L | 1.97 | 67584-42-3 | |
| PFHxSA* | Not detected | 2.0 | 0.99 | ng/L | 1.97 | 41997-13-1 | |

Merit Laboratories Login Checklist

Lab Set ID:S48122

Client:WSP (WSP)

Project: 3650220203 / Former J.B. Sims Generating Station

Submitted:05/03/2023 14:00 Login User: MMC

Attention: Wendi Michael

Address: WSP

45850 Magellan Drive, Suite 190
Novi, MI 48377

Phone: 947-465-6243

FAX:

Email: Wendi.Michael@wsp.com

| Selection | Description | Note |
|--------------------------|--|---|
| Sample Receiving | | |
| 01. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 14.6 |
| 02. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun |
| 03. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped |
| 04. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box |
| 05. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |
| Chain of Custody | | |
| 06. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out |
| 07. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab |
| 08. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC |
| 09. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to: |
| Preservation | | |
| 10. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation |
| 11. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs) |
| 12. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab? |
| Bottle Conditions | | |
| 13. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact |
| 14. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used |
| 15. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used |
| 16. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received |
| 17. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration |
| 18. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time |
| 19. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace |

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____



2680 East Lansing Dr., East Lansing, MI 48823
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C.O.C. PAGE # 2 OF 3 158523

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME: **Wendi Michael**
 COMPANY: **WSP USA**
 ADDRESS: **46850 Magellan Drive, Suite 190**
 CITY: **Novi** STATE: **MI** ZIP CODE: **48377**
 PHONE NO.: **947-465-6243** CELL NO.: P.O. NO.:
 E-MAIL ADDRESS: **Wendi.Michael@wsp.com** QUOTE NO.:

CONTACT NAME: SAME
 COMPANY:
 ADDRESS:
 CITY: STATE: ZIP CODE:
 PHONE NO.: E-MAIL ADDRESS:

PROJECT NO./NAME: **3650220203/Former JB Sims Generating Station** SAMPLER(S) - PLEASE PRINT/SIGN NAME: **Lara Devine**
 TURNAROUND TIME REQUIRED: 1 DAY 2 DAYS 3 DAYS STANDARD OTHER
 DELIVERABLES REQUIRED: STD LEVEL II LEVEL III LEVEL IV EDD OTHER

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

MATRIX W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID
 CODE: SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR WS=WASTE

Containers & Preservatives

| MERIT LAB NO. <small>FOR LAB USE ONLY</small> | COLLECTION | | SAMPLE TAG IDENTIFICATION-DESCRIPTION | MATRIX | # OF BOTTLES | NONE | HCl | HNO ₃ | H ₂ SO ₄ | NaOH | MeOH | OTHER | PFAS list by DAPP-AM | Certifications | | |
|--|------------|-------|---------------------------------------|--------|--------------|------|-----|------------------|--------------------------------|------|------|-------|----------------------|-----------------------------------|---|---------------------------------------|
| | DATE | TIME | | | | | | | | | | | | <input type="checkbox"/> OHIO VAP | <input type="checkbox"/> Drinking Water | |
| 48122.13 | 5/02/23 | 09:05 | PZ-14-05022023 | GW | 3 | X | | | | | | | X | | <input type="checkbox"/> DoD | <input type="checkbox"/> NPDES |
| .14 | 5/02/23 | 09:50 | PZ-13-05022023 | GW | 3 | X | | | | | | | X | | <input type="checkbox"/> Detroit | <input type="checkbox"/> New York |
| .15 | 5/02/23 | 10:50 | MW-04-05022023 | GW | 3 | X | | | | | | | X | | <input type="checkbox"/> Other | |
| .16 | 5/02/23 | 11:33 | MW-03-05022023 | GW | 3 | X | | | | | | | X | | | Special Instructions |
| .17 | 5/02/23 | 12:20 | MW-01R-05022023 | GW | 3 | X | | | | | | | X | | | |
| .18 | 5/02/23 | 12:20 | Equipment Blank-01-05022023 | GW | 3 | X | | | | | | | X | | | |
| .19 | 5/02/23 | 13:18 | MW-10-05022023 | GW | 3 | X | | | | | | | X | | | |
| .20 | 5/02/23 | 14:16 | PZ-32-05022023 | GW | 3 | X | | | | | | | X | | | |
| 21/22/23 | 5/02/23 | 15:05 | MW-08-05022023 | GW | 3 | X | | | | | | | X | | | MW-8-MS, MW-8-MSD incl. MW-8-05022023 |
| .24 | 5/02/23 | 15:55 | PZ-28-05022023 | GW | 3 | X | | | | | | | X | | | |
| .25 | 5/02/23 | 12:00 | DUP-01-05022023 | GW | 3 | X | | | | | | | X | | | |
| .26 | 5/02/23 | 16:48 | MW-35-05022023 | GW | 3 | X | | | | | | | X | | | |

RELINQUISHED BY: **Lara Devine/WSP** Sampler DATE: **5-3-23** TIME: **14:00**
 RECEIVED BY: **M Chlcoat** DATE: **5/3/23** TIME: **1400**
 RELINQUISHED BY: DATE: TIME:
 RECEIVED BY: DATE: TIME:

RELINQUISHED BY: DATE: TIME:
 RECEIVED BY: DATE: TIME:
 SEAL NO. SEAL INTACT INITIALS
 YES NO
 SEAL NO. SEAL INTACT INITIALS
 YES NO
 NOTES: TEMP. ON ARRIVAL: **14.6**
MW-08-05022023-MS
MW-08-05022023-MSD



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C.O.C. PAGE # 3 OF 3 158504

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME Wendi Michael
 COMPANY WSP USA
 ADDRESS 46850 Magellan Drive, Suite 190
 CITY Novi STATE MI ZIP CODE 48377
 PHONE NO. 947-465-6243 CELL NO. _____ P.O. NO. _____
 E-MAIL ADDRESS wendi.michael@wsp.com QUOTE NO. _____

CONTACT NAME SAME
 COMPANY _____
 ADDRESS _____
 CITY _____ STATE _____ ZIP CODE _____
 PHONE NO. _____ E-MAIL ADDRESS _____

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

PROJECT NO./NAME 365022023/Former JB Sims Generating Station SAMPLER(S) - PLEASE PRINT/SIGN NAME Lara Devine / Lara Devine
 TURNAROUND TIME REQUIRED 1 DAY 2 DAYS 3 DAYS STANDARD OTHER _____
 DELIVERABLES REQUIRED STD LEVEL II LEVEL III LEVEL IV EDD OTHER _____

MATRIX W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID
 CODE: SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR WS=WASTE

Containers & Preservatives

| MERIT LAB NO. <small>FOR LAB USE ONLY</small> | COLLECTION | | SAMPLE TAG IDENTIFICATION-DESCRIPTION | MATRIX | # OF BOTTLES | NONE | HCl | HNO ₃ | H ₂ SO ₄ | NaOH | MeOH | OTHER |
|--|------------|-------|---------------------------------------|--------|--------------|------|-----|------------------|--------------------------------|------|------|-------|
| | DATE | TIME | | | | | | | | | | |
| 4812227 | 5/03/23 | 09:08 | MW-34-05032023 | 6W | 3 | X | | | | | | |
| .28 | 5/03/23 | 10:28 | MW-33-05032023 | 6W | 3 | X | | | | | | |
| .29 | 5/03/23 | 11:21 | PZ-23-05032023 | 6W | 3 | X | | | | | | |
| .30 | 5/03/23 | 12:00 | DUP-02-05032023 | 6W | 3 | X | | | | | | |

PFAS 34 list by D1479-19M

Certifications
 OHIO VAP Drinking Water
 DoD NPDES
 Project Locations
 Detroit New York
 Other _____
 Special Instructions _____

RELINQUISHED BY: Lara Devine/WSP Sampler DATE 5-3-23 TIME 14:00
 RECEIVED BY: M Michael DATE 5/3/23 TIME 1400
 RELINQUISHED BY: _____ DATE _____ TIME _____
 RECEIVED BY: _____ DATE _____ TIME _____

RELINQUISHED BY: _____ DATE _____ TIME _____
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Appendix G

Data Validation Reports



DATA VALIDATION REPORT

FORMER JB SIMS GENERATING STATION
HARBOR ISLAND, GRAND HAVEN
PROJECT # 3650220203.02.02

Prepared for:

HDR MICHIGAN, INC.

Ann Arbor, Michigan

3/21/2023

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TABLES

- Table 1. Field Samples Submitted to Merit Laboratories, Inc.
- Table 2. Field Duplicate Detections.
- Table 3. Qualifiers Added During Validation.

LIST OF ACRONYMS

| | |
|----------|---|
| % | percent |
| µg/L | micrograms per liter |
| 3:3 FTCA | 3-perfluoropropyl propanoic acid |
| 5:3 FTCA | 3-perfluoropentyl propanoic acid |
| 7:3 FTCA | 3-perfluoroheptyl propanoic acid |
| ASTM | ASTM International |
| CCV | continuing calibration verification |
| COC | chain of custody |
| EPA | United States Environmental Protection Agency |
| FTS | fluorotelomer sulfonic acid |
| ICAL | initial calibration |
| ICV | initial calibration verification |
| ID | identification |
| IS | internal standard |
| LCS | laboratory control sample |
| LCS D | laboratory control sample duplicate |
| MDL | method detection limit |
| Merit | Merit Laboratories, Inc. |
| MS | matrix spike |
| MSD | matrix spike duplicate |
| EtFOSAA | n-ethylperfluorooctanesulfonamidoacetic acid |
| PFAS | per- and polyfluoroalkyl substances |
| PFBA | perfluorobutanoic acid |
| PFHpA | perfluoroheptanoic acid |
| PFHxS | perfluorohexanesulfonic acid |
| QAPP | quality assurance project plan |
| QC | quality control |
| RL | reporting limit |
| RPD | relative percent difference |
| SVOC | semivolatile organic compounds |
| TOC | total organic carbon |
| VOC | volatile organic compound |
| Wood | Wood Environment & Infrastructure Solutions, Inc. |
| WSP | WSP USA Environment & Infrastructure, Inc. |

1 INTRODUCTION

WSP USA Environment & Infrastructure, Inc. (WSP) collected 105 water samples (including one field blank, 7 field duplicates, 3 equipment blanks, and 5 trip blanks) and 16 soil samples between November 29 and December 15, 2022, from the Former JB Sims Generating Station Site located in Harbor Island, Grand Haven, Michigan. WSP submitted the samples to Merit Laboratories, Inc. (Merit) located in East Lansing, Michigan, where they were received between December 1 and 15, 2022 and assigned to sample delivery groups 43008, 43009, 43011, 43065, 43067, 43068, 43221, 43222, 43223, 43319, 43320, 43321, 43497, 43499, and 43512. Merit analyzed the samples for per- and polyfluoroalkyl substances (PFAS) by liquid chromatography tandem mass spectrometry using ASTM International (ASTM) Method D7979, volatile organic compounds (VOCs) by United States Environmental Protection Agency (EPA) Method 8260C, semivolatile organic compounds (SVOCs) by EPA Method 8270D, grain size by ASTM Method D422, total organic carbon (TOC) by EPA Method 9060A, metals by EPA Method 200.8, mercury by EPA Method 245.1, and/or pH by EPA Method 9045D. Samples were also sent to GEL Laboratories, Inc. and analyzed for TOC by EPA Method 9060A.

A list of these samples by field sample identification (ID), sample collection date, and Merit's sample ID is presented in Table 1.

2 DATA VALIDATION METHODOLOGY

WSP performed an EPA Stage 4 data validation on a minimum of 10 percent (%) of the field samples analyzed during this sampling event and Stage 2B data validation on the remaining samples, as specified in Table 1. Particle size was not validated. This data validation has been performed in accordance with:

- WSP Environment & Infrastructure, Inc. (WSP), 2022. *Quality Assurance Project Plan (QAPP) PFAS Investigation at Former JB SIMS Generating Station Harbor Island, Grand Haven, Michigan*. October 14.
- EPA, 2009. *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*. EPA-540-R-08-005, January 13, 2009.
- EPA. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, EPA publication SW-846, Third Edition, Final Updates I (1993), II (1995), IIA (1994), IIB (1995), III (1997), IIIA (1999), IIIB (2005), IV (2008), and V (2015).

The laboratory's certified analytical report and supporting documentation were reviewed to assess the following:

- Data package and electronic deliverables completeness
- Chain of custody (COC) compliance
- Sample receipt
- Holding time compliance
- Initial calibration (ICAL)
- Initial calibration verification (ICV) and continuing calibration verification (CCV)
- Reporting limits
- Presence or absence of laboratory contamination as demonstrated by laboratory blanks
- Accuracy and bias as demonstrated by recovery of laboratory control samples (LCSs) and matrix spikes (MSs)
- Analytical precision as demonstrated by the analysis of LCS/LCS duplicate (LCSD), MS/MS duplicate (MSD), and/or laboratory duplicates

- Internal standard (IS) recoveries
- Analyte identification and quantification verification from raw analytical data
- Insofar as possible, the degree of conformance to method requirements and good laboratory practices

In general, it is important to recognize that no analytical data are guaranteed to be correct, even if all quality control (QC) audits are passed. Strict QC serves to increase confidence in data, but any reported value may potentially contain error.

3 DEFINITION OF QUALIFIERS THAT MAY BE ADDED DURING VALIDATION

- B** The analyte was detected in the associated blank at a concentration greater than 1/10 the concentration detected in the sample.
- J** The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- Q** The analyte was both B and J qualified.
- UJ** The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R** The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

4 QUALIFICATION REASON CODES

The following reason codes were applied to the data during validation:

- DL** The detected analyte concentration is less than the reporting limit (RL).
- FD** Imprecision between primary and field duplicate results.
- HD** Imprecision between laboratory duplicate analyses.
- HM** High MS recovery. Result may be biased high.
- LC** Low CCV recovery. Result may be biased low.
- LCSD** Imprecision between LCS and LCSD results.
- LL** Low LCS recovery. Result may be biased low.
- MB** The analyte was detected in the associated laboratory blank.
- TB** The analyte was detected in the associated trip blank.

5 EXPLANATION OF DATA QUALITY INDICATORS

Summary explanations of the specific data quality indicators reviewed during this data validation are presented in the sections below.

5.1 BLANK SAMPLES

Blank samples are aliquots of analyte free matrix that are used as negative controls to verify that the sample collection, storage, preparation, and analytical system does not produce false positive results.

Equipment blanks are prepared by passing analyte free water through or over sample collection equipment and collecting the water in sample containers. Equipment blanks are used to monitor for possible sample contamination during the sample collection process and serve as a check on the effectiveness of field decontamination procedures.

Trip blanks are vials of analyte free water that accompany sample bottles shipped to the field and back to the laboratory with field samples. Trip blanks assess contamination attributed to shipping and handling procedures, as well as contamination from containers.

Laboratory blanks are aliquots of analyte free matrix that are processed by the laboratory using the same procedures as the field samples. Laboratory blanks are used to monitor for contamination introduced by the laboratory during sample preparation and analysis.

5.2 LABORATORY CONTROL SAMPLE RECOVERIES

LCSs are aliquots of analyte-free matrix that are spiked with the analytes of interest for an analytical method. The spiked matrix is then processed through the same preparation and analytical procedures as the samples they accompany. LCS recovery is an indication of a laboratory's ability to successfully perform an analytical method in an interference-free matrix.

5.3 INTERNAL STANDARDS

Internal standards are compounds that are added to a sample after all preparatory steps are completed and before instrumental analysis. These compounds serve as standards for qualitative analysis using relative retention time and quantitative analysis using relative response factors. Methods that use internal standard calibration include requirements for changes in response to the internal standard relative to the ICAL or the CCV.

5.4 CALIBRATION

Instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. Calibration is verified at the beginning of the analytical run and on an ongoing basis.

6 CHAIN OF CUSTODY AND SAMPLE RECEIPT CONDITION DOCUMENTATION

The samples were received by Merit under proper COC, intact, properly preserved, and at temperatures within the QAPP specified temperature range of 2 to 6 degrees Celsius, with the following exception:

- Trip Blank -04 was included on the COC but was not received by the laboratory. It was logged in but not analyzed.

7 SPECIFIC DATA VALIDATION FINDINGS

Sections 7.1 through 8.0 contain narrative descriptions of the data validation findings and data quality limitations.

7.1 PFAS BY ASTM METHOD D7979

PFAS results generated by Merit may be considered fully usable with the limitations summarized in Sections 7.1.1 through 7.1.11.

7.1.1 *HOLDING TIME COMPLIANCE*

The samples were analyzed for PFAS within the method-specified maximum holding time of 28 days from sample collection.

7.1.2 *INITIAL CALIBRATION COMPLIANCE*

The ICALS associated with the analysis of these samples met the method-specified criteria of the calibration standards calculating to 70 to 130% of their true concentrations.

7.1.3 *INITIAL CALIBRATION VERIFICATION RECOVERIES*

ICV recoveries were within the method-specified 70 to 130% limits.

7.1.4 *CONTINUING CALIBRATION VERIFICATION RECOVERIES*

CCV recoveries were within the method-specified 70 to 130% limits.

7.1.5 *EQUIPMENT, FIELD, AND LABORATORY BLANK DETECTIONS*

Target analytes were not detected in the equipment, field, or laboratory blanks associated with the analysis of the samples reviewed in this report.

7.1.6 LABORATORY CONTROL SAMPLE ACCURACY AND PRECISION

LCS and LCSD recoveries were within the laboratory-specified 70 to 130% limits and relative percent differences (RPDs) between LCS and LCSD results were less than the QAPP-specified maximum of 30%, with the following exceptions:

- The RPD between N-ethyl perfluorooctanesulfonamidoacetic acid (EtFOSAA) results was high at 40% in the LCS and LCSD associated with the analysis of samples DUP-04-07122022, DUP-05-09122022, VAS20-5-9, VAS20-16-20, VAS21-16-20, VAS22-5-9, VAS22-16-20, VAS23-16-20, VAS24-5-9, VAS24-16-20, VAS25-3-7, VAS25-16-20, VAS26-16-20, VAS27-4-8, VAS27-16-20, and VAS28-16-20. Data limitations are summarized below.
 - WSP J qualified the detected EtFOSAA results from samples VAS20-5-9 and VAS20-16-20 because of potential analytical imprecision. (J, LCSD)
 - EtFOSAA was not detected in the remaining associated samples and data usability is not adversely affected by potential analytical imprecision.
- The RPD between perfluorohexanesulfonic acid (PFHxS) results was high at 33% in the LCS and LCSD associated with the analysis of samples VAS19-SB-5-7, VAS21-SB-5-7, VAS23-SB-5-7, and VAS26-SB-4-6. Data limitations are summarized below.
 - WSP J qualified the detected PFHxS result from sample VAS21-SB-5-7 because of potential analytical imprecision. (J, LCSD)
 - PFHxS was not detected in the remaining associated samples and data usability is not adversely affected by potential analytical imprecision.

7.1.7 MATRIX SPIKE ACCURACY AND PRECISION

Merit performed MS and MSD analyses on samples VAS08-16-20, VAS19-16-20, VAS20-5-9, and VAS31-16-20, and VAS13-SB-2-3. MS and MSD recoveries were within the laboratory-specified 70 to 130% limits, and RPDs between MS and MSD results were less than the QAPP-specified maximum of 30%, with the following exceptions:

- Perfluorobutanoic acid (PFBA [623%]), perfluoroheptanoic acid (PFHpA [133%]), 3-perfluoroheptyl propanoic acid (7:3 FTCA [131%]), 3-perfluoropentyl propanoic acid (5:3 FTCA [132%]), and 3-perfluoropropyl propanoic acid (3:3 FTCA [150%]) recoveries were high in the MS performed on sample VAS20-5-9. Data limitations are summarized below.
 - WSP J qualified the detected 3:3 FTCA, 5:3 FTCA, and PFHpA results from sample VAS20-5-9 because of potential high analytical bias. (J, HM)
 - 7:3 FTCA and PFBA were not detected in the unspiked native sample and data usability is not adversely affected by potential high analytical bias.

7.1.8 LABORATORY DUPLICATE PRECISION

Merit performed duplicate analyses on samples VAS15-SB-3-5 and VAS20-16-20. RPDs between detections in the primary and duplicate samples were less than the method-recommended maximum of 30%, indicating acceptable analytical precision, with the following exceptions:

- RPDs between 8:2 fluorotelomer sulfonic acid (FTS) and EtFOSAA results were high at 46% and 35%, respectively, in the duplicate analysis of sample VAS20-16-20. Data limitations are summarized below.
 - WSP J qualified the detected EtFOSAA result from sample VAS20-16-20 due to imprecision between the MS and MSD results. (J, HD)

- The difference between primary and duplicate 8:2 FTS detections was less than the RL, indicating acceptable sampling and analytical imprecision.
 - RPDs between perfluorohexanoic acid and branched perfluorooctanesulfonic acid results were high at 200% and 51%, respectively, in the duplicate analysis of sample VAS15-SB-3-5. However, the differences between primary and duplicate results were less than the RL, indicating acceptable analytical imprecision.
-

7.1.9 INTERNAL STANDARD AREA COUNTS

IS area counts were within the QAPP-specified limits of 50 to 150% of the area counts from the ICAL midpoint or the most current CCV, with the following exception:

- Recoveries of the ISs d₅-EtFOSAA (164%), M2-6:2 FTS (182%), and M2-8:2 FTS (211%) were high in sample VAS15-SB-3-5. EtFOSAA, 6:2 FTS, and 8:2 FTS were not detected in sample VAS15-SB-3-5 and data usability is not adversely affected by the high IS recoveries.
 - Recoveries of the IS M2-4:2 FTS were high in samples GP-02 and VAS18-16-20 at 151% and 157%, respectively. 4:2 FTS was not detected in the associated samples and data usability is not adversely affected by the high IS recoveries.
-

7.1.10 STAGE 4 VALIDATION

WSP reviewed the raw data, checked analyte identifications, and recalculated the reported results for samples VAS21-16-20, VAS22-5-9, VAS22-16-20, VAS23-16-20, VAS24-5-9, VAS24-16-20, VAS25-3-7, VAS25-16-20, VAS26-16-20, VAS27-4-8, VAS21-SB-5-7, and VAS23-SB-5-7. Reported results matched the raw analytical data and target analytes were correctly identified.

7.1.11 DATA REPORTING AND ANALYTICAL PROCEDURES

Merit J qualified results with detected concentrations less than the RL. WSP agrees these results are quantitatively uncertain and has maintained the laboratory's J qualifiers. (J, DL)

7.2 VOCS AND SVOCs BY EPA METHODS 8260C AND 8270E

VOC and SVOC results generated by Merit may be considered fully usable with the limitations summarized in Sections 7.2.1 through 7.2.12.

7.2.1 HOLDING TIME COMPLIANCE

The samples were analyzed for VOCs within the method-specified maximum hold time of 14 days from collection, extracted for SVOCs within the method-specified holding times of 7 days from collection for waters, and analyzed within the method-specified maximum holding time of 40 days from extraction.

7.2.2 INSTRUMENT TUNE COMPLIANCE

Bromofluorobenzene and decafluorotriphenylphosphine instrument tunes associated with the analysis of these samples met method-specified criteria.

7.2.3 INITIAL CALIBRATION COMPLIANCE

The ICALs associated with the analysis of these samples met the method-specified criteria of correlation coefficients greater than or equal to 0.99 or relative standard deviations of the response factors less than or equal to 20%.

7.2.4 INITIAL CALIBRATION VERIFICATION RECOVERIES

ICV recoveries were within the EPA-recommended 70 to 130% limits.

7.2.5 CONTINUING CALIBRATION VERIFICATION RECOVERIES

CCV recoveries were within the method-specified 80 to 120% limits, with the following exceptions:

- sec-Butylbenzene (79%), carbon disulfide (79%), chloromethane (79%), dichlorodifluoromethane (63%), 2-methylnaphthalene (78%), trichlorofluoromethane (77%), and vinyl chloride (76%) recoveries were low in the CCV associated with the VOC analysis of samples VAS21-5-9, VAS23-5-9, VAS26-4-8, and VAS28-3-7. WSP UJ qualified the non-detect sec-butylbenzene, carbon disulfide, chloromethane, dichlorodifluoromethane, 2-methylnaphthalene, trichlorofluoromethane, and vinyl chloride results from the associated samples because of potential high analytical bias. (UJ, LC)
 - Chloromethane (126%), 1,2-dibromo-chloropropane (78%), dichlorodifluoromethane (124%), 2-methylnaphthalene (59%), naphthalene (78%), 1,2,3-trichlorobenzene (78%), and vinyl chloride (125%) recoveries were outside limits in the CCV associated with the VOC analysis of sample VAS05-4-9. Data limitations are summarized below.
 - WSP J qualified the detected and UJ qualified the non-detect 1,2-dibromo-3-chloropropane, 2-methylnaphthalene, naphthalene, and 1,2,3-trichlorobenzene results from the associated sample because of potential low analytical bias. (J/UJ, LC)
 - Chloromethane, dichlorodifluoromethane, and vinyl chloride were not detected in the associated sample and data usability is not adversely affected by potential high analytical bias.
 - m, p-Cresol recovery was low at 51% in the CCV associated with the SVOC analysis of samples DUP-07-13122022, VAS21-5-9, VAS23-5-9, VAS26-4-8, VAS31-3-7, VAS32-3-7, VAS33-3-7, VAS34-3-7, and VAS35-1-5. WSP UJ qualified the non-detect m,p-cresol results from the associated samples because of potential low analytical bias. (UJ, LC)
 - m,p-Cresol recovery was low at 50% in the CCV associated with the SVOC analysis of samples MW-33, VAS05-4-9, VAS28-3-7, VAS37-4-8, VAS38-5-9, and VAS39-1-5. WSP UJ qualified the non-detect m,p-cresol results from the associated samples because of potential low analytical bias. (UJ, LC)
 - m,p-Cresol recovery was low at 50% in the CCV associated with the SVOC analysis of sample MW-34. WSP J qualified the detected m,p-cresol result from sample MW-34 because of potential low analytical bias. (J, LC)
-

7.2.6 LABORATORY AND TRIP BLANK DETECTIONS

Target analytes were not detected in the laboratory or trip blanks associated with the analysis of the samples reviewed in this report, with the following exceptions:

- Carbon disulfide and 2-methylnaphthalene were detected at concentrations of 0.19 micrograms per liter ($\mu\text{g/L}$) and 0.24 $\mu\text{g/L}$, respectively, in the laboratory blank associated with the VOC analysis of samples VAS13-3-7, VAS15-3-7, VAS17-3-7, and VAS19-5-9. Data limitations are summarized below.
 - WSP B qualified the detected carbon disulfide results from samples VAS13-3-7, VAS17-3-7, and VAS19-5-9, and the detected 2-methylnaphthalene result from sample VAS17-3-7, because the

- concentrations detected in the samples were less than the RL and less than ten times the concentrations detected in the blank. (B, MB)
- Carbon disulfide and/or 2-methylnaphthalene were not detected in the remaining associated samples and data usability is not adversely affected by the blank detections.
 - Carbon disulfide and 2-methylnaphthalene were detected at concentrations of 0.15 µg/L and 0.27 µg/L, respectively, in the laboratory blank associated with the VOC analysis of sample MW-34. Data limitations are summarized below.
 - WSP B qualified the detected carbon disulfide result from sample MW-34 because the concentration detected in the sample was less than the RL and less than ten times the concentration detected in the blank. (B, MB)
 - 2-Methylnaphthalene was detected in sample MW-34 at a concentration greater than ten times the concentration detected in the blank and data usability is not adversely affected by the blank detection.
 - Acetone (7.0 µg/L), carbon disulfide (0.23 µg/L), and methylene chloride (0.31 µg/L) were detected in trip blank TB-02 associated with samples VAS13-3-7 and VAS-15-3-7. Data limitations are summarized below.
 - WSP B qualified the detected carbon disulfide result from sample VAS13-3-7 because the concentration detected in the sample was less than the RL and less than ten times the concentration detected in the blank. (B, TB)
 - Carbon disulfide was not detected in the remaining associated sample. Acetone and methylene chloride were not detected in any associated samples and data usability is not adversely affected by the blank detections.
 - n-Butylbenzene (0.11 µg/L), 2-methylnaphthalene (0.29 µg/L), and 1,2,3-trichlorobenzene (0.14 µg/L), and were detected in the laboratory blank associated with the VOC analysis of sample VAS05-4-9. n-Butylbenzene, 2-methylnaphthalene, and 1,2,3-trichlorobenzene were not detected in sample VAS05-4-9 and data usability is not adversely affected by the blank detections.
 - Carbon disulfide and 2-methylnaphthalene were detected at concentrations of 0.42 µg/L and 0.34 µg/L, respectively, in the laboratory blank associated with the VOC analysis of samples DUP-07-13122022, MW-33, VAS31-3-7, VAS32-3-7, VAS33-3-7, VAS34-3-7, VAS35-1-5, VAS37-4-8, VAS38-5-9, and VAS39-1-5. Carbon disulfide and 2-methylnaphthalene were not detected in the associated samples and data usability is not adversely affected by the blank detections.
 - Carbon disulfide was detected at a concentration of 0.16 µg/L in the laboratory blank associated with the VOC analysis of samples VAS21-5-9, VAS23-5-9, VAS26-4-8, and VAS28-3-7. Carbon disulfide was not detected in the associated samples and data usability is not adversely affected by the blank detection.
 - di-N-Butyl phthalate was detected at a concentration of 0.2 µg/L in the laboratory blank associated with the SVOC analysis of samples DUP-07-13122022, MW-34, VAS13-3-7, VAS15-3-7, VAS17-3-7, VAS19-5-9, VAS21-5-9, VAS23-5-9, VAS26-4-8, VAS31-3-7, VAS32-3-7, VAS33-3-7, VAS34-3-7, and VAS35-1-5. di-N-Butyl phthalate was not detected in the associated samples and data usability is not adversely affected by the blank detection.
 - Acetone (7.2 µg/L), carbon disulfide (0.18 µg/L), methylene chloride (0.33 µg/L), and tetrahydrofuran (1.3 µg/L) were detected in Trip Blank-03 associated with samples VAS21-5-9, VAS23-5-9, VAS26-4-8, and VAS28-3-7. Acetone, carbon disulfide, methylene chloride, and tetrahydrofuran were not detected in the associated samples and data usability is not adversely affected by the blank detections.
 - Acetone and methylene chloride were detected at concentrations of 4.7 µg/L and 0.26 µg/L, in the trip blank associated with sample MW-34. Acetone and methylene chloride were not detected in sample MW-34 and data usability is not adversely affected by the blank detections.

- Chloroform and methylene chloride were detected at concentrations of 0.28 µg/L and 1.19 µg/L, respectively, in the trip blank associated with sample VAS05-4-9. Chloroform and methylene chloride were not detected in sample VAS05-4-9 and data usability is not adversely affected by the blank detections.

7.2.7 LABORATORY CONTROL SAMPLE ACCURACY AND PRECISION

LCS and LCSD recoveries were within the laboratory-specified limits of 70 to 130%, and RPDs between LCS and LCSD results were less than the QAPP-specified maximum of 30%, with the following exceptions:

- 1,2-Dichlorobenzene and isophorone recoveries were low at 61% and 54%, respectively, in the LCS associated with the SVOC analysis of samples MW-33, VAS37-4-8, VAS38-5-9, and VAS39-1-5. WSP UJ qualified the non-detect 1,2-dichlorobenzene and isophorone results from the associated samples because of potential low analytical bias. (UJ, LL)
- 3-Nitroaniline recovery was low at 42% in the LCS associated with the SVOC analysis of samples VAS05-4-9 and VAS28-3-7. WSP UJ qualified the non-detect 3-nitroaniline results from the associated samples because of potential low analytical bias. (UJ, LL)

7.2.8 MATRIX SPIKE ACCURACY AND PRECISION

Merit did not perform MS/MSD analyses on the samples reviewed in this report.

7.2.9 SURROGATE ACCURACY

Surrogate recoveries were within laboratory-specified limits.

7.2.10 INTERNAL STANDARD AREA COUNTS

IS area counts were within the QAPP-specified limits of 50 to 200% of the area counts from the ICAL midpoint or the most current CCV.

7.2.11 STAGE 4 VALIDATION

WSP reviewed the raw data, checked analyte identifications, and recalculated the reported VOC results for samples VAS21-5-9, VAS23-5-9, and VAS26-4-8; and the SVOC results for samples VAS21-5-9 and VAS23-5-9. Reported results matched the raw analytical data and target analytes were correctly identified.

7.2.12 DATA REPORTING AND ANALYTICAL PROCEDURES

Merit J qualified results with detected concentrations less than the RL. WSP agrees these results are quantitatively uncertain and has maintained the laboratory's J qualifiers. (J, DL)

7.3 INORGANIC ANALYSES

Metals, mercury, TOC, and pH results generated by Merit may be considered fully usable with the limitations summarized in Sections 9.1 through 9.13.

7.3.1 HOLDING TIME COMPLIANCE

The samples were extracted and analyzed within the following QAPP-specified maximum holding times of:

- 180 days from collection to analysis for metals; and
 - 28 days from collection to analysis for mercury, TOC, and pH.
-

7.3.2 INITIAL CALIBRATION COMPLIANCE

ICAL data for metal, mercury, TOC, and pH are not present in the Level 4 data packages and it is not possible to assess ICAL compliance for these analyses.

7.3.3 INITIAL CALIBRATION VERIFICATION RECOVERIES

ICV recoveries were within the:

- QAPP-specified 90 to 110% limits for metals and mercury; and the
 - laboratory-specified limits of 80 to 120% for TOC.
-

7.3.4 CONTINUING CALIBRATION VERIFICATION RECOVERIES

CCV recoveries were within the:

- QAPP-specified 90 to 110% limits for metals and mercury; and the
 - laboratory-specified limits of 80 to 120% for TOC.
-

7.3.5 LABORATORY BLANK DETECTIONS

Target analytes were not detected in the laboratory blanks associated with the analysis of the samples reviewed in this report.

7.3.6 LABORATORY CONTROL SAMPLE ACCURACY AND PRECISION

LCS and/or LCSD recoveries were within the:

- QAPP-specified 85 to 115% limits for metals and mercury;
- laboratory-specified 57 to 142% limits for TOC; and the
- QAPP-specified 5.00 ± 0.05 pH unit limit for pH.

RPDs between LCS and LCSD results were less than the QAPP-specified maximum of 20% for metals and mercury.

7.3.7 MATRIX SPIKE ACCURACY AND PRECISION

Merit performed MS/MSD analyses on samples VAS28-3-7, VAS31-3-7, VAS39-1-5 for metals, and on sample VAS21-5-9 for mercury. MS and MSD recoveries were within the QAPP-specified 75 to 125% limits, and RPDs between MS and MSD results were less than the QAPP-specified maximum of 20%.

7.3.8 LABORATORY DUPLICATE PRECISION

Merit performed duplicate analyses for TOC in sample VAS13-SB-2-3 and pH in sample VAS31-SB-3-5. Precision values between detections in the primary and duplicate samples were within the laboratory-specified maximum of 16% RPD for TOC and QAPP-specified maximum difference of ± 0.05 pH units.

7.3.9 SERIAL DILUTION PRECISION

WSP performed serial dilution analyses on samples VAS17-3-7, VAS21-5-9, and VAS39-1-5. RPDs were within the QAPP-specified maximum of 10%, with the following exceptions:

- RPDs between primary and serial dilution results for arsenic (40%), selenium (50%), and zinc (13%) were high in sample VAS17-3-7. Arsenic, selenium, and zinc were detected in sample VAS17-3-7 at concentrations less than 100 times the method detection limit (MDL) and data usability cannot be assessed based on serial dilution results.
- The RPD between primary and serial dilution results for arsenic was high at 12% in sample VAS21-5-9. Arsenic was detected in sample VAS21-5-9 at a concentration less than 100 times the MDL and data usability cannot be assessed based on serial dilution results.
- The RPD between primary and serial dilution results for arsenic was high at 29% in sample VAS39-1-5. Arsenic was detected in sample VAS39-1-5 at a concentration less than 100 times the MDL and data usability cannot be assessed based on serial dilution results.

7.3.10 INTERFERENCE CHECK STANDARDS (METALS ONLY)

Target analytes were not detected in interference check standard (ICS)-A at concentrations greater than or equal to the RL and recoveries were within the QAPP-specified 70 to 135% limits in ICS-B.

7.3.11 INTERNAL STANDARD AREA COUNTS (METALS ONLY)

IS area counts were within the QAPP-specified 70 to 125% limits.

7.3.12 CALCULATION CHECKS AND ANALYTE IDENTIFICATION

WSP reviewed the raw data, checked analyte identifications, and recalculated the reported results for metals and mercury in samples VAS21-5-9 and VAS23-5-9, and for TOC and pH in samples VAS31-SB-3-5 and VAS32-SB-3-5. Reported results matched the raw analytical data and target analytes were correctly identified.

7.3.13 DATA REPORTING AND ANALYTICAL PROCEDURES

Merit 'b' qualified results with detected concentrations less than the RL. WSP agrees these results are quantitatively uncertain and has J qualified the 'b' qualified results. (J, DL)

8 FIELD DUPLICATE PRECISION

WSP collected field duplicates with samples VAS05-4-9 (DUP-01-01122022), VAS10-2-7 (DUP02-02122022), VAS18-3-7 (DUP-03-06122022), VAS19-5-9 (DUP-04-07122022), VAS27-4-8 (DUP-05-09122022), VAS31-3-7 (DUP-06-12122022), and VAS35-1-5 (DUP-07-13122022). RPDs between primary and duplicate results were less than the QAPP-specified maximum of 30% for water samples or 50% for soil samples, or differences between concentrations were less than the average RL, indicating acceptable sampling and analytical precision, with the following exception:

- The RPD between PFHpA results from sample VAS19-5-9 and its field duplicate DUP-04-07122022 was high at 38%. WSP J qualified the detected PFHpA results from these samples because of potential sampling and/or analytical imprecision. (J, FD)

Target analyte detections are summarized in Table 2.

9 SUMMARY AND CONCLUSIONS

WSP reviewed 6,632 data points from field samples during this validation and applied the following qualifiers to the data:

- WSP B qualified 5 data points (0.075%) due to detections in an associated laboratory and/or trip blanks;
- WSP J qualified 289 data points (4.4%) as being estimated concentrations due to high/low CCV recoveries; low LCS recovery; high MS recovery; imprecision between LCS and LCSD, laboratory duplicate, and/or primary and field duplicate results; and/or detections less than the RL; and
- WSP UJ qualified 56 data points (0.84%) as being estimated non-detections due to low LCS and/or CCV recoveries.

No data were rejected during validation and the data may be considered 100% usable, meeting the QAPP-specified 95% completeness goal. Qualifiers applied during data validation are summarized in Table 3.

10 REFERENCES

WSP Environment & Infrastructure, Inc. (WSP), 2022. *Quality Assurance Project Plan PFAS Investigation at Former JB SIMS Generating Station Harbor Island, Grand Haven, Michigan*. October 14.

EPA, 2009. *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*. EPA-540-R-08-005, January 13, 2009.

EPA. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, EPA publication SW-846, Third Edition, Final Updates I (1993), II (1995), IIA (1994), IIB (1995), III (1997), IIIA (1999), IIIB (2005), IV (2008), and V (2015).

11 LIMITATIONS

This report was prepared exclusively for HDR Michigan, Inc. by WSP USA Environment & Infrastructure, Inc. The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in WSP services and based on: i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this report. This data validation report is intended to be used by HDR Michigan, Inc. for the Former JB SIMS Generating Station Harbor Island Site only, subject to the terms and conditions of its contract with WSP. Any other use of, or reliance on, this report by any third party is at that party's sole risk.

TABLES

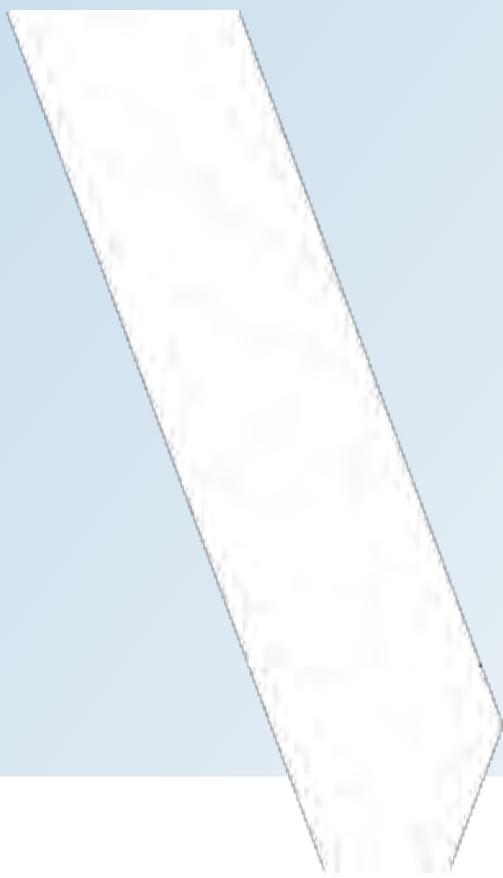


Table 1
Field Samples Submitted to Merit Laboratories, Inc.
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Matrix | Sample Collection Date and Time | PFAS Laboratory Sample Identification | General Laboratory Sample Identification | Notes |
|-----------------------------|--------|---------------------------------|---------------------------------------|--|------------------------------|
| GP-01 | Water | 11/29/2022 9:50 | S43008.01 | - | |
| GP-02 | Water | 11/29/2022 11:40 | S43008.02 | - | |
| VAS01-3-7 | Water | 11/29/2022 13:25 | S43008.03 | - | |
| VAS02-5-10 | Water | 11/29/2022 16:00 | S43008.04 | - | |
| VAS02-16-20 | Water | 11/29/2022 18:20 | S43008.05 | - | |
| VAS03-2-7 | Water | 11/30/2022 10:05 | S43008.06 | - | |
| VAS03-16-20 | Water | 11/30/2022 12:15 | S43008.07 | - | |
| VAS04-16-20 | Water | 11/30/2022 16:25 | S43008.08 | - | |
| DUP-01-01122022 | Water | 12/1/2022 0:00 | S43008.09 | - | Field Duplicate of VAS05-4-9 |
| VAS05-16-20 | Water | 12/1/2022 11:45 | S43008.10 | - | |
| VAS04-4-9 | Water | 11/30/2022 16:25 | S43011.01 | - | |
| VAS05-4-9 | Water | 12/1/2022 9:30 | S43011.02 | S43009.01 | |
| VAS05-SB-3-4 | Soil | 12/1/2022 9:30 | - | S43009.02 | |
| Trip Blank | Water | 12/1/2022 0:01 | - | S43009.03 | |
| VAS06-3-8 | Water | 12/1/2022 12:30 | S43065.01 | - | |
| VAS06-16-20 | Water | 12/1/2022 14:15 | S43065.02 | - | |
| VAS07-3-8 | Water | 12/1/2022 13:30 | S43065.03 | - | |
| VAS07-16-20 | Water | 12/1/2022 15:35 | S43065.04 | - | |
| VAS08-4-9 | Water | 12/1/2022 16:45 | S43065.05 | - | |
| MW-33 | Water | 12/1/2022 15:40 | S43065.06 | S43512.12 | |
| VAS08-16-20 | Water | 12/2/2022 9:45 | S43065.07 | - | |
| VAS09-4-9 | Water | 12/2/2022 11:25 | S43065.10 | - | |
| VAS10-2-7 | Water | 12/2/2022 12:30 | S43065.11 | - | |
| DUP02-02122022 | Water | 12/2/2022 0:00 | S43065.12 | - | Field Duplicate of VAS10-2-7 |
| VAS09-16-20 | Water | 12/2/2022 13:35 | S43065.13 | - | |
| VAS10-16-20 | Water | 12/2/2022 14:35 | S43065.14 | - | |
| Equipment Blank-01-02122022 | Water | 12/2/2022 14:30 | S43065.15 | - | |
| MW-34 | Water | 12/1/2022 15:40 | S43067.01 | S43068.01 | |
| Trip Blank | Water | 12/2/2022 7:30 | - | S43068.02 | |
| VAS13-3-7 | Water | 12/5/2022 14:30 | S43221.01 | S43223.01 | |
| VAS15-3-7 | Water | 12/6/2022 12:10 | S43221.02 | S43223.02 | |
| TB-02 | Water | 12/7/2022 13:00 | - | S43223.03 | Trip blank, not analyzed |
| VAS11-16-20 | Water | 12/5/2022 12:15 | S43222.01 | - | |
| VAS11-2-6 | Water | 12/5/2022 10:10 | S43222.02 | - | |
| VAS12-16-20 | Water | 12/5/2022 13:25 | S43222.03 | - | |
| VAS12-3-7 | Water | 12/5/2022 11:20 | S43222.04 | - | |
| VAS13-16-20 | Water | 12/6/2022 9:20 | S43222.05 | - | |
| VAS14-1-5 | Water | 12/5/2022 16:15 | S43222.06 | - | |
| VAS14-16-20 | Water | 12/5/2022 17:15 | S43222.07 | - | |
| VAS15-16-20 | Water | 12/6/2022 11:00 | S43222.08 | - | |
| VAS16-3-7 | Water | 12/6/2022 13:15 | S43222.09 | - | |
| VAS17-3-7 | Water | 12/6/2022 14:45 | S43222.10 | S43223.07 | |
| VAS17-16-20 | Water | 12/6/2022 16:15 | S43222.11 | - | |
| VAS18-16-20 | Water | 12/6/2022 17:50 | S43222.12 | - | |
| VAS18-3-7 | Water | 12/6/2022 17:20 | S43222.13 | - | |

Table 1
Field Samples Submitted to Merit Laboratories, Inc.
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Matrix | Sample Collection Date and Time | PFAS Laboratory Sample Identification | General Laboratory Sample Identification | Notes |
|------------------------------------|---------------|--|--|---|------------------------------|
| DUP-03-06122022 | Water | 12/6/2022 0:01 | S43222.14 | - | Field Duplicate of VAS18-3-7 |
| VAS19-5-9 | Water | 12/7/2022 10:40 | S43222.15 | S43223.08 | |
| VAS19-16-20 | Water | 12/7/2022 12:05 | S43222.16 | - | |
| DUP-04-07122022 | Water | 12/7/2022 0:01 | S43222.19 | - | Field Duplicate of VAS19-5-9 |
| VAS13-SB-2-3 | Soil | 12/5/2022 14:30 | S43222.20 | S43223.04 | |
| VAS15-SB-3-5 | Soil | 12/6/2022 10:30 | S43222.21 | S43223.05 | |
| VAS19-SB-5-7 | Soil | 12/7/2022 10:25 | S43222.22 | S43223.06 | |
| VAS21-5-9 | Water | 12/7/2022 15:20 | S43319.01 | S43321.01 | Stage 4 VOC, SVOC, Metals |
| VAS23-5-9 | Water | 12/8/2022 11:15 | S43319.02 | S43321.02 | Stage 4 VOC, SVOC, Metals |
| VAS26-4-8 | Water | 12/8/2022 17:55 | S43319.03 | S43321.03 | Stage 4 VOC |
| VAS28-3-7 | Water | 12/9/2022 12:50 | S43319.04 | S43321.04 | |
| Trip Blank-03 | Water | 12/9/2022 7:45 | - | S43321.05 | |
| VAS20-5-9 | Water | 12/7/2022 13:10 | S43320.01 | - | |
| VAS20-16-20 | Water | 12/7/2022 13:40 | S43320.02 | - | |
| VAS21-16-20 | Water | 12/7/2022 16:05 | S43320.03 | - | Stage 4 PFAS |
| VAS22-5-9 | Water | 12/7/2022 17:05 | S43320.04 | - | Stage 4 PFAS |
| VAS22-16-20 | Water | 12/7/2022 17:45 | S43320.05 | - | Stage 4 PFAS |
| VAS23-16-20 | Water | 12/8/2022 12:00 | S43320.06 | - | Stage 4 PFAS |
| VAS24-5-9 | Water | 12/8/2022 13:20 | S43320.07 | - | Stage 4 PFAS |
| VAS24-16-20 | Water | 12/8/2022 14:15 | S43320.08 | - | Stage 4 PFAS |
| VAS25-3-7 | Water | 12/8/2022 16:05 | S43320.09 | - | Stage 4 PFAS |
| VAS25-16-20 | Water | 12/8/2022 16:20 | S43320.10 | - | Stage 4 PFAS |
| VAS26-16-20 | Water | 12/8/2022 17:55 | S43320.11 | - | Stage 4 PFAS |
| VAS27-4-8 | Water | 12/9/2022 10:30 | S43320.12 | - | Stage 4 PFAS |
| VAS27-16-20 | Water | 12/9/2022 11:25 | S43320.13 | - | |
| DUP-05-09122022 | Water | 12/9/2022 0:01 | S43320.14 | - | Field Duplicate of VAS27-4-8 |
| Equipment Blank-03 | Water | 12/9/2022 14:30 | S43320.15 | - | |
| VAS28-16-20 | Water | 12/9/2022 13:45 | S43320.16 | - | |
| VAS21-SB-5-7 | Soil | 12/7/2022 15:00 | S43320.17 | S43321.06 | Stage 4 PFAS |
| VAS23-SB-5-7 | Soil | 12/8/2022 10:15 | S43320.18 | S43321.07 | Stage 4 PFAs |
| VAS26-SB-4-6 | Soil | 12/8/2022 17:00 | S43320.19 | S43321.08 | |
| VAS31-3-7 | Water | 12/12/2022 14:00 | S43497.01 | S43512.01 | |
| VAS32-3-7 | Water | 12/12/2022 17:00 | S43497.02 | S43512.02 | |
| VAS33-3-7 | Water | 12/13/2022 10:05 | S43497.03 | S43512.03 | |
| VAS34-3-7 | Water | 12/13/2022 11:55 | S43497.04 | S43512.04 | |
| VAS35-1-5 | Water | 12/13/2022 14:30 | S43497.05 | S43512.05 | |
| DUP-07-13122022 | Water | 12/13/2022 0:00 | S43497.06 | S43512.06 | Field Duplicate of VAS35-1-5 |
| VAS37-4-8 | Water | 12/14/2022 9:50 | S43497.07 | S43512.07 | |
| VAS38-5-9 | Water | 12/14/2022 11:30 | S43497.08 | S43512.08 | |
| VAS39-1-5 | Water | 12/14/2022 14:10 | S43497.09 | S43512.09 | |
| Trip Blank-04 | Water | 12/14/2022 7:00 | - | S43512.10 | |
| MW-34 | Water | 12/15/2022 11:55 | - | S43512.11 | |
| VAS29-4-8 | Water | 12/12/2022 10:20 | S43499.01 | - | |
| VAS29-16-20 | Water | 12/12/2022 10:55 | S43499.02 | - | |
| VAS30-4-8 | Water | 12/12/2022 11:45 | S43499.03 | - | |

Table 1
Field Samples Submitted to Merit Laboratories, Inc.
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Matrix | Sample Collection Date and Time | PFAS Laboratory Sample Identification | General Laboratory Sample Identification | Notes |
|-----------------------------|--------|---------------------------------|---------------------------------------|--|------------------------------|
| VAS30-16-20 | Water | 12/12/2022 13:05 | S43499.04 | - | |
| VAS31-16-20 | Water | 12/12/2022 15:45 | S43499.05 | - | |
| VAS32-16-20 | Water | 12/12/2022 18:05 | S43499.08 | - | |
| DUP-06-12122022 | Water | 12/12/2022 0:00 | S43499.09 | - | Field Duplicate of VAS31-3-7 |
| VAS33-16-20 | Water | 12/13/2022 11:00 | S43499.10 | - | |
| VAS34-16-20 | Water | 12/13/2022 12:50 | S43499.11 | - | |
| VAS35-16-20 | Water | 12/13/2022 15:55 | S43499.12 | - | |
| VAS36-4-8 | Water | 12/13/2022 16:50 | S43499.13 | - | |
| VAS36-16-20 | Water | 12/13/2022 17:30 | S43499.14 | - | |
| VAS37-16-20 | Water | 12/14/2022 10:35 | S43499.15 | - | |
| VAS38-16-20 | Water | 12/14/2022 12:55 | S43499.16 | - | |
| VAS39-16-20 | Water | 12/14/2022 15:00 | S43499.17 | - | |
| VAS40-4-8 | Water | 12/14/2022 15:55 | S43499.18 | - | |
| VAS40-16-20 | Water | 12/14/2022 16:20 | S43499.19 | - | |
| SW-01-14122022 | Water | 12/14/2022 16:00 | S43499.20 | - | |
| SW-02-14122022 | Water | 12/14/2022 16:25 | S43499.21 | - | |
| SW-03-14122022 | Water | 12/14/2022 17:00 | S43499.22 | - | |
| SW-04-14122022 | Water | 12/14/2022 17:15 | S43499.23 | - | |
| SW-05-14122022 | Water | 12/14/2022 17:30 | S43499.24 | - | |
| SW-06-14122022 | Water | 12/14/2022 17:50 | S43499.25 | - | |
| Equipment Blank-03 | Water | 12/14/2022 15:30 | S43499.26 | - | |
| Field Blank-01 | Water | 12/14/2022 15:45 | S43499.27 | - | |
| VAS31-SB-3-5 | Soil | 12/12/2022 13:00 | S43499.28 | S43512.13 | Stage 4 TOC/pH |
| VAS32-SB-3-5 | Soil | 12/12/2022 15:00 | S43499.29 | S43512.14 | Stage 4 TOC/pH |
| VAS33-SB-3-5 | Soil | 12/13/2022 9:00 | S43499.30 | S43512.15 | |
| VAS34-SB-3-5 | Soil | 12/13/2022 10:45 | S43499.31 | S43512.16 | |
| VAS-35-SB-3-5 | Soil | 12/13/2022 13:25 | - | S43512.17 | |
| VAS-37-SB-4-6 | Soil | 12/13/2022 16:40 | - | S43512.18 | |
| VAS-39-SB-2-5 | Soil | 12/14/2022 12:40 | - | S43512.19 | |
| VAS39-SB-3-5 | Soil | 12/14/2022 12:40 | S43499.32 | S43499.32 | |
| Sed-01-14122022 | Soil | 12/14/2022 16:00 | S43499.33 | S43499.33 | |

Notes:

PFAS = per- and polyfluoroalkyl substances
SVOC = semivolatle organic compounds
VOC = volatile organic compounds
TOC = total organic carbon

Table 2
Field Duplicate Detections
Harbor Island
Grand Haven, Michigan

| Analyte | Method | Reporting Limit | Primary Result | Duplicate Result | RPD | Notes |
|---------------------------------------|-----------|-----------------|----------------|------------------|-----|-------|
| Samples VAS05-4-9 and DUP-01-01122022 | | | | | | |
| Perfluorobutanoic acid | ASTMD7979 | 9.5 ng/L | 9.0 U | 12 | NC | ± LOQ |
| Perfluoropentanoic acid | ASTMD7979 | 3.8 ng/L | 1.0 J | 1.8 J | 57% | ± LOQ |
| Perfluorohexanoic acid | ASTMD7979 | 1.9 ng/L | 2.9 | 3.5 | 19% | |
| Perfluorobutanesulfonic acid | ASTMD7979 | 1.9 ng/L | 2.5 | 2.0 | 22% | |
| Perfluoroheptanoic acid | ASTMD7979 | 1.9 ng/L | 2.0 | 2.5 | 22% | |
| Perfluorooctanoic acid | ASTMD7979 | 1.9 ng/L | 6.5 | 8.5 | 27% | |
| Perfluorononanoic acid | ASTMD7979 | 1.9 ng/L | 1.9 | 2.5 | 27% | |
| Perfluorooctanesulfonic acid | ASTMD7979 | 1.9 ng/L | 9.3 | 9.7 | 4% | |
| Perfluorooctanesulfonic acid-LN | ASTMD7979 | 1.9 ng/L | 2.8 | 3.1 | 10% | |
| Perfluorooctanesulfonic acid-BR | ASTMD7979 | 1.9 ng/L | 6.5 | 6.5 | 0% | |
| Samples VAS10-2-7 and DUP-02-02122022 | | | | | | |
| Perfluorobutanoic acid | ASTMD7979 | 9.9 ng/L | 15 | 14 | 7% | |
| Perfluoropentanoic acid | ASTMD7979 | 4.0 ng/L | 43 | 41 | 5% | |
| Perfluorohexanoic acid | ASTMD7979 | 2.0 ng/L | 25 | 24 | 4% | |
| Perfluorobutanesulfonic acid | ASTMD7979 | 2.0 ng/L | 2.3 | 2.4 | 4% | |
| Perfluoroheptanoic acid | ASTMD7979 | 2.0 ng/L | 17 | 19 | 11% | |
| Perfluoropentanesulfonic acid | ASTMD7979 | 2.0 ng/L | 2.5 | 2.1 | 17% | |
| 6:2 Fluorotelomer sulfonic acid | ASTMD7979 | 2.0 ng/L | 2.4 | 2.3 | 4% | |
| Perfluorooctanoic acid | ASTMD7979 | 2.0 ng/L | 8.8 | 8.4 | 5% | |
| Perfluorohexanesulfonic acid | ASTMD7979 | 2.0 ng/L | 12 | 12 | 0% | |
| Perfluorohexanesulfonic acid-LN | ASTMD7979 | 2.0 ng/L | 8.7 | 9.8 | 12% | |
| Perfluorohexanesulfonic acid-BR | ASTMD7979 | 2.0 ng/L | 2.7 | 2.6 | 4% | |
| Perfluorononanoic acid | ASTMD7979 | 2.0 ng/L | 2.3 | 2.6 | 12% | |
| Perfluorooctanesulfonic acid | ASTMD7979 | 2.0 ng/L | 42 | 37 | 13% | |
| Perfluorooctanesulfonic acid-LN | ASTMD7979 | 2.0 ng/L | 31 | 27 | 14% | |
| Perfluorooctanesulfonic acid-BR | ASTMD7979 | 2.0 ng/L | 11 | 8.5 | 26% | |
| Perfluorobutanesulfonamide | ASTMD7979 | 2.0 ng/L | 2.1 | 2.3 | 9% | |
| Perfluorohexanesulfonamide | ASTMD7979 | 2.0 ng/L | 1.3 J | 1.5 J | 14% | |
| Samples VAS18-3-7 and DUP-03-06122022 | | | | | | |
| Perfluorobutanoic acid | ASTMD7979 | 9.9 ng/L | 25 | 23 | 8% | |
| Perfluoropentanoic acid | ASTMD7979 | 4.0 ng/L | 80 | 72 | 11% | |
| Perfluorohexanoic acid | ASTMD7979 | 2.0 ng/L | 30 | 33 | 10% | |
| Perfluorobutanesulfonic acid | ASTMD7979 | 2.0 ng/L | 2.2 | 2.1 | 5% | |
| Perfluoroheptanoic acid | ASTMD7979 | 2.0 ng/L | 5.1 | 4.7 | 8% | |
| 6:2 Fluorotelomer sulfonic acid | ASTMD7979 | 2.0 ng/L | 34 | 28 | 19% | |
| Perfluorohexanesulfonic acid | ASTMD7979 | 2.0 ng/L | 1.7 J | 1.6 U | NC | ± LOQ |
| Perfluorooctanesulfonic acid | ASTMD7979 | 2.0 ng/L | 3.4 | 3.7 | 8% | |
| Perfluorooctanesulfonic acid-LN | ASTMD7979 | 2.0 ng/L | 2.0 U | 2.0 J | NC | ± LOQ |

Table 2
Field Duplicate Detections
Harbor Island
Grand Haven, Michigan

| Analyte | Method | Reporting Limit | Primary Result | Duplicate Result | RPD | Notes |
|---------------------------------------|-----------|-----------------|----------------|------------------|-----|-------|
| Samples VAS19-5-9 and DUP-04-07122022 | | | | | | |
| Perfluorobutanoic acid | ASTMD7979 | 9.8 ng/L | 36 | 39 | 8% | |
| Perfluoropentanoic acid | ASTMD7979 | 4.0 ng/L | 110 | 99 | 11% | |
| Perfluorohexanoic acid | ASTMD7979 | 2.0 ng/L | 64 | 65 | 2% | |
| Perfluorobutanesulfonic acid | ASTMD7979 | 2.0 ng/L | 8.1 | 7.4 | 9% | |
| Perfluoroheptanoic acid | ASTMD7979 | 2.0 ng/L | 17 | 25 | 38% | J-FD |
| Perfluoropentanesulfonic acid | ASTMD7979 | 2.0 ng/L | 5.2 | 4.4 | 17% | |
| 6:2 Fluorotelomer sulfonic acid | ASTMD7979 | 2.0 ng/L | 13 | 17 | 27% | |
| Perfluorooctanoic acid | ASTMD7979 | 2.0 ng/L | 20 | 23 | 14% | |
| Perfluorohexanesulfonic acid | ASTMD7979 | 2.0 ng/L | 12 | 14 | 15% | |
| Perfluorohexanesulfonic acid-LN | ASTMD7979 | 2.0 ng/L | 9.0 | 10 | 11% | |
| Perfluorohexanesulfonic acid-BR | ASTMD7979 | 2.0 ng/L | 3.1 | 3.7 | 18% | |
| Perfluorononanoic acid | ASTMD7979 | 2.0 ng/L | 1.9 J | 1.7 U | NC | ± LOQ |
| 8:2 Fluorotelomer sulfonic acid | ASTMD7979 | 1.9 ng/L | 1.0 U | 1.2 J | NC | ± LOQ |
| Perfluorooctanesulfonic acid | ASTMD7979 | 2.0 ng/L | 10 | 10 | 0% | |
| Perfluorooctanesulfonic acid-LN | ASTMD7979 | 2.0 ng/L | 4.2 | 3.6 | 15% | |
| Perfluorooctanesulfonic acid-BR | ASTMD7979 | 2.0 ng/L | 6.3 | 6.7 | 6% | |
| Perfluorobutanesulfonamide | ASTMD7979 | 2.0 ng/L | 3.5 | 3.7 | 6% | |
| PFECHS | ASTMD7979 | 2.0 ng/L | 7.1 | 6.3 | 12% | |
| Perfluorohexanoic acid | ASTMD7979 | 1.9 ng/L | 1.0 U | 1.1 J | NC | ± LOQ |
| Samples VAS27-4-8 and DUP-05-09122022 | | | | | | |
| Perfluorobutanoic acid | ASTMD7979 | 9.9 ng/L | 35 | 39 | 11% | |
| Perfluoropentanoic acid | ASTMD7979 | 4.0 ng/L | 96 | 100 | 4% | |
| Perfluorohexanoic acid | ASTMD7979 | 2.0 ng/L | 62 | 63 | 2% | |
| Perfluorobutanesulfonic acid | ASTMD7979 | 2.0 ng/L | 3.5 | 3.2 | 9% | |
| Perfluoroheptanoic acid | ASTMD7979 | 2.0 ng/L | 8.4 | 8.4 | 0% | |
| 6:2 Fluorotelomer sulfonic acid | ASTMD7979 | 2.0 ng/L | 39 | 34 | 14% | |
| Perfluorooctanoic acid | ASTMD7979 | 2.0 ng/L | 5.0 | 4.9 | 2% | |
| Perfluorohexanesulfonic acid | ASTMD7979 | 2.0 ng/L | 4.3 | 4.4 | 2% | |
| Perfluorohexanesulfonic acid-LN | ASTMD7979 | 2.0 ng/L | 2.5 | 2.5 | 0% | |
| Perfluorohexanesulfonic acid-BR | ASTMD7979 | 2.0 ng/L | 1.7 J | 1.8 J | 6% | |
| Perfluorooctanesulfonic acid | ASTMD7979 | 2.0 ng/L | 4.9 | 4.6 | 6% | |
| Perfluorooctanesulfonic acid-BR | ASTMD7979 | 2.0 ng/L | 3.3 | 3.1 | 6% | |
| Perfluorobutanesulfonamide | ASTMD7979 | 2.0 ng/L | 2.1 | 2.5 | 17% | |
| PFECHS | ASTMD7979 | 2.0 ng/L | 3.3 | 3.9 | 17% | |
| Perfluorohexanesulfonamide | ASTMD7979 | 2.0 ng/L | 1.4 J | 1.2 J | 15% | |

Table 2
Field Duplicate Detections
Harbor Island
Grand Haven, Michigan

| Analyte | Method | Reporting Limit | Primary Result | Duplicate Result | RPD | Notes |
|---------------------------------------|-----------|-----------------|----------------|------------------|-----|-------|
| Samples VAS31-3-7 and DUP-06-12122022 | | | | | | |
| Perfluorobutanoic acid | ASTMD7979 | 10 ng/L | 14 | 15 | 7% | |
| Perfluoropentanoic acid | ASTMD7979 | 4.1 ng/L | 12 | 12 | 0% | |
| Perfluorohexanoic acid | ASTMD7979 | 2.0 ng/L | 7.9 | 9.4 | 17% | |
| Perfluorobutanesulfonic acid | ASTMD7979 | 2.0 ng/L | 3.9 | 4.2 | 7% | |
| Perfluoroheptanoic acid | ASTMD7979 | 2.0 ng/L | 6.4 | 6.8 | 6% | |
| Perfluorooctanoic acid | ASTMD7979 | 2.0 ng/L | 10 | 10 | 1% | |
| Perfluorohexanesulfonic acid | ASTMD7979 | 2.0 ng/L | 2.9 | 3.5 | 19% | |
| Perfluorohexanesulfonic acid-LN | ASTMD7979 | 2.0 ng/L | 2.0 | 2.5 | 22% | |
| EtFOSAA | ASTMD7979 | 4.1 ng/L | 14 | 11 | 24% | |
| Perfluorooctanesulfonic acid | ASTMD7979 | 2.0 ng/L | 41 | 37 | 10% | |
| Perfluorooctanesulfonic acid-LN | ASTMD7979 | 2.0 ng/L | 25 | 24 | 4% | |
| Perfluorooctanesulfonic acid-BR | ASTMD7979 | 2.0 ng/L | 15 | 13 | 14% | |
| PFECHS | ASTMD7979 | 2.0 ng/L | 2.6 | 2.5 | 4% | |
| Samples VAS35-1-5 and DUP-07-13122022 | | | | | | |
| Perfluorobutanoic acid | ASTMD7979 | 9.8 ng/L | 13 | 16 | 21% | |
| Perfluoropentanoic acid | ASTMD7979 | 3.9 ng/L | 9.0 | 11 | 20% | |
| Perfluorohexanoic acid | ASTMD7979 | 2.0 ng/L | 11 | 10 | 10% | |
| Perfluorobutanesulfonic acid | ASTMD7979 | 2.0 ng/L | 3.5 | 3.1 | 12% | |
| Perfluoroheptanoic acid | ASTMD7979 | 2.0 ng/L | 7.1 | 6.5 | 9% | |
| Perfluorooctanoic acid | ASTMD7979 | 2.0 ng/L | 14 | 12 | 15% | |
| Perfluorohexanesulfonic acid | ASTMD7979 | 2.0 ng/L | 3.5 | 4.9 | 33% | ± LOQ |
| Perfluorohexanesulfonic acid-LN | ASTMD7979 | 2.0 ng/L | 2.5 | 4.2 | 51% | ± LOQ |
| Perfluorooctanesulfonic acid | ASTMD7979 | 2.0 ng/L | 32 | 33 | 3% | |
| Perfluorooctanesulfonic acid-LN | ASTMD7979 | 2.0 ng/L | 17 | 18 | 6% | |
| Perfluorooctanesulfonic acid-BR | ASTMD7979 | 2.0 ng/L | 15 | 15 | 0% | |
| PFECHS | ASTMD7979 | 2.0 ng/L | 8.3 | 9.2 | 10% | |
| Arsenic | E200.8 | 0.002 mg/L | 0.003 | 0.003 | 0% | |
| Barium | E200.8 | 0.005 mg/L | 1.03 | 1.03 | 0% | |
| Cadmium | E200.8 | 0.0005 mg/L | 0.0007 | 0.0007 | 0% | |
| Chromium | E200.8 | 0.005 mg/L | 0.00252 J | 0.00245 | 3% | |
| Copper | E200.8 | 0.005 mg/L | 0.007 | 0.007 | 0% | |
| Lead | E200.8 | 0.003 mg/L | 0.020 | 0.021 | 5% | |
| Silver | E200.8 | 0.0005 mg/L | 0.000098 J | 6.75E-05 U | NC | ± LOQ |
| Zinc | E200.8 | 0.005 mg/L | 0.124 | 0.122 | 2% | |
| Acetone | SW8260C | 50 µg/L | 2.60 J | 2.96 J | 13% | |
| Tetrahydrofuran | SW8260C | 90 µg/L | 2.1 J | 2.0 J | 5% | |
| Chloroform | SW8260C | 1.0 µg/L | 0.57 J | 0.58 J | 2% | |

Table 2
Field Duplicate Detections
Harbor Island
Grand Haven, Michigan

Notes:

µg/L = micrograms per liter

BR = branched

LN = linear

mg/L = milligrams per liter

NC = not calculable

ng/L = nanograms per liter

PFECHS = Perfluoro-4-ethylcyclohexanesulfonate

RPD = relative percent difference

Qualifiers:

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

U = The analyte was analyzed for, but was not detected.

Reason Codes:

FD = Imprecision between primary and field duplicate results.

± LOQ = The difference between analyte concentrations is less than the limit of quantitation, indicating acceptable sampling and analytical precision.

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Method | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|-----------|---------------------------------|--------------|---------------------------|
| DUP-01-01122022 | ASTMD7979 | Perfluoropentanoic acid | 1.8 ng/L | J DL |
| DUP02-02122022 | ASTMD7979 | Perfluorohexanesulfonic acid | 1.5 ng/L | J DL |
| DUP-03-06122022 | ASTMD7979 | Perfluorooctanesulfonic acid-LN | 2.0 ng/L | J DL |
| DUP-04-07122022 | ASTMD7979 | 8:2 Fluorotelomer sulfonic acid | 1.2 ng/L | J DL |
| DUP-04-07122022 | ASTMD7979 | Perfluoroheptanoic acid | 25 ng/L | J FD |
| DUP-04-07122022 | ASTMD7979 | Perfluorohexanesulfonic acid | 1.1 ng/L | J DL |
| DUP-05-09122022 | ASTMD7979 | Perfluorohexanesulfonic acid | 1.2 ng/L | J DL |
| DUP-05-09122022 | ASTMD7979 | Perfluorohexanesulfonic acid-BR | 1.8 ng/L | J DL |
| DUP-07-13122022 | E200.8 | Chromium | 0.00245 mg/L | J DL |
| DUP-07-13122022 | SW8260C | Acetone | 2.96 µg/L | J DL |
| DUP-07-13122022 | SW8260C | Chloroform | 0.58 µg/L | J DL |
| DUP-07-13122022 | SW8260C | Tetrahydrofuran | 2.0 µg/L | J DL |
| DUP-07-13122022 | SW8270D | m,p-Cresol | 1.1 µg/L | UJ LC |
| GP-01 | ASTMD7979 | 5:3 FTCA | 4.6 ng/L | J DL |
| GP-01 | ASTMD7979 | Perfluorobutanesulfonic acid | 1.3 ng/L | J DL |
| MW-33 | ASTMD7979 | EtFOSAA | 3.5 ng/L | J DL |
| MW-33 | ASTMD7979 | Perfluorononanoic acid | 1.7 ng/L | J DL |
| MW-33 | E200.8 | Chromium | 0.00241 mg/L | J DL |
| MW-33 | E200.8 | Selenium | 0.00345 mg/L | J DL |
| MW-33 | SW8260C | Acetone | 5.57 µg/L | J DL |
| MW-33 | SW8270D | 1,2-Dichlorobenzene | 0.50 µg/L | UJ LL |
| MW-33 | SW8270D | Isophorone | 0.61 µg/L | UJ LL |
| MW-33 | SW8270D | m,p-Cresol | 1.1 µg/L | UJ LC |
| MW-34 | ASTMD7979 | Perfluorohexanesulfonic acid | 1.2 ng/L | J DL |
| MW-34 | E200.8 | Copper | 0.00247 mg/L | J DL |
| MW-34 | SW8260C | 1,3,5-Trimethylbenzene | 4.60 µg/L | J DL |
| MW-34 | SW8260C | 2-Methylnaphthalene | 18.6 µg/L | J DL |
| MW-34 | SW8260C | 4-Methyl-2-pentanone | 14.0 µg/L | J DL |
| MW-34 | SW8260C | Carbon disulfide | 0.85 µg/L | B MB |
| MW-34 | SW8260C | Chlorobenzene | 1.3 µg/L | J DL |
| MW-34 | SW8260C | Isopropylbenzene | 5.25 µg/L | J DL |
| MW-34 | SW8260C | n-Propylbenzene | 0.95 µg/L | J DL |
| MW-34 | SW8260C | Tetrahydrofuran | 9.3 µg/L | J DL |
| MW-34 | SW8270D | Acenaphthene | 9.4 µg/L | J DL |
| MW-34 | SW8270D | m,p-Cresol | 483 µg/L | J LC |
| Sed-01-14122022 | ASTMD7979 | EtFOSAA | 41 ng/kg | J DL |
| Sed-01-14122022 | ASTMD7979 | Perfluorobutanoic acid | 33 ng/kg | J DL |
| Sed-01-14122022 | ASTMD7979 | Perfluorodecanesulfonic acid | 30 ng/kg | J DL |
| Sed-01-14122022 | ASTMD7979 | Perfluorodecanoic acid | 29 ng/kg | J DL |
| Sed-01-14122022 | ASTMD7979 | Perfluorododecanoic acid | 32 ng/kg | J DL |
| Sed-01-14122022 | ASTMD7979 | Perfluorohexanesulfonic acid | 42 ng/kg | J DL |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Method | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|-----------|---------------------------------|--------------|---------------------------|
| Sed-01-14122022 | ASTMD7979 | Perfluorohexanesulfonic acid-LN | 33 ng/kg | J DL |
| Sed-01-14122022 | ASTMD7979 | Perfluorohexanoic acid | 13 ng/kg | J DL |
| Sed-01-14122022 | ASTMD7979 | Perfluorononanoic acid | 16 ng/kg | J DL |
| Sed-01-14122022 | ASTMD7979 | Perfluorooctane sulfonamide | 12 ng/kg | J DL |
| Sed-01-14122022 | ASTMD7979 | Perfluorooctanoic acid | 57 ng/kg | J DL |
| Sed-01-14122022 | ASTMD7979 | Perfluorotetradecanoic acid | 24 ng/kg | J DL |
| Sed-01-14122022 | ASTMD7979 | Perfluoroundecanoic acid | 22 ng/kg | J DL |
| Sed-01-14122022 | ASTMD7979 | PFECBS | 29 ng/kg | J DL |
| SW-01-14122022 | ASTMD7979 | Perfluorobutanesulfonic acid | 1.8 ng/L | J DL |
| SW-01-14122022 | ASTMD7979 | Perfluorobutanoic acid | 2.9 ng/L | J DL |
| SW-01-14122022 | ASTMD7979 | Perfluoroheptanoic acid | 1.1 ng/L | J DL |
| SW-01-14122022 | ASTMD7979 | Perfluorooctanesulfonic acid-LN | 1.3 ng/L | J DL |
| SW-01-14122022 | ASTMD7979 | Perfluoropentanoic acid | 2.4 ng/L | J DL |
| SW-01-14122022 | ASTMD7979 | Perfluorotetradecanoic acid | 1.2 ng/L | J DL |
| SW-02-14122022 | ASTMD7979 | Perfluorobutanesulfonic acid | 1.7 ng/L | J DL |
| SW-02-14122022 | ASTMD7979 | Perfluorobutanoic acid | 2.5 ng/L | J DL |
| SW-02-14122022 | ASTMD7979 | Perfluoropentanoic acid | 2.2 ng/L | J DL |
| SW-03-14122022 | ASTMD7979 | Perfluorobutanoic acid | 3.3 ng/L | J DL |
| SW-03-14122022 | ASTMD7979 | Perfluoroheptanoic acid | 0.99 ng/L | J DL |
| SW-03-14122022 | ASTMD7979 | Perfluorooctanesulfonic acid-BR | 1.2 ng/L | J DL |
| SW-03-14122022 | ASTMD7979 | Perfluoropentanoic acid | 2.6 ng/L | J DL |
| SW-03-14122022 | ASTMD7979 | PFECBS | 1.4 ng/L | J DL |
| SW-04-14122022 | ASTMD7979 | Perfluorobutanoic acid | 2.9 ng/L | J DL |
| SW-04-14122022 | ASTMD7979 | Perfluorooctanesulfonic acid-LN | 1.2 ng/L | J DL |
| SW-04-14122022 | ASTMD7979 | Perfluoropentanoic acid | 2.1 ng/L | J DL |
| SW-05-14122022 | ASTMD7979 | Perfluorobutanesulfonic acid | 1.6 ng/L | J DL |
| SW-05-14122022 | ASTMD7979 | Perfluorobutanoic acid | 3.0 ng/L | J DL |
| SW-05-14122022 | ASTMD7979 | Perfluorooctanesulfonic acid-LN | 1.6 ng/L | J DL |
| SW-05-14122022 | ASTMD7979 | Perfluorooctanoic acid | 1.6 ng/L | J DL |
| SW-05-14122022 | ASTMD7979 | Perfluoropentanoic acid | 2.2 ng/L | J DL |
| SW-06-14122022 | ASTMD7979 | Perfluorobutanesulfonic acid | 1.8 ng/L | J DL |
| SW-06-14122022 | ASTMD7979 | Perfluorobutanoic acid | 3.2 ng/L | J DL |
| SW-06-14122022 | ASTMD7979 | Perfluoroheptanoic acid | 1.1 ng/L | J DL |
| SW-06-14122022 | ASTMD7979 | Perfluorooctanesulfonic acid | 1.8 ng/L | J DL |
| SW-06-14122022 | ASTMD7979 | Perfluoropentanoic acid | 2.1 ng/L | J DL |
| SW-06-14122022 | ASTMD7979 | PFECBS | 1.8 ng/L | J DL |
| VAS03-16-20 | ASTMD7979 | Perfluorohexanoic acid | 1.7 ng/L | J DL |
| VAS03-2-7 | ASTMD7979 | Perfluorohexanoic acid | 1.4 ng/L | J DL |
| VAS03-2-7 | ASTMD7979 | Perfluorooctanoic acid | 1.5 ng/L | J DL |
| VAS05-4-9 | ASTMD7979 | Perfluoropentanoic acid | 1.0 ng/L | J DL |
| VAS05-4-9 | E200.8 | Selenium | 0.00432 mg/L | J DL |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Method | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|-----------|---------------------------------|---------------|---------------------------|
| VAS05-4-9 | SW8260C | 1,2,3-Trichlorobenzene | 0.040 µg/L | UJ LC |
| VAS05-4-9 | SW8260C | 1,2-Dibromo-3-chloropropane | 0.10 µg/L | UJ LC |
| VAS05-4-9 | SW8260C | 2-Methylnaphthalene | 0.10 µg/L | UJ LC |
| VAS05-4-9 | SW8260C | Naphthalene | 0.43 µg/L | J LC, DL |
| VAS05-4-9 | SW8270D | 3-Nitroaniline | 0.47 µg/L | UJ LL |
| VAS05-4-9 | SW8270D | m,p-Cresol | 1.1 µg/L | UJ LC |
| VAS06-3-8 | ASTMD7979 | Perfluorobutanesulfonic acid | 1.6 ng/L | J DL |
| VAS06-3-8 | ASTMD7979 | Perfluorohexanesulfonic acid | 1.6 ng/L | J DL |
| VAS06-3-8 | ASTMD7979 | Perfluoropentanoic acid | 2.0 ng/L | J DL |
| VAS07-3-8 | ASTMD7979 | Perfluorohexanesulfonic acid-BR | 1.6 ng/L | J DL |
| VAS08-16-20 | ASTMD7979 | Perfluorohexanoic acid | 1.6 ng/L | J DL |
| VAS08-4-9 | ASTMD7979 | Perfluorohexanesulfonic acid-LN | 1.7 ng/L | J DL |
| VAS09-16-20 | ASTMD7979 | Perfluorobutanesulfonic acid | 1.5 ng/L | J DL |
| VAS09-16-20 | ASTMD7979 | Perfluoropentanoic acid | 1.9 ng/L | J DL |
| VAS09-4-9 | ASTMD7979 | Perfluoropentanoic acid | 3.0 ng/L | J DL |
| VAS09-4-9 | ASTMD7979 | PFECHS | 1.2 ng/L | J DL |
| VAS10-16-20 | ASTMD7979 | Perfluoropentanoic acid | 2.0 ng/L | J DL |
| VAS10-2-7 | ASTMD7979 | Perfluorohexanesulfonic acid | 1.3 ng/L | J DL |
| VAS11-2-6 | ASTMD7979 | Perfluorobutanesulfonic acid | 1.9 ng/L | J DL |
| VAS12-16-20 | ASTMD7979 | Perfluoropentanoic acid | 1.6 ng/L | J DL |
| VAS12-3-7 | ASTMD7979 | 8:2 Fluorotelomer sulfonic acid | 1.1 ng/L | J DL |
| VAS12-3-7 | ASTMD7979 | Perfluorohexanesulfonic acid | 1.1 ng/L | J DL |
| VAS12-3-7 | ASTMD7979 | Perfluorononanoic acid | 1.9 ng/L | J DL |
| VAS12-3-7 | ASTMD7979 | Perfluoropentanesulfonic acid | 1.9 ng/L | J DL |
| VAS13-3-7 | E200.8 | Silver | 0.000112 mg/L | J DL |
| VAS13-3-7 | SW8260C | Carbon disulfide | 0.15 µg/L | B MB, TB |
| VAS13-3-7 | SW8260C | Chloromethane | 0.27 µg/L | J DL |
| VAS13-SB-2-3 | ASTMD7979 | Perfluorooctanesulfonic acid | 65 ng/kg | J DL |
| VAS13-SB-2-3 | ASTMD7979 | Perfluorooctanesulfonic acid-LN | 51 ng/kg | J DL |
| VAS13-SB-2-3 | ASTMD7979 | Perfluoropentanoic acid | 15 ng/kg | J DL |
| VAS15-16-20 | ASTMD7979 | Perfluorobutanesulfonic acid | 1.9 ng/L | J DL |
| VAS15-16-20 | ASTMD7979 | Perfluorooctanoic acid | 1.7 ng/L | J DL |
| VAS15-3-7 | E200.8 | Chromium | 0.00253 mg/L | J DL |
| VAS15-3-7 | E200.8 | Copper | 0.00132 mg/L | J DL |
| VAS15-3-7 | E200.8 | Lead | 0.00209 mg/L | J DL |
| VAS15-SB-3-5 | ASTMD7979 | Perfluorohexanoic acid | 10 ng/kg | J DL |
| VAS15-SB-3-5 | ASTMD7979 | Perfluorooctanesulfonic acid-BR | 39 ng/kg | J DL |
| VAS15-SB-3-5 | ASTMD7979 | Perfluorooctanesulfonic acid-LN | 55 ng/kg | J DL |
| VAS17-16-20 | ASTMD7979 | Perfluoroheptanoic acid | 1.7 ng/L | J DL |
| VAS17-3-7 | E200.8 | Chromium | 0.00236 mg/L | J DL |
| VAS17-3-7 | E200.8 | Copper | 0.00380 mg/L | J DL |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Method | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|-----------|---------------------------------|---------------|---------------------------|
| VAS17-3-7 | E200.8 | Lead | 0.000993 mg/L | J DL |
| VAS17-3-7 | SW8260C | 2-Methylnaphthalene | 0.32 µg/L | B MB |
| VAS17-3-7 | SW8260C | Carbon disulfide | 0.18 µg/L | B MB |
| VAS17-3-7 | SW8260C | Naphthalene | 2.17 µg/L | J DL |
| VAS17-3-7 | SW8270D | Acenaphthene | 0.60 µg/L | J DL |
| VAS17-3-7 | SW8270D | Naphthalene | 1.51 µg/L | J DL |
| VAS17-3-7 | SW8270D | Phenanthrene | 1.05 µg/L | J DL |
| VAS18-16-20 | ASTMD7979 | Perfluoropentanoic acid | 3.1 ng/L | J DL |
| VAS18-3-7 | ASTMD7979 | Perfluorohexanesulfonic acid | 1.7 ng/L | J DL |
| VAS19-16-20 | ASTMD7979 | Perfluoropentanoic acid | 3.2 ng/L | J DL |
| VAS19-5-9 | ASTMD7979 | Perfluoroheptanoic acid | 17 ng/L | J FD |
| VAS19-5-9 | ASTMD7979 | Perfluorononanoic acid | 1.9 ng/L | J DL |
| VAS19-5-9 | E200.8 | Chromium | 0.00466 mg/L | J DL |
| VAS19-5-9 | E200.8 | Selenium | 0.00262 mg/L | J DL |
| VAS19-5-9 | E200.8 | Silver | 0.000103 mg/L | J DL |
| VAS19-5-9 | SW8260C | Carbon disulfide | 0.18 µg/L | B MB |
| VAS19-5-9 | SW8260C | Tetrahydrofuran | 1.9 µg/L | J DL |
| VAS19-5-9 | SW8260C | Toluene | 0.19 µg/L | J DL |
| VAS19-SB-5-7 | ASTMD7979 | Perfluorooctanesulfonic acid-BR | 47 ng/kg | J DL |
| VAS19-SB-5-7 | ASTMD7979 | PFECHS | 28 ng/kg | J DL |
| VAS20-16-20 | ASTMD7979 | EtFOSAA | 9.3 ng/L | J LCSD, HD |
| VAS20-16-20 | ASTMD7979 | Perfluorohexanesulfonic acid | 1.2 ng/L | J DL |
| VAS20-16-20 | ASTMD7979 | Perfluorononanoic acid | 1.8 ng/L | J DL |
| VAS20-16-20 | ASTMD7979 | PFECHS | 1.7 ng/L | J DL |
| VAS20-5-9 | ASTMD7979 | 3:3 FTCA | 21 ng/L | J HM |
| VAS20-5-9 | ASTMD7979 | 5:3 FTCA | 19 ng/L | J HM |
| VAS20-5-9 | ASTMD7979 | EtFOSAA | 2.4 ng/L | J LCSD, DL |
| VAS20-5-9 | ASTMD7979 | Perfluoroheptanoic acid | 68 ng/L | J HM |
| VAS21-5-9 | ASTMD7979 | 4:2 Fluorotelomer sulfonic acid | 1.6 ng/L | J DL |
| VAS21-5-9 | E200.8 | Chromium | 0.000639 mg/L | J DL |
| VAS21-5-9 | E200.8 | Copper | 0.00401 mg/L | J DL |
| VAS21-5-9 | E200.8 | Lead | 0.00178 mg/L | J DL |
| VAS21-5-9 | E200.8 | Selenium | 0.00456 mg/L | J DL |
| VAS21-5-9 | E200.8 | Silver | 0.000136 mg/L | J DL |
| VAS21-5-9 | SW8260C | 2-Methylnaphthalene | 0.21 µg/L | UJ LC |
| VAS21-5-9 | SW8260C | Carbon disulfide | 0.13 µg/L | UJ LC |
| VAS21-5-9 | SW8260C | Chloromethane | 0.20 µg/L | UJ LC |
| VAS21-5-9 | SW8260C | Dichlorodifluoromethane | 0.57 µg/L | UJ LC |
| VAS21-5-9 | SW8260C | sec-Butylbenzene | 0.16 µg/L | UJ LC |
| VAS21-5-9 | SW8260C | Trichlorofluoromethane | 0.28 µg/L | UJ LC |
| VAS21-5-9 | SW8260C | Vinyl chloride | 0.24 µg/L | UJ LC |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Method | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|-----------|---------------------------------|--------------|---------------------------|
| VAS21-5-9 | SW8270D | m,p-Cresol | 1.1 µg/L | UJ LC |
| VAS21-SB-5-7 | ASTMD7979 | Perfluorobutanesulfonic acid | 13 ng/kg | J DL |
| VAS21-SB-5-7 | ASTMD7979 | Perfluorobutanesulfonic acid | 9.3 ng/kg | J DL |
| VAS21-SB-5-7 | ASTMD7979 | Perfluorobutanoic acid | 18 ng/kg | J DL |
| VAS21-SB-5-7 | ASTMD7979 | Perfluoroheptanoic acid | 27 ng/kg | J DL |
| VAS21-SB-5-7 | ASTMD7979 | Perfluorohexanesulfonic acid | 41 ng/kg | J LCSD, DL |
| VAS21-SB-5-7 | ASTMD7979 | Perfluorohexanesulfonic acid-LN | 31 ng/kg | J DL |
| VAS21-SB-5-7 | ASTMD7979 | Perfluorooctanesulfonic acid | 31 ng/kg | J DL |
| VAS21-SB-5-7 | ASTMD7979 | Perfluorooctanesulfonic acid-BR | 10 ng/kg | J DL |
| VAS21-SB-5-7 | ASTMD7979 | Perfluorooctanesulfonic acid-LN | 20 ng/kg | J DL |
| VAS21-SB-5-7 | ASTMD7979 | Perfluorooctanoic acid | 45 ng/kg | J DL |
| VAS23-16-20 | ASTMD7979 | Perfluoropentanoic acid | 2.2 ng/L | J DL |
| VAS23-5-9 | ASTMD7979 | Perfluoropentanoic acid | 2.2 ng/L | J DL |
| VAS23-5-9 | E200.8 | Chromium | 0.00208 mg/L | J DL |
| VAS23-5-9 | E200.8 | Lead | 0.00239 mg/L | J DL |
| VAS23-5-9 | E200.8 | Selenium | 0.00238 mg/L | J DL |
| VAS23-5-9 | SW8260C | 2-Methylnaphthalene | 0.21 µg/L | UJ LC |
| VAS23-5-9 | SW8260C | Carbon disulfide | 0.13 µg/L | UJ LC |
| VAS23-5-9 | SW8260C | Chloromethane | 0.20 µg/L | UJ LC |
| VAS23-5-9 | SW8260C | Dichlorodifluoromethane | 0.57 µg/L | UJ LC |
| VAS23-5-9 | SW8260C | sec-Butylbenzene | 0.16 µg/L | UJ LC |
| VAS23-5-9 | SW8260C | Trichlorofluoromethane | 0.28 µg/L | UJ LC |
| VAS23-5-9 | SW8260C | Vinyl chloride | 0.24 µg/L | UJ LC |
| VAS23-5-9 | SW8270D | m,p-Cresol | 1.1 µg/L | UJ LC |
| VAS23-SB-5-7 | ASTMD7979 | Perfluorooctanesulfonic acid | 11 ng/kg | J DL |
| VAS24-16-20 | ASTMD7979 | Perfluorobutanesulfonic acid | 1.4 ng/L | J DL |
| VAS24-5-9 | ASTMD7979 | PFECHS | 1.5 ng/L | J DL |
| VAS25-3-7 | ASTMD7979 | PFECHS | 1.3 ng/L | J DL |
| VAS26-4-8 | E200.8 | Arsenic | 0.00140 mg/L | J DL |
| VAS26-4-8 | E200.8 | Chromium | 0.00164 mg/L | J DL |
| VAS26-4-8 | E200.8 | Copper | 0.00202 mg/L | J DL |
| VAS26-4-8 | E200.8 | Lead | 0.00137 mg/L | J DL |
| VAS26-4-8 | E200.8 | Selenium | 0.00274 mg/L | J DL |
| VAS26-4-8 | SW8260C | 2-Methylnaphthalene | 0.21 µg/L | UJ LC |
| VAS26-4-8 | SW8260C | Carbon disulfide | 0.13 µg/L | UJ LC |
| VAS26-4-8 | SW8260C | Chloromethane | 0.20 µg/L | UJ LC |
| VAS26-4-8 | SW8260C | Dichlorodifluoromethane | 0.57 µg/L | UJ LC |
| VAS26-4-8 | SW8260C | sec-Butylbenzene | 0.16 µg/L | UJ LC |
| VAS26-4-8 | SW8260C | Trichlorofluoromethane | 0.28 µg/L | UJ LC |
| VAS26-4-8 | SW8260C | Vinyl chloride | 0.24 µg/L | UJ LC |
| VAS26-4-8 | SW8270D | m,p-Cresol | 1.1 µg/L | UJ LC |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Method | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|-----------|---------------------------------|---------------|---------------------------|
| VAS26-SB-4-6 | ASTMD7979 | Perfluorooctanesulfonic acid | 75 ng/kg | J DL |
| VAS26-SB-4-6 | ASTMD7979 | Perfluorooctanesulfonic acid-BR | 52 ng/kg | J DL |
| VAS27-4-8 | ASTMD7979 | Perfluorohexanesulfonic acid | 1.4 ng/L | J DL |
| VAS27-4-8 | ASTMD7979 | Perfluorohexanesulfonic acid-BR | 1.7 ng/L | J DL |
| VAS28-16-20 | ASTMD7979 | Perfluoropentanoic acid | 3.5 ng/L | J DL |
| VAS28-3-7 | ASTMD7979 | Perfluorobutanesulfonic acid | 1.6 ng/L | J DL |
| VAS28-3-7 | E200.8 | Chromium | 0.000834 mg/L | J DL |
| VAS28-3-7 | E200.8 | Copper | 0.00274 mg/L | J DL |
| VAS28-3-7 | E200.8 | Selenium | 0.00377 mg/L | J DL |
| VAS28-3-7 | SW8260C | 2-Methylnaphthalene | 0.21 µg/L | UJ LC |
| VAS28-3-7 | SW8260C | Carbon disulfide | 0.13 µg/L | UJ LC |
| VAS28-3-7 | SW8260C | Chloromethane | 0.20 µg/L | UJ LC |
| VAS28-3-7 | SW8260C | Dichlorodifluoromethane | 0.57 µg/L | UJ LC |
| VAS28-3-7 | SW8260C | sec-Butylbenzene | 0.16 µg/L | UJ LC |
| VAS28-3-7 | SW8260C | Trichlorofluoromethane | 0.28 µg/L | UJ LC |
| VAS28-3-7 | SW8260C | Vinyl chloride | 0.24 µg/L | UJ LC |
| VAS28-3-7 | SW8270D | 3-Nitroaniline | 0.48 µg/L | UJ LL |
| VAS28-3-7 | SW8270D | m,p-Cresol | 1.1 µg/L | UJ LC |
| VAS29-16-20 | ASTMD7979 | Perfluorobutanesulfonic acid | 1.6 ng/L | J DL |
| VAS29-16-20 | ASTMD7979 | Perfluorohexanoic acid | 1.8 ng/L | J DL |
| VAS29-16-20 | ASTMD7979 | Perfluoropentanoic acid | 1.9 ng/L | J DL |
| VAS29-4-8 | ASTMD7979 | Perfluorohexanesulfonic acid | 2.0 ng/L | J DL |
| VAS29-4-8 | ASTMD7979 | Perfluorohexanesulfonic acid-LN | 2.0 ng/L | J DL |
| VAS30-4-8 | ASTMD7979 | Perfluorobutanesulfonic acid | 1.8 ng/L | J DL |
| VAS30-4-8 | ASTMD7979 | Perfluoroheptanoic acid | 1.6 ng/L | J DL |
| VAS30-4-8 | ASTMD7979 | Perfluoropentanoic acid | 1.7 ng/L | J DL |
| VAS30-4-8 | ASTMD7979 | PFECHS | 1.3 ng/L | J DL |
| VAS31-16-20 | ASTMD7979 | Perfluorohexanoic acid | 1.8 ng/L | J DL |
| VAS31-16-20 | ASTMD7979 | Perfluoropentanoic acid | 1.6 ng/L | J DL |
| VAS31-3-7 | E200.8 | Arsenic | 0.00186 mg/L | J DL |
| VAS31-3-7 | E200.8 | Chromium | 0.00116 mg/L | J DL |
| VAS31-3-7 | E200.8 | Copper | 0.00355 mg/L | J DL |
| VAS31-3-7 | E200.8 | Selenium | 0.00337 mg/L | J DL |
| VAS31-3-7 | E200.8 | Silver | 0.000184 mg/L | J DL |
| VAS31-3-7 | SW8260C | Acetone | 2.95 µg/L | J DL |
| VAS31-3-7 | SW8260C | Chlorobenzene | 0.28 µg/L | J DL |
| VAS31-3-7 | SW8260C | cis-1,2-Dichloroethene | 0.26 µg/L | J DL |
| VAS31-3-7 | SW8270D | m,p-Cresol | 1.1 µg/L | UJ LC |
| VAS31-SB-3-5 | ASTMD7979 | EtFOSAA | 7.6 ng/kg | J DL |
| VAS31-SB-3-5 | ASTMD7979 | Perfluorobutanoic acid | 12 ng/kg | J DL |
| VAS31-SB-3-5 | ASTMD7979 | Perfluorooctanesulfonic acid-BR | 34 ng/kg | J DL |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Method | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|-----------|---------------------------------|---------------|---------------------------|
| VAS32-16-20 | ASTMD7979 | 3:3 FTCA | 2.2 ng/L | J DL |
| VAS32-16-20 | ASTMD7979 | Perfluorobutanesulfonic acid | 1.9 ng/L | J DL |
| VAS32-16-20 | ASTMD7979 | Perfluorohexanesulfonic acid | 1.8 ng/L | J DL |
| VAS32-3-7 | ASTMD7979 | Perfluorobutanesulfonic acid | 1.2 ng/L | J DL |
| VAS32-3-7 | E200.8 | Cadmium | 0.000442 mg/L | J DL |
| VAS32-3-7 | E200.8 | Chromium | 0.00153 mg/L | J DL |
| VAS32-3-7 | E200.8 | Silver | 0.000076 mg/L | J DL |
| VAS32-3-7 | SW8260C | Acetone | 2.54 µg/L | J DL |
| VAS32-3-7 | SW8260C | Diethyl ether | 6.34 µg/L | J DL |
| VAS32-3-7 | SW8260C | Vinyl chloride | 0.38 µg/L | J DL |
| VAS32-3-7 | SW8270D | m,p-Cresol | 1.1 µg/L | UJ LC |
| VAS32-SB-3-5 | ASTMD7979 | Perfluorodecanesulfonic acid | 96 ng/kg | J DL |
| VAS32-SB-3-5 | ASTMD7979 | Perfluoroheptanesulfonic acid | 59 ng/kg | J DL |
| VAS32-SB-3-5 | ASTMD7979 | Perfluorohexanesulfonic acid | 29 ng/kg | J DL |
| VAS32-SB-3-5 | ASTMD7979 | Perfluorohexanesulfonic acid-LN | 29 ng/kg | J DL |
| VAS32-SB-3-5 | ASTMD7979 | Perfluorononanesulfonic acid | 96 ng/kg | J DL |
| VAS32-SB-3-5 | ASTMD7979 | Perfluorononanoic acid | 36 ng/kg | J DL |
| VAS32-SB-3-5 | ASTMD7979 | PFECHS | 34 ng/kg | J DL |
| VAS33-16-20 | ASTMD7979 | Perfluoropentanoic acid | 1.7 ng/L | J DL |
| VAS33-3-7 | E200.8 | Selenium | 0.00460 mg/L | J DL |
| VAS33-3-7 | E200.8 | Silver | 0.000434 mg/L | J DL |
| VAS33-3-7 | SW8260C | 1,2,3-Trimethylbenzene | 0.150 µg/L | J DL |
| VAS33-3-7 | SW8260C | Acetone | 2.34 µg/L | J DL |
| VAS33-3-7 | SW8260C | Benzene | 0.52 µg/L | J DL |
| VAS33-3-7 | SW8260C | cis-1,2-Dichloroethene | 0.38 µg/L | J DL |
| VAS33-3-7 | SW8260C | Isopropylbenzene | 0.35 µg/L | J DL |
| VAS33-3-7 | SW8260C | o-Xylene | 0.42 µg/L | J DL |
| VAS33-3-7 | SW8260C | Tetrahydrofuran | 32.0 µg/L | J DL |
| VAS33-3-7 | SW8260C | Trichloroethene | 0.32 µg/L | J DL |
| VAS33-3-7 | SW8270D | m,p-Cresol | 1.1 µg/L | UJ LC |
| VAS33-SB-3-5 | ASTMD7979 | EtFOSAA | 27 ng/kg | J DL |
| VAS33-SB-3-5 | ASTMD7979 | Perfluorooctanesulfonic acid-BR | 87 ng/kg | J DL |
| VAS34-16-20 | ASTMD7979 | Perfluorobutanoic acid | 5.8 ng/L | J DL |
| VAS34-16-20 | ASTMD7979 | Perfluoroheptanoic acid | 1.0 ng/L | J DL |
| VAS34-16-20 | ASTMD7979 | Perfluorohexanesulfonic acid | 1.4 ng/L | J DL |
| VAS34-16-20 | ASTMD7979 | Perfluorooctanesulfonic acid | 1.7 ng/L | J DL |
| VAS34-16-20 | ASTMD7979 | Perfluoropentanesulfonic acid | 1.3 ng/L | J DL |
| VAS34-16-20 | ASTMD7979 | Perfluoropentanoic acid | 2.2 ng/L | J DL |
| VAS34-3-7 | ASTMD7979 | Perfluorohexanesulfonic acid | 1.1 ng/L | J DL |
| VAS34-3-7 | E200.8 | Selenium | 0.00234 mg/L | J DL |
| VAS34-3-7 | E200.8 | Silver | 0.000156 mg/L | J DL |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Method | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|-----------|-------------------------------|---------------|---------------------------|
| VAS34-3-7 | SW8260C | Acetone | 2.99 µg/L | J DL |
| VAS34-3-7 | SW8260C | Diethyl ether | 1.47 µg/L | J DL |
| VAS34-3-7 | SW8270D | m,p-Cresol | 1.1 µg/L | UJ LC |
| VAS34-SB-3-5 | ASTMD7979 | Perfluorohexanesulfonic acid | 17 ng/kg | J DL |
| VAS34-SB-3-5 | ASTMD7979 | Perfluorohexanoic acid | 16 ng/kg | J DL |
| VAS34-SB-3-5 | ASTMD7979 | Perfluorooctanoic acid | 48 ng/kg | J DL |
| VAS34-SB-3-5 | ASTMD7979 | Perfluoropentanoic acid | 15 ng/kg | J DL |
| VAS35-1-5 | E200.8 | Chromium | 0.00252 mg/L | J DL |
| VAS35-1-5 | E200.8 | Silver | 0.000098 mg/L | J DL |
| VAS35-1-5 | SW8260C | Acetone | 2.60 µg/L | J DL |
| VAS35-1-5 | SW8260C | Chloroform | 0.57 µg/L | J DL |
| VAS35-1-5 | SW8260C | Tetrahydrofuran | 2.1 µg/L | J DL |
| VAS35-1-5 | SW8270D | m,p-Cresol | 1.1 µg/L | UJ LC |
| VAS35-16-20 | ASTMD7979 | Perfluorobutanoic acid | 6.5 ng/L | J DL |
| VAS35-16-20 | ASTMD7979 | Perfluoropentanesulfonic acid | 1.4 ng/L | J DL |
| VAS35-16-20 | ASTMD7979 | Perfluoropentanoic acid | 2.9 ng/L | J DL |
| VAS36-16-20 | ASTMD7979 | Perfluorobutanesulfonic acid | 1.8 ng/L | J DL |
| VAS36-16-20 | ASTMD7979 | Perfluorobutanoic acid | 3.6 ng/L | J DL |
| VAS36-16-20 | ASTMD7979 | Perfluorododecanoic acid | 0.56 ng/L | J DL |
| VAS36-16-20 | ASTMD7979 | Perfluorotetradecanoic acid | 1.1 ng/L | J DL |
| VAS36-4-8 | ASTMD7979 | Perfluorononanoic acid | 0.82 ng/L | J DL |
| VAS36-4-8 | ASTMD7979 | Perfluoropentanesulfonic acid | 1.5 ng/L | J DL |
| VAS37-16-20 | ASTMD7979 | Perfluorobutanoic acid | 2.5 ng/L | J DL |
| VAS37-16-20 | ASTMD7979 | Perfluoropentanoic acid | 3.4 ng/L | J DL |
| VAS37-4-8 | E200.8 | Silver | 0.000075 mg/L | J DL |
| VAS37-4-8 | SW8260C | 1,2,3-Trimethylbenzene | 0.390 µg/L | J DL |
| VAS37-4-8 | SW8260C | 1,3,5-Trimethylbenzene | 0.30 µg/L | J DL |
| VAS37-4-8 | SW8260C | Acetone | 1.53 µg/L | J DL |
| VAS37-4-8 | SW8260C | m,p-Xylene | 0.69 µg/L | J DL |
| VAS37-4-8 | SW8260C | o-Xylene | 0.30 µg/L | J DL |
| VAS37-4-8 | SW8260C | Tetrahydrofuran | 1.9 µg/L | J DL |
| VAS37-4-8 | SW8270D | 1,2-Dichlorobenzene | 0.50 µg/L | UJ LL |
| VAS37-4-8 | SW8270D | Isophorone | 0.62 µg/L | UJ LL |
| VAS37-4-8 | SW8270D | m,p-Cresol | 1.1 µg/L | UJ LC |
| VAS38-5-9 | ASTMD7979 | EtFOSAA | 3.6 ng/L | J DL |
| VAS38-5-9 | ASTMD7979 | Perfluorohexanesulfonic acid | 1.1 ng/L | J DL |
| VAS38-5-9 | E200.8 | Arsenic | 0.00171 mg/L | J DL |
| VAS38-5-9 | E200.8 | Chromium | 0.000340 mg/L | J DL |
| VAS38-5-9 | E200.8 | Copper | 0.00313 mg/L | J DL |
| VAS38-5-9 | E200.8 | Selenium | 0.00215 mg/L | J DL |
| VAS38-5-9 | SW8260C | Acetone | 3.03 µg/L | J DL |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Method | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|-----------|---------------------------------|---------------|---------------------------|
| VAS38-5-9 | SW8260C | Chlorobenzene | 0.53 µg/L | J DL |
| VAS38-5-9 | SW8270D | 1,2-Dichlorobenzene | 0.50 µg/L | UJ LL |
| VAS38-5-9 | SW8270D | Isophorone | 0.61 µg/L | UJ LL |
| VAS38-5-9 | SW8270D | m,p-Cresol | 1.1 µg/L | UJ LC |
| VAS39-1-5 | ASTMD7979 | Perfluorobutanesulfonic acid | 1.3 ng/L | J DL |
| VAS39-1-5 | ASTMD7979 | Perfluorononanoic acid | 2.0 ng/L | J DL |
| VAS39-1-5 | E200.8 | Cadmium | 0.000334 mg/L | J DL |
| VAS39-1-5 | E200.8 | Chromium | 0.00401 mg/L | J DL |
| VAS39-1-5 | E200.8 | Silver | 0.000159 mg/L | J DL |
| VAS39-1-5 | SW8260C | Acetone | 2.96 µg/L | J DL |
| VAS39-1-5 | SW8260C | Naphthalene | 0.36 µg/L | J DL |
| VAS39-1-5 | SW8260C | Tetrahydrofuran | 4.0 µg/L | J DL |
| VAS39-1-5 | SW8270D | 1,2-Dichlorobenzene | 0.50 µg/L | UJ LL |
| VAS39-1-5 | SW8270D | Isophorone | 0.62 µg/L | UJ LL |
| VAS39-1-5 | SW8270D | m,p-Cresol | 1.1 µg/L | UJ LC |
| VAS39-16-20 | ASTMD7979 | Perfluorohexanoic acid | 0.80 ng/L | J DL |
| VAS39-16-20 | ASTMD7979 | Perfluoropentanoic acid | 0.84 ng/L | J DL |
| VAS39-SB-3-5 | ASTMD7979 | Perfluorooctanesulfonic acid-BR | 56 ng/kg | J DL |
| VAS40-16-20 | ASTMD7979 | Perfluorobutanoic acid | 3.7 ng/L | J DL |
| VAS40-16-20 | ASTMD7979 | Perfluoropentanoic acid | 2.7 ng/L | J DL |
| VAS40-4-8 | ASTMD7979 | Perfluorododecanoic acid | 0.71 ng/L | J DL |
| VAS40-4-8 | ASTMD7979 | Perfluoropentanesulfonic acid | 1.8 ng/L | J DL |

Notes:

µg/L = micrograms per liter

mg/L = milligrams per liter

ng/kg = nanograms per kilogram

ng/L = nanograms per liter

BR = branched

LN = linear

PFECHS = Perfluoro-4-ethylcyclohexanesulfonate

Qualifiers:

B = The analyte was detected in the associated blank at a concentration greater than 1/10 the concentration detected in the sample.

J = The result was an estimated quantity.

UJ = The analyte was not detected and was reported as less than the limit of detection. However, the associated numerical value is approximate.

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

Reason Codes:

DL = Detected analyte concentration is less than the reporting limit.

FD = Imprecision between primary and field duplicate results.

HD = Imprecision between laboratory duplicate analyses.

HM = High matrix spike recovery.

LC = Low continuing calibration verification recovery.

LCSD = Imprecision between LCS and LCS duplicate results.

LL = Low laboratory control sample (LCS) recovery.

MB = The analyte was detected in the associated laboratory blank.

TB = The analyte was detected in the associated trip blank.



DATA VALIDATION REPORT

FORMER JB SIMS GENERATING STATION
HARBOR ISLAND, GRAND HAVEN
PROJECT # 3650220203.02.03

Prepared for:

HDR MICHIGAN, INC.

Ann Arbor, Michigan

4/13/2023

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TABLES

- Table 1. Field Samples Submitted to Merit Laboratories, Inc.
Table 2. Field Duplicate Detections.
Table 3. Qualifiers Added During Validation.

LIST OF ACRONYMS

| | |
|--------------|---|
| % | percent |
| µg/L | micrograms per liter |
| 9Cl-PF3ONS | 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid |
| 11Cl-PF3OUdS | 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid |
| ASTM | ASTM International |
| CCV | continuing calibration verification |
| COC | chain of custody |
| EPA | United States Environmental Protection Agency |
| FTS | fluorotelomer sulfonic acid |
| HFPO-DA | hexafluoropropylene oxide dimer |
| ICAL | initial calibration |
| ICV | initial calibration verification |
| ID | identification |
| IS | internal standard |
| LCS | laboratory control sample |
| LCSd | laboratory control sample duplicate |
| MDL | method detection limit |
| Merit | Merit Laboratories, Inc. |
| MS | matrix spike |
| MSD | matrix spike duplicate |
| PFAS | per- and polyfluoroalkyl substances |
| PFDS | perfluorodecanesulfonic acid |
| PFHxSA | perfluorhexanesulfonamide |
| PFNS | perfluorononanesulfonic acid |
| PFOS-LN | linear perfluorooctanesulfonic acid |
| QAPP | quality assurance project plan |
| QC | quality control |
| RL | reporting limit |
| RPD | relative percent difference |
| Wood | Wood Environment & Infrastructure Solutions, Inc. |
| WSP | WSP USA Environment & Infrastructure, Inc. |

1 INTRODUCTION

WSP USA Environment & Infrastructure, Inc. (WSP) collected 41 water samples, including 3 field duplicates, between January 30 and February 2, 2023, from the Former JB Sims Generating Station Site located in Harbor Island, Grand Haven, Michigan. WSP submitted the samples to Merit Laboratories, Inc. (Merit) located in East Lansing, Michigan, where they were received February 3, 2023, and assigned to sample delivery group S44975. Merit analyzed the samples for per- and polyfluoroalkyl substances (PFAS) by liquid chromatography tandem mass spectrometry using ASTM International (ASTM) Method D7979.

A list of these samples by field sample identification (ID), sample collection date, and Merit's sample ID is presented in Table 1.

2 DATA VALIDATION METHODOLOGY

WSP performed an EPA Stage 4 data validation on a minimum of 10 percent (%) of the field samples analyzed during this sampling event and Stage 2B data validation on the remaining samples, as specified in Table 1. Particle size was not validated. This data validation has been performed in accordance with:

- WSP Environment & Infrastructure, Inc. (WSP), 2022. *Quality Assurance Project Plan (QAPP) PFAS Investigation at Former JB SIMS Generating Station Harbor Island, Grand Haven, Michigan*. October 14.
- EPA, 2009. *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*. EPA-540-R-08-005, January 13, 2009.

The laboratory's certified analytical report and supporting documentation were reviewed to assess the following:

- Data package and electronic deliverables completeness
- Chain of custody (COC) compliance
- Sample receipt
- Holding time compliance
- Initial calibration (ICAL)
- Initial calibration verification (ICV) and continuing calibration verification (CCV)
- Reporting limits
- Presence or absence of laboratory contamination as demonstrated by laboratory blanks
- Accuracy and bias as demonstrated by recovery of laboratory control samples (LCSs) and matrix spikes (MSs)
- Analytical precision as demonstrated by the analysis of LCS/LCS duplicate (LCSD), MS/MS duplicate (MSD), and/or laboratory duplicates
- Internal standard (IS) recoveries
- Analyte identification and quantification verification from raw analytical data
- Insofar as possible, the degree of conformance to method requirements and good laboratory practices

In general, it is important to recognize that no analytical data are guaranteed to be correct, even if all quality control (QC) audits are passed. Strict QC serves to increase confidence in data, but any reported value may potentially contain error.

3 DEFINITION OF QUALIFIERS THAT MAY BE ADDED DURING VALIDATION

- B The analyte was detected in the associated blank at a concentration greater than 1/10 the concentration detected in the sample.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- Q The analyte was both B and J qualified.
- UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

4 QUALIFICATION REASON CODES

The following reason codes were applied to the data during validation:

- DL The detected analyte concentration is less than the reporting limit (RL).
- FD Imprecision between primary and field duplicate results.
- HI High IS recovery.
- HM High MS recovery. Result may be biased high.
- LCSD Imprecision between LCS and LCSD results.
- LL Low LCS recovery. Result may be biased low.
- LV Low ICV recovery. Result may be biased low.

5 EXPLANATION OF DATA QUALITY INDICATORS

Summary explanations of the specific data quality indicators reviewed during this data validation are presented in the sections below.

5.1 BLANK SAMPLES

Blank samples are aliquots of analyte free matrix that are used as negative controls to verify that the sample collection, storage, preparation, and analytical system does not produce false positive results.

Laboratory blanks are aliquots of analyte free matrix that are processed by the laboratory using the same procedures as the field samples. Laboratory blanks are used to monitor for contamination introduced by the laboratory during sample preparation and analysis.

5.2 LABORATORY CONTROL SAMPLE RECOVERIES

LCSs are aliquots of analyte-free matrix that are spiked with the analytes of interest for an analytical method. The spiked matrix is then processed through the same preparation and analytical procedures as the samples they accompany. LCS recovery is an indication of a laboratory's ability to successfully perform an analytical method in an interference-free matrix.

5.3 INTERNAL STANDARDS

Internal standards are compounds that are added to a sample after all preparatory steps are completed and before instrumental analysis. These compounds serve as standards for qualitative analysis using relative retention time and quantitative analysis using relative response factors. Methods that use internal standard calibration include requirements for changes in response to the internal standard relative to the ICAL or the CCV.

5.4 CALIBRATION

Instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. Calibration is verified at the beginning of the analytical run and on an ongoing basis.

6 CHAIN OF CUSTODY AND SAMPLE RECEIPT CONDITION DOCUMENTATION

The samples were received by Merit under proper COC, intact, properly preserved, and at temperatures within the QAPP specified temperature range of 2 to 6 degrees Celsius.

7 SPECIFIC DATA VALIDATION FINDINGS

Sections 7.1 through 8.0 contain narrative descriptions of the data validation findings and data quality limitations.

7.1 PFAS BY ASTM METHOD D7979

PFAS results generated by Merit may be considered fully usable with the limitations summarized in Sections 7.1.1 through 7.1.11.

7.1.1 HOLDING TIME COMPLIANCE

The samples were analyzed for PFAS within the method-specified maximum holding time of 28 days from sample collection.

7.1.2 INITIAL CALIBRATION COMPLIANCE

The ICALs associated with the analysis of these samples met the method-specified criteria of the calibration standards calculating to 70 to 130% of their true concentrations.

7.1.3 INITIAL CALIBRATION VERIFICATION RECOVERIES

ICV recoveries were within the method-specified 70 to 130% limits, with the following exception:

- 4:2 Fluorotelomer sulfonic acid (FTS) recovery was low at 63% in the ICV associated with the analysis of samples DUP-01-01312023, DUP-02-02012023, DUP-03-02012023, MW-01R-02022023, MW-02-02012023, MW-03-02012023, MW-04-02012023, MW-05-01312023, MW-06-02012023, MW-07-01302023, MW-08-01312023, MW-09-02022023, MW-10-02012023, MW-33-01312023, MW-34-01312023, MW-35-02012023, MW-36-02012023, MW-37-02012023, MW-38-02012023, MW-39-02012023, MW-40-02012023, PZ-11-02012023, PZ-12-02012023, PZ-13-01302023, PZ-14-02022023, PZ-15-02022023, PZ-16-02022023, PZ-17-02022023, PZ-18-01312023, PZ-19-01312023, PZ-20-02012023, PZ-23-01302023, PZ-24-01302023, PZ-25-01302023, PZ-26-01302023, PZ-27-01312023, PZ-28-01312023, PZ-29-02022023, PZ-30-01312023, PZ-31-01312023, and PZ-32-01312023. WSP J qualified the detected and UJ qualified the non-detect 4:2 FTS results from the associated samples because of potential low analytical bias. (J/UJ, LV)
-

7.1.4 CONTINUING CALIBRATION VERIFICATION RECOVERIES

CCV recoveries were within the method-specified 70 to 130% limits.

7.1.5 LABORATORY BLANK DETECTIONS

Target analytes were not detected in the laboratory blanks associated with the analysis of the samples reviewed in this report.

7.1.6 LABORATORY CONTROL SAMPLE ACCURACY AND PRECISION

LCS and LCSD recoveries were within the laboratory-specified 70 to 130% limits and relative percent differences (RPDs) between LCS and LCSD results were less than the QAPP-specified maximum of 30%, with the following exceptions:

- 9-Chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS) recovery was low at 63% in the LCSD associated with the analysis of samples DUP-02-02012023, DUP-03-02012023, MW-01R-02022023, MW-02-02012023, MW-03-02012023, MW-04-02012023, MW-06-02012023, MW-09-02022023, MW-10-02012023, MW-35-02012023, MW-36-02012023, MW-37-02012023, MW-38-02012023, MW-39-02012023, MW-40-02012023, PZ-11-02012023, PZ-12-02012023, PZ-15-02022023, PZ-16-02022023, and PZ-20-02012023. Additionally, RPDs between LCS and LCSD results for 9Cl-PF3ONS (36%), hexafluoropropylene oxide dimer (HFPO-DA [32%]), and perfluorononanesulfonic acid (PFNS [34%]) were high. Data limitations are summarized below.
 - WSP UJ qualified the non-detect 9Cl-PF3ONS results from the associated samples because of potential low analytical bias. (UJ, LL)

- 9CI-PF3ONS, HFPO-DA, and PFNS were not detected in the associated samples and data usability is not adversely affected by the potential analytical imprecision.
- RPDs between 11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS [31%]), perfluorodecanesulfonic acid (PFDS [41%]), and perfluorohexanesulfonamide (PFHxSA [39%]) results were high in the LCS and LCSD associated with the analysis of samples DUP-01-01312023, MW-02-02012023, MW-05-01312023, MW-07-01302023, MW-08-01312023, MW-34-01312023, MW-40-02012023, PZ-18-01312023, PZ-19-01312023, PZ-23-01302023, PZ-24-01302023, PZ-25-01302023, PZ-26-01302023, PZ-27-01312023, PZ-28-01312023, PZ-30-01312023, and PZ-32-01312023. Data limitations are summarized below.
 - WSP J qualified the detected PFHxSA results from samples MW-08-01312023, MW-34-01312023, MW-40-02012023, and PZ-32-01312023 because of potential analytical imprecision. (J, LCSD)
 - PFHxSA was not detected in the remaining associated samples, and 11-Cl-PF3OUds and PFDS were not detected in any associated samples. Data usability is not adversely affected by potential analytical imprecision.

7.1.7 MATRIX SPIKE ACCURACY AND PRECISION

Merit performed MS and/or MSD analyses on samples PZ-23-01302023, MW-39-02012023, and PZ-17-02022023. MS and MSD recoveries were within the laboratory-specified 70 to 130% limits, and RPDs between MS and MSD results were less than the QAPP-specified maximum of 30%, with the following exception:

- 6:2 FTS recovery was high at 132% in the MSD performed on sample MW-39-02012023. WSP J qualified the detected 6:2 FTS result from sample MW-39-02012023 because of potential high analytical bias. (J, HM)

7.1.8 LABORATORY DUPLICATE PRECISION

Merit performed duplicate analyses on samples MW-07-01302023 and PZ-14-02022023. RPDs between detections in the primary and duplicate samples were less than the method-recommended maximum of 30%, or differences between concentrations were less than the average RL, indicating acceptable analytical precision, with the following exception:

- RPDs between perfluorobutanoic acid and linear perfluorooctanesulfonic acid (PFOS-LN) results were high at 31% and 33%, respectively, in the duplicate analysis of sample PZ-14-02022023. However, the differences between primary and duplicate results were less than the RL, indicating acceptable analytical precision.

7.1.9 INTERNAL STANDARD AREA COUNTS

IS area counts were within the QAPP-specified limits of 50 to 150% of the area counts from the ICAL midpoint or the most current CCV, with the following exception:

- Recoveries of the IS M₂-4:2 FTS were high in samples MW-02-02012023 (228%), MW-40-02012023 (170%), and PZ-24-01302023 (162%). Data limitations are summarized below.
 - WSP J qualified the detected 4:2 FTS result from sample MW-40-02012023 because of the high IS recovery. (J, HI)
 - 4:2 FTS was not detected in the remaining associated samples and data usability is not adversely affected by the high IS recoveries.

7.1.10 STAGE 4 VALIDATION

WSP reviewed the raw data, checked analyte identifications, and recalculated the reported results for samples MW-02-02012023, MW-06-02012023, MW-10-02012023, MW-40-02012023, and PZ-11-02012023. Reported results matched the raw analytical data and target analytes were correctly identified.

7.1.11 DATA REPORTING AND ANALYTICAL PROCEDURES

Merit J qualified results with detected concentrations less than the RL. WSP agrees these results are quantitatively uncertain and has maintained the laboratory's J qualifiers. (J, DL)

8 FIELD DUPLICATE PRECISION

WSP collected field duplicates with samples PZ-27-01312023 (DUP-01-01312023), MW-37-02012023 (DUP-02-02012023), and MW-35-02012023 (DUP-03-02012023). RPDs between primary and duplicate results were less than the QAPP-specified maximum of 30% or differences between concentrations were less than the average RL, indicating acceptable sampling and analytical precision, with the following exception:

- The RPD between PFOS-LN results from sample MW-37-02012023 and its field duplicate DUP-02-02012023 was high at 48%. WSP J qualified the detected PFOS-LN results from these samples because of potential sampling and/or analytical imprecision. (J, FD)

Target analyte detections are summarized in Table 2.

9 SUMMARY AND CONCLUSIONS

WSP reviewed 1,558 data points from field samples during this validation and applied the following qualifiers to the data:

- WSP J qualified 105 data points (6.7%) as being estimated concentrations due to low ICV recovery; high MS recovery, high IS recovery; imprecision between LCS and LCSD results, imprecision between primary and field duplicate results; and/or detections less than the RL; and
- WSP UJ qualified 53 data points (0.84%) as being estimated non-detections due to low LCS recovery and/or low ICV recovery.

No data were rejected during validation and the data may be considered 100% usable, meeting the QAPP-specified 95% completeness goal. Qualifiers applied during data validation are summarized in Table 3.

10 REFERENCES

WSP Environment & Infrastructure, Inc. (WSP), 2022. *Quality Assurance Project Plan PFAS Investigation at Former JB SIMS Generating Station Harbor Island, Grand Haven, Michigan*. October 14.

EPA, 2009. *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*. EPA-540-R-08-005, January 13, 2009.

11 LIMITATIONS

This report was prepared exclusively for HDR Michigan, Inc. by WSP USA Environment & Infrastructure, Inc. The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in WSP services and based on: i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this report. This data validation report is intended to be used by HDR Michigan, Inc. for the Former JB SIMS Generating Station Harbor Island Site only, subject to the terms and conditions of its contract with WSP. Any other use of, or reliance on, this report by any third party is at that party's sole risk.

TABLES

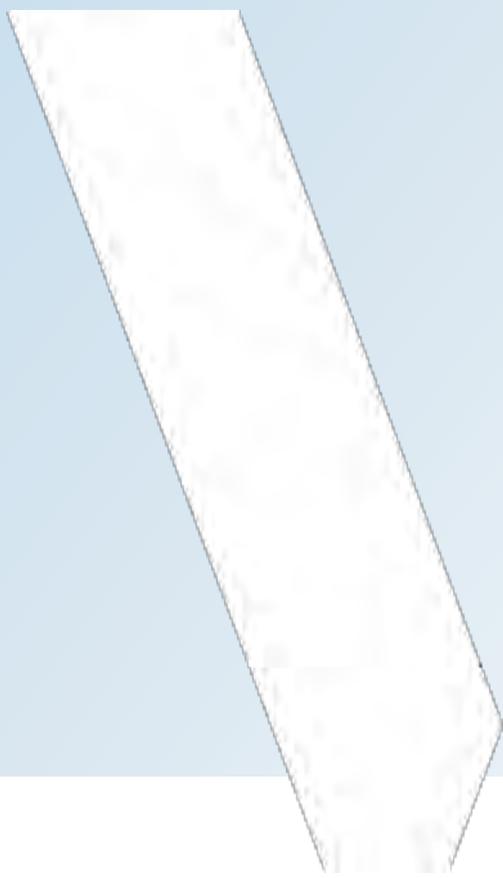


Table 1
Field Samples Submitted to Merit Laboratories, Inc.
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Sample Collection Date and Time | Laboratory Sample Identification | Notes |
|------------------------------------|--|---|------------------------------------|
| PZ-26-01302023 | 1/30/2023 12:35 | S44975.01 | |
| PZ-24-01302023 | 1/30/2023 15:05 | S44975.02 | |
| PZ-23-01302023 | 1/30/2023 15:54 | S44975.03 | |
| PZ-25-01302023 | 1/30/2023 16:10 | S44975.04 | |
| PZ-13-01302023 | 1/30/2023 17:15 | S44975.05 | |
| MW-07-01302023 | 1/30/2023 17:35 | S44975.06 | |
| MW-33-01312023 | 1/31/2023 10:25 | S44975.07 | |
| MW-34-01312023 | 1/31/2023 10:55 | S44975.08 | |
| PZ-27-01312023 | 1/31/2023 12:05 | S44975.09 | |
| PZ-28-01312023 | 1/31/2023 12:10 | S44975.10 | |
| PZ-30-01312023 | 1/31/2023 13:25 | S44975.11 | |
| DUP-01-01312023 | 1/31/2023 0:00 | S44975.12 | Field duplicate of PZ-27-013212023 |
| PZ-32-01312023 | 1/31/2023 13:50 | S44975.13 | |
| PZ-18-01312023 | 1/31/2023 15:06 | S44975.14 | |
| PZ-19-01312023 | 1/31/2023 16:07 | S44975.15 | |
| PZ-31-01312023 | 1/31/2023 16:25 | S44975.16 | |
| MW-05-01312023 | 1/31/2023 17:45 | S44975.17 | |
| MW-08-01312023 | 1/31/2023 17:55 | S44975.18 | |
| MW-38-02012023 | 2/1/2023 8:40 | S44975.19 | |
| PZ-12-02012023 | 2/1/2023 9:45 | S44975.20 | |
| MW-37-02012023 | 2/1/2023 10:10 | S44975.21 | |
| MW-36-02012023 | 2/1/2023 11:05 | S44975.22 | |
| MW-04-02012023 | 2/1/2023 11:15 | S44975.23 | |
| DUP-02-02012023 | 2/1/2023 0:00 | S44975.24 | Field duplicate of MW-37-02012023 |
| MW-03-02012023 | 2/1/2023 12:30 | S44975.25 | |
| PZ-20-02012023 | 2/1/2023 13:05 | S44975.26 | |
| MW-39-02012023 | 2/1/2023 14:10 | S44975.27 | |
| MW-02-02012023 | 2/1/2023 14:10 | S44975.30 | Stage 4 |
| PZ-11-02012023 | 2/1/2023 15:02 | S44975.31 | Stage 4 |
| MW-40-02012023 | 2/1/2023 15:15 | S44975.32 | Stage 4 |
| MW-06-02012023 | 2/1/2023 16:55 | S44975.33 | Stage 4 |
| MW-10-02012023 | 2/1/2023 17:44 | S44975.34 | Stage 4 |
| MW-35-02012023 | 2/1/2023 17:50 | S44975.35 | |
| DUP-03-02012023 | 2/1/2023 0:00 | S44975.36 | Field duplicate of MW-35-02012023 |
| MW-01R-02022023 | 2/2/2023 10:05 | S44975.37 | |
| PZ-16-02022023 | 2/2/2023 11:25 | S44975.38 | |
| MW-09-02022023 | 2/2/2023 11:35 | S44975.39 | |
| PZ-15-02022023 | 2/2/2023 12:45 | S44975.40 | |
| PZ-17-02022023 | 2/2/2023 12:50 | S44975.41 | |
| PZ-14-02022023 | 2/2/2023 13:53 | S44975.42 | |
| PZ-29-02022023 | 2/2/2023 15:25 | S44975.43 | |

Table 2
Field Duplicate Detections
Harbor Island
Grand Haven, Michigan

| Analyte | Reporting Limit | Primary Result | Duplicate Result | RPD | Notes |
|--|-----------------|----------------|------------------|-----|-------|
| Samples PZ-27-01312023 and DUP-01-01312023 | | | | | |
| Perfluorobutanoic acid | 9.8 ng/L | 16 | 17 | 6% | |
| Perfluoropentanoic acid | 3.9 ng/L | 25 | 22 | 13% | |
| Perfluorohexanoic acid | 2.0 ng/L | 12 | 11 | 9% | |
| Perfluorobutanesulfonic acid | 2.0 ng/L | 4.0 | 3.5 | 13% | |
| Perfluoroheptanoic acid | 2.0 ng/L | 7.7 | 6.2 | 22% | |
| Perfluorooctanoic acid | 2.0 ng/L | 5.5 | 5.3 | 4% | |
| Perfluorohexanesulfonic acid | 2.0 ng/L | 3.5 | 2.6 | 30% | |
| Perfluorohexanesulfonic acid-LN | 2.0 ng/L | 2.6 | 1.8 J | 36% | ± RL |
| Perfluorononanoic acid | 2.0 ng/L | 1.5 J | 1.6 J | 6% | |
| Perfluorooctanesulfonic acid | 2.0 ng/L | 9.0 | 11 | 20% | |
| Perfluorooctanesulfonic acid-LN | 2.0 ng/L | 5.4 | 6.5 | 18% | |
| Perfluorooctanesulfonic acid-BR | 2.0 ng/L | 3.8 | 4.2 | 10% | |
| Perfluorobutanesulfonamide | 2.0 ng/L | 1.2 J | 1.8 J | 40% | ± RL |
| Samples MW-37-02012023 and DUP-02-02012023 | | | | | |
| Perfluorobutanoic acid | 9.6 ng/L | 210 | 220 | 5% | |
| Perfluoropentanoic acid | 3.8 ng/L | 750 | 770 | 3% | |
| 4:2 Fluorotelomer sulfonic acid | 1.9 ng/L | 2.8 | 2.4 | 15% | |
| Perfluorohexanoic acid | 1.9 ng/L | 420 | 460 | 9% | |
| Perfluorobutanesulfonic acid | 1.9 ng/L | 40 | 43 | 7% | |
| Perfluoroheptanoic acid | 1.9 ng/L | 66 | 68 | 3% | |
| Perfluoropentanesulfonic acid | 1.9 ng/L | 16 | 17 | 6% | |
| 6:2 Fluorotelomer sulfonic acid | 1.9 ng/L | 420 | 450 | 7% | |
| Perfluorooctanoic acid | 1.9 ng/L | 33 | 35 | 6% | |
| Perfluorohexanesulfonic acid | 1.9 ng/L | 41 | 42 | 2% | |
| Perfluorohexanesulfonic acid-LN | 1.9 ng/L | 29 | 29 | 0% | |
| Perfluorohexanesulfonic acid-BR | 1.9 ng/L | 11 | 11 | 0% | |
| Perfluorononanoic acid | 1.9 ng/L | 1.5 J | 1.6 J | 6% | |
| Perfluorooctanesulfonic acid | 1.9 ng/L | 13 | 17 | 27% | |
| Perfluorooctanesulfonic acid-LN | 1.9 ng/L | 3.5 | 5.7 | 48% | J-FD |
| Perfluorooctanesulfonic acid-BR | 1.9 ng/L | 10 | 11 | 10% | |
| Perfluorobutanesulfonamide | 1.9 ng/L | 22 | 24 | 9% | |
| PFECHS | 1.9 ng/L | 3.0 | 3.4 | 13% | |
| Perfluorohexanesulfonic acid | 1.9 ng/L | 8.0 | 7.2 | 11% | |

Table 2
Field Duplicate Detections
Harbor Island
Grand Haven, Michigan

| Analyte | Reporting Limit | Primary Result | Duplicate Result | RPD | Notes |
|--|-----------------|----------------|------------------|-----|-------|
| Samples MW-35-02012023 and DUP-03-02012023 | | | | | |
| Perfluorobutanoic acid | 9.8 ng/L | 10 | 12 | 18% | |
| Perfluoropentanoic acid | 3.9 ng/L | 8.2 | 7.7 | 6% | |
| Perfluorohexanoic acid | 2.0 ng/L | 10 | 9.8 | 2% | |
| Perfluorobutanesulfonic acid | 2.0 ng/L | 11 | 11 | 0% | |
| Perfluoroheptanoic acid | 2.0 ng/L | 6.2 | 6.7 | 8% | |
| Perfluoropentanesulfonic acid | 2.0 ng/L | 2.3 | 2.1 | 9% | |
| Perfluorooctanoic acid | 2.0 ng/L | 71 | 63 | 12% | |
| Perfluorohexanesulfonic acid | 2.0 ng/L | 11 | 11 | 0% | |
| Perfluorohexanesulfonic acid-LN | 2.0 ng/L | 8.1 | 7.6 | 6% | |
| Perfluorohexanesulfonic acid-BR | 2.0 ng/L | 2.0 | 2.1 | 5% | |
| Perfluorononanoic acid | 2.0 ng/L | 1.8 J | 1.7 J | 6% | |
| Perfluoroheptanesulfonic acid | 2.0 ng/L | 1.3 J | 1.2 U | NC | ± RL |
| Perfluorodecanoic acid | 2.0 ng/L | 0.81 J | 0.59 U | NC | ± RL |
| NMeFOSAA | 2.0 ng/L | 3.4 | 3.4 | 0% | |
| EtFOSAA | 3.9 ng/L | 21 | 19 | 10% | |
| Perfluorooctanesulfonic acid | 2.0 ng/L | 80 | 74 | 8% | |
| Perfluorooctanesulfonic acid-LN | 2.0 ng/L | 49 | 43 | 13% | |
| Perfluorooctanesulfonic acid-BR | 2.0 ng/L | 32 | 30 | 6% | |
| Perfluorooctanesulfonamide | 2.0 ng/L | 0.85 J | 0.78 U | NC | ± RL |
| 3-Perfluoroheptyl propanoic acid | 3.9 ng/L | 1.9 U | 3.2 J | NC | ± RL |
| 3-Perfluoropentyl propanoic acid | 3.9 ng/L | 3.8 J | 3.7 J | 3% | |
| 3-Perfluoropropyl propanoic acid | 3.9 ng/L | 0.97 U | 3.0 J | NC | ± RL |
| PFECHS | 2.0 ng/L | 19 | 17 | 11% | |

Notes:

BR = branched

LN = linear

NC = not calculable

ng/L = nanograms per liter

PFECHS = Perfluoro-4-ethylcyclohexanesulfonate

RPD = relative percent difference

Qualifiers:

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

U = The analyte was analyzed for, but was not detected.

Reason Codes:

FD = Imprecision between primary and field duplicate results.

± RL = The difference between analyte concentrations is less than the reporting limit, indicating acceptable sampling and analytical precision.

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|------------------------------------|----------------------------------|---------------|----------------------------------|
| DUP-01-01312023 | 4:2 Fluorotelomer sulfonic acid | 0.78 ng/L | UJ LV |
| DUP-01-01312023 | Pefluorhexanesulfonic acid-LN | 1.8 ng/L | J DL |
| DUP-01-01312023 | Perfluorobutanesulfonamide | 1.8 ng/L | J DL |
| DUP-01-01312023 | Perfluorononanoic acid | 1.6 ng/L | J DL |
| DUP-02-02012023 | 4:2 Fluorotelomer sulfonic acid | 2.4 ng/L | J LV |
| DUP-02-02012023 | 9Cl-PF3ONS | 0.77 ng/L | UJ LL |
| DUP-02-02012023 | Perfluorononanoic acid | 1.6 ng/L | J DL |
| DUP-02-02012023 | Perfluorooctanesulfonic acid-LN | 5.7 ng/L | J FD |
| DUP-03-02012023 | 3-Perfluoroheptyl propanoic acid | 3.2 ng/L | J DL |
| DUP-03-02012023 | 3-Perfluoropentyl propanoic acid | 3.7 ng/L | J DL |
| DUP-03-02012023 | 3-Perfluoropropyl propanoic acid | 3.0 ng/L | J DL |
| DUP-03-02012023 | 4:2 Fluorotelomer sulfonic acid | 0.78 ng/L | UJ LV |
| DUP-03-02012023 | 9Cl-PF3ONS | 0.78 ng/L | UJ LL |
| DUP-03-02012023 | Perfluorononanoic acid | 1.7 ng/L | J DL |
| MW-01R-02022023 | 4:2 Fluorotelomer sulfonic acid | 0.79 ng/L | UJ LV |
| MW-01R-02022023 | 9Cl-PF3ONS | 0.79 ng/L | UJ LL |
| MW-01R-02022023 | Perfluorobutanesulfonic acid | 1.7 ng/L | J DL |
| MW-01R-02022023 | Perfluoroheptanoic acid | 1.1 ng/L | J DL |
| MW-02-02012023 | 4:2 Fluorotelomer sulfonic acid | 0.77 ng/L | UJ LV |
| MW-02-02012023 | 9Cl-PF3ONS | 0.77 ng/L | UJ LL |
| MW-02-02012023 | Perfluorononanoic acid | 0.94 ng/L | J DL |
| MW-02-02012023 | Perfluoropentanesulfonic acid | 1.7 ng/L | J DL |
| MW-03-02012023 | 4:2 Fluorotelomer sulfonic acid | 0.77 ng/L | UJ LV |
| MW-03-02012023 | 9Cl-PF3ONS | 0.77 ng/L | UJ LL |
| MW-03-02012023 | Pefluorhexanesulfonic acid-BR | 1.6 ng/L | J DL |
| MW-03-02012023 | Perfluorobutanesulfonic acid | 1.9 ng/L | J DL |
| MW-03-02012023 | Perfluoroheptanoic acid | 1.9 ng/L | J DL |
| MW-03-02012023 | Perfluoropentanesulfonic acid | 1.7 ng/L | J DL |
| MW-04-02012023 | 4:2 Fluorotelomer sulfonic acid | 1.8 ng/L | J LV, DL |
| MW-04-02012023 | 9Cl-PF3ONS | 0.78 ng/L | UJ LL |
| MW-05-01312023 | 4:2 Fluorotelomer sulfonic acid | 0.78 ng/L | UJ LV |
| MW-05-01312023 | Perfluoropentanesulfonic acid | 1.1 ng/L | J DL |
| MW-06-02012023 | 4:2 Fluorotelomer sulfonic acid | 0.82 ng/L | UJ LV |
| MW-06-02012023 | 9Cl-PF3ONS | 0.82 ng/L | UJ LL |
| MW-06-02012023 | EtFOSAA | 4.0 ng/L | J DL |
| MW-06-02012023 | Pefluorhexanesulfonic acid | 1.6 ng/L | J DL |
| MW-06-02012023 | Perfluorobutanesulfonic acid | 1.9 ng/L | J DL |
| MW-06-02012023 | Perfluoroheptanoic acid | 1.5 ng/L | J DL |
| MW-06-02012023 | Perfluoropentanesulfonic acid | 0.87 ng/L | J DL |
| MW-07-01302023 | 4:2 Fluorotelomer sulfonic acid | 0.80 ng/L | UJ LV |
| MW-08-01312023 | 4:2 Fluorotelomer sulfonic acid | 0.80 ng/L | UJ LV |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|------------------------------------|---------------------------------|---------------|----------------------------------|
| MW-08-01312023 | Pefluorhexanesulfonamide | 1.1 ng/L | J LCSD, DL |
| MW-08-01312023 | Perfluorobutanoic acid | 10 ng/L | J DL |
| MW-08-01312023 | Perfluoroheptanesulfonic acid | 1.7 ng/L | J DL |
| MW-08-01312023 | Perfluoropentanesulfonic acid | 1.3 ng/L | J DL |
| MW-09-02022023 | 4:2 Fluorotelomer sulfonic acid | 0.76 ng/L | UJ LV |
| MW-09-02022023 | 9Cl-PF3ONS | 0.76 ng/L | UJ LL |
| MW-09-02022023 | Perfluorobutanesulfonic acid | 1.5 ng/L | J DL |
| MW-09-02022023 | Perfluorobutanoic acid | 6.5 ng/L | J DL |
| MW-10-02012023 | 4:2 Fluorotelomer sulfonic acid | 0.78 ng/L | UJ LV |
| MW-10-02012023 | 9Cl-PF3ONS | 0.78 ng/L | UJ LL |
| MW-10-02012023 | Perfluorobutanesulfonic acid | 1.2 ng/L | J DL |
| MW-10-02012023 | Perfluorononanoic acid | 1.4 ng/L | J DL |
| MW-10-02012023 | PFECHS | 1.2 ng/L | J DL |
| MW-33-01312023 | 4:2 Fluorotelomer sulfonic acid | 0.81 ng/L | UJ LV |
| MW-34-01312023 | 4:2 Fluorotelomer sulfonic acid | 0.76 ng/L | UJ LV |
| MW-34-01312023 | Pefluorhexanesulfonamide | 1.4 ng/L | J LCSD, DL |
| MW-34-01312023 | Pefluorhexanesulfonic acid-BR | 1.7 ng/L | J DL |
| MW-34-01312023 | Perfluorononanoic acid | 0.86 ng/L | J DL |
| MW-35-02012023 | 4:2 Fluorotelomer sulfonic acid | 0.78 ng/L | UJ LV |
| MW-35-02012023 | 9Cl-PF3ONS | 0.78 ng/L | UJ LL |
| MW-35-02012023 | FPePA (5:3 FTCA) | 3.8 ng/L | J DL |
| MW-35-02012023 | Perfluorodecanoic acid | 0.81 ng/L | J DL |
| MW-35-02012023 | Perfluoroheptanesulfonic acid | 1.3 ng/L | J DL |
| MW-35-02012023 | Perfluorononanoic acid | 1.8 ng/L | J DL |
| MW-35-02012023 | Perfluorooctanesulfonamide | 0.85 ng/L | J DL |
| MW-36-02012023 | 4:2 Fluorotelomer sulfonic acid | 0.82 ng/L | UJ LV |
| MW-36-02012023 | 9Cl-PF3ONS | 0.82 ng/L | UJ LL |
| MW-36-02012023 | Perfluorodecanoic acid | 1.0 ng/L | J DL |
| MW-37-02012023 | 4:2 Fluorotelomer sulfonic acid | 2.8 ng/L | J LV |
| MW-37-02012023 | 9Cl-PF3ONS | 0.76 ng/L | UJ LL |
| MW-37-02012023 | Perfluorononanoic acid | 1.5 ng/L | J DL |
| MW-37-02012023 | Perfluorooctanesulfonic acid-LN | 3.5 ng/L | J FD |
| MW-38-02012023 | 4:2 Fluorotelomer sulfonic acid | 3.6 ng/L | J LV |
| MW-38-02012023 | 9Cl-PF3ONS | 0.76 ng/L | UJ LL |
| MW-38-02012023 | Perfluoroheptanesulfonic acid | 1.2 ng/L | J DL |
| MW-39-02012023 | 4:2 Fluorotelomer sulfonic acid | 2.1 ng/L | J LV |
| MW-39-02012023 | 6:2 Fluorotelomer sulfonic acid | 180 ng/L | J HM |
| MW-39-02012023 | 9Cl-PF3ONS | 0.77 ng/L | UJ LL |
| MW-40-02012023 | 4:2 Fluorotelomer sulfonic acid | 9.2 ng/L | J LV, HI |
| MW-40-02012023 | 9Cl-PF3ONS | 0.79 ng/L | UJ LL |
| MW-40-02012023 | Pefluorhexanesulfonamide | 14 ng/L | J LCSD |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|---------------------------------|-----------|---------------------------|
| MW-40-02012023 | Perfluorononanoic acid | 1.3 ng/L | J DL |
| MW-40-02012023 | PFECHS | 1.5 ng/L | J DL |
| PZ-11-02012023 | 4:2 Fluorotelomer sulfonic acid | 0.79 ng/L | UJ LV |
| PZ-11-02012023 | 9CI-PF3ONS | 0.79 ng/L | UJ LL |
| PZ-11-02012023 | Perfluorobutanoic acid | 6.9 ng/L | J DL |
| PZ-12-02012023 | 4:2 Fluorotelomer sulfonic acid | 0.78 ng/L | UJ LV |
| PZ-12-02012023 | 9CI-PF3ONS | 0.78 ng/L | UJ LL |
| PZ-12-02012023 | Pefluorhexanesulfonamide | 0.89 ng/L | J DL |
| PZ-12-02012023 | Perfluorobutanesulfonic acid | 1.0 ng/L | J DL |
| PZ-13-01302023 | 4:2 Fluorotelomer sulfonic acid | 8.7 ng/L | J LV |
| PZ-13-01302023 | PFECHS | 1.7 ng/L | J DL |
| PZ-14-02022023 | 4:2 Fluorotelomer sulfonic acid | 0.83 ng/L | UJ LV |
| PZ-14-02022023 | Perfluorobutanoic acid | 4.4 ng/L | J DL |
| PZ-14-02022023 | Perfluoroheptanoic acid | 1.0 ng/L | J DL |
| PZ-14-02022023 | Perfluorohexanoic acid | 1.4 ng/L | J DL |
| PZ-14-02022023 | Perfluoropentanoic acid | 2.8 ng/L | J DL |
| PZ-15-02022023 | 4:2 Fluorotelomer sulfonic acid | 0.81 ng/L | UJ LV |
| PZ-15-02022023 | 9CI-PF3ONS | 0.81 ng/L | UJ LL |
| PZ-15-02022023 | Perfluorobutanesulfonic acid | 1.8 ng/L | J DL |
| PZ-15-02022023 | Perfluorobutanoic acid | 6.0 ng/L | J DL |
| PZ-15-02022023 | Perfluoroheptanoic acid | 1.2 ng/L | J DL |
| PZ-15-02022023 | Perfluorohexanoic acid | 1.6 ng/L | J DL |
| PZ-16-02022023 | 4:2 Fluorotelomer sulfonic acid | 0.78 ng/L | UJ LV |
| PZ-16-02022023 | 9CI-PF3ONS | 0.78 ng/L | UJ LL |
| PZ-16-02022023 | Pefluorhexanesulfonic acid | 1.5 ng/L | J DL |
| PZ-16-02022023 | Perfluorooctanesulfonic acid-LN | 1.2 ng/L | J DL |
| PZ-16-02022023 | Perfluoropentanesulfonic acid | 0.95 ng/L | J DL |
| PZ-16-02022023 | PFECHS | 1.7 ng/L | J DL |
| PZ-17-02022023 | 4:2 Fluorotelomer sulfonic acid | 3.3 ng/L | J LV |
| PZ-17-02022023 | Perfluorodecanoic acid | 0.85 ng/L | J DL |
| PZ-17-02022023 | Perfluorononanoic acid | 1.1 ng/L | J DL |
| PZ-18-01312023 | 4:2 Fluorotelomer sulfonic acid | 0.77 ng/L | UJ LV |
| PZ-19-01312023 | 4:2 Fluorotelomer sulfonic acid | 0.78 ng/L | UJ LV |
| PZ-19-01312023 | 6:2 Fluorotelomer sulfonic acid | 1.9 ng/L | J DL |
| PZ-19-01312023 | Perfluorobutanesulfonamide | 1.2 ng/L | J DL |
| PZ-20-02012023 | 4:2 Fluorotelomer sulfonic acid | 0.75 ng/L | UJ LV |
| PZ-20-02012023 | 9CI-PF3ONS | 0.75 ng/L | UJ LL |
| PZ-20-02012023 | Pefluorhexanesulfonic acid-BR | 1.2 ng/L | J DL |
| PZ-20-02012023 | Perfluorobutanesulfonamide | 1.3 ng/L | J DL |
| PZ-20-02012023 | Perfluorononanoic acid | 1.4 ng/L | J DL |
| PZ-20-02012023 | Perfluoropentanesulfonic acid | 1.3 ng/L | J DL |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|---------------------------------|-----------|---------------------------|
| PZ-23-01302023 | 4:2 Fluorotelomer sulfonic acid | 0.80 ng/L | UJ LV |
| PZ-24-01302023 | 4:2 Fluorotelomer sulfonic acid | 0.74 ng/L | UJ LV |
| PZ-24-01302023 | Pefluorhexanesulfonic acid | 1.5 ng/L | J DL |
| PZ-24-01302023 | Pefluorhexanesulfonic acid-LN | 1.5 ng/L | J DL |
| PZ-24-01302023 | Perfluorobutanesulfonic acid | 1.8 ng/L | J DL |
| PZ-24-01302023 | Perfluoroheptanoic acid | 1.8 ng/L | J DL |
| PZ-24-01302023 | Perfluorooctanesulfonic acid-LN | 1.7 ng/L | J DL |
| PZ-25-01302023 | 4:2 Fluorotelomer sulfonic acid | 0.79 ng/L | UJ LV |
| PZ-25-01302023 | Perfluoroheptanoic acid | 1.2 ng/L | J DL |
| PZ-26-01302023 | 4:2 Fluorotelomer sulfonic acid | 0.80 ng/L | UJ LV |
| PZ-26-01302023 | Pefluorhexanesulfonic acid | 1.2 ng/L | J DL |
| PZ-26-01302023 | Perfluorobutanesulfonic acid | 1.2 ng/L | J DL |
| PZ-26-01302023 | Perfluorobutanoic acid | 4.0 ng/L | J DL |
| PZ-26-01302023 | Perfluoropentanoic acid | 1.3 ng/L | J DL |
| PZ-27-01312023 | 4:2 Fluorotelomer sulfonic acid | 0.78 ng/L | UJ LV |
| PZ-27-01312023 | Perfluorobutanesulfonamide | 1.2 ng/L | J DL |
| PZ-27-01312023 | Perfluorononanoic acid | 1.5 ng/L | J DL |
| PZ-28-01312023 | 4:2 Fluorotelomer sulfonic acid | 0.78 ng/L | UJ LV |
| PZ-28-01312023 | Perfluorononanoic acid | 0.78 ng/L | J DL |
| PZ-29-02022023 | 4:2 Fluorotelomer sulfonic acid | 0.80 ng/L | UJ LV |
| PZ-29-02022023 | Perfluorononanoic acid | 1.3 ng/L | J DL |
| PZ-29-02022023 | Perfluoropentanesulfonic acid | 0.90 ng/L | J DL |
| PZ-30-01312023 | 4:2 Fluorotelomer sulfonic acid | 0.77 ng/L | UJ LV |
| PZ-31-01312023 | 4:2 Fluorotelomer sulfonic acid | 0.81 ng/L | UJ LV |
| PZ-31-01312023 | Pefluorhexanesulfonic acid-BR | 1.3 ng/L | J DL |
| PZ-31-01312023 | Pefluorhexanesulfonic acid-LN | 2.0 ng/L | J DL |
| PZ-31-01312023 | Perfluorobutanesulfonamide | 1.3 ng/L | J DL |
| PZ-31-01312023 | Perfluorononanoic acid | 1.1 ng/L | J DL |
| PZ-31-01312023 | Perfluorooctanesulfonamide | 1.1 ng/L | J DL |
| PZ-32-01312023 | 4:2 Fluorotelomer sulfonic acid | 0.76 ng/L | UJ LV |
| PZ-32-01312023 | 6:2 Fluorotelomer sulfonic acid | 1.7 ng/L | J DL |
| PZ-32-01312023 | EtFOSAA | 3.4 ng/L | J DL |
| PZ-32-01312023 | Pefluorhexanesulfonamide | 0.80 ng/L | J LCSD, DL |
| PZ-32-01312023 | Pefluorhexanesulfonic acid-BR | 1.6 ng/L | J DL |
| PZ-32-01312023 | Perfluorobutanesulfonamide | 1.2 ng/L | J DL |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

Notes:

11Cl-PF3OUdS = 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid

9Cl-PF3ONS = 9-chlorohexadecafluoro-3-oxanone1-sulfonic acid

BR = branched

LN = linear

ng/L = nanograms per liter

PFECHS = Perfluoro-4-ethylcyclohexanesulfonate

Qualifiers:

J = The result was an estimated quantity.

UJ = The analyte was not detected and was reported as less than the limit of detection. However, the associated numerical value is approximate.

Reason Codes:

DL = Detected analyte concentration is less than the reporting limit.

FD = Imprecision between primary and field duplicate results.

HI = High internal standard recovery.

HM = High matrix spike recovery.

LCSD = Imprecision between laboratory control sample (LCS) and LCS duplicate results.

LL = Low LCS recovery.

LV = Low initial calibration verification recovery.



DATA VALIDATION REPORT

FORMER JB SIMS GENERATING STATION
HARBOR ISLAND, GRAND HAVEN
PROJECT # 3650220203.02.03

Prepared for:

HDR MICHIGAN, INC.

Ann Arbor, Michigan

7/11/2023

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TABLES

- Table 1. Field Samples Submitted to Merit Laboratories, Inc.
Table 2. Field Duplicate Detections.
Table 3. Qualifiers Added During Validation.

LIST OF ACRONYMS

| | |
|----------|---|
| °C | degrees Celsius |
| % | percent |
| 3:3 FTCA | 3-perfluoropropyl propanoic acid |
| 5:3 FTCA | 3-perfluoropentyl propanoic acid |
| 7:3 FTCA | 3-perfluoroheptyl propanoic acid |
| ASTM | ASTM International |
| CCV | continuing calibration verification |
| COC | chain of custody |
| EPA | United States Environmental Protection Agency |
| FTS | fluorotelomer sulfonic acid |
| ICAL | initial calibration |
| ICV | initial calibration verification |
| ID | identification |
| IS | internal standard |
| LCS | laboratory control sample |
| LCSD | laboratory control sample duplicate |
| LN | linear |
| Merit | Merit Laboratories, Inc. |
| MS | matrix spike |
| MSD | matrix spike duplicate |
| PFAS | per- and polyfluoroalkyl substances |
| PFDODA | perfluorododecanoic acid |
| PFHxS | perfluorohexanesulfonic acid |
| PFOS | perfluorooctanesulfonic acid |
| QAPP | quality assurance project plan |
| QC | quality control |
| RL | reporting limit |
| RPD | relative percent difference |
| WSP | WSP USA Environment & Infrastructure, Inc. |

1 INTRODUCTION

WSP USA Environment & Infrastructure, Inc. (WSP) collected 28 water samples, including one equipment blank and two field duplicates, between May 1 and 3, 2023, from the Former JB Sims Generating Station Site located in Harbor Island, Grand Haven, Michigan. WSP submitted the samples to Merit Laboratories, Inc. (Merit) located in East Lansing, Michigan, where they were received May 3, 2023, and assigned to sample delivery group S48122. Merit analyzed the samples for per- and polyfluoroalkyl substances (PFAS) by liquid chromatography tandem mass spectrometry using ASTM International (ASTM) Method D7979.

A list of these samples by field sample identification (ID), sample collection date, and Merit's sample ID is presented in Table 1.

2 DATA VALIDATION METHODOLOGY

WSP performed a United States Environmental Protection Agency (EPA) Stage 4 data validation on a minimum of 10 percent (%) of the field samples analyzed during this sampling event and Stage 2B data validation on the remaining samples, as specified in Table 1. Particle size was not validated. This data validation has been performed in accordance with:

- WSP Environment & Infrastructure, Inc. (WSP), 2022. *Quality Assurance Project Plan (QAPP) PFAS Investigation at Former JB SIMS Generating Station Harbor Island, Grand Haven, Michigan*. October 14.
- EPA, 2009. *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*. EPA-540-R-08-005, January 13, 2009.

The laboratory's certified analytical report and supporting documentation were reviewed to assess the following:

- Data package and electronic deliverables completeness
- Chain of custody (COC) compliance
- Sample receipt
- Holding time compliance
- Initial calibration (ICAL)
- Initial calibration verification (ICV) and continuing calibration verification (CCV)
- Reporting limits (RLs)
- Presence or absence of laboratory contamination as demonstrated by laboratory blanks
- Accuracy and bias as demonstrated by recovery of laboratory control samples (LCSs) and matrix spikes (MSs)
- Analytical precision as demonstrated by the analysis of LCS/LCS duplicate (LCSD), MS/MS duplicate (MSD), and/or laboratory duplicates
- Internal standard (IS) recoveries
- Analyte ID and quantification verification from raw analytical data
- Insofar as possible, the degree of conformance to method requirements and good laboratory practices

In general, it is important to recognize that no analytical data are guaranteed to be correct, even if all quality control (QC) audits are passed. Strict QC serves to increase confidence in data, but any reported value may potentially contain error.

3 DEFINITION OF QUALIFIERS THAT MAY BE ADDED DURING VALIDATION

- B The analyte was detected in the associated blank at a concentration greater than 1/10 the concentration detected in the sample.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- Q The analyte was both B and J qualified.
- UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

4 QUALIFICATION REASON CODES

The following reason codes were applied to the data during validation:

- DL The detected analyte concentration is less than the RL.
- HI High IS recovery.
- HL High LCS recovery. Result may be biased high.
- LI Low IS recovery.
- LM Low MS recovery. Result may be biased low.
- LV Low ICV recovery. Result may be biased low.
- RT Elevated receipt temperature.

5 EXPLANATION OF DATA QUALITY INDICATORS

Summary explanations of the specific data quality indicators reviewed during this data validation are presented in the sections below.

5.1 BLANK SAMPLES

Blank samples are aliquots of analyte free matrix that are used as negative controls to verify that the sample collection, storage, preparation, and analytical system does not produce false positive results.

Equipment blanks are prepared by passing analyte free water through or over sample collection equipment and collecting the water in sample containers. Equipment blanks are used to monitor for possible sample contamination during the sample collection process and serve as a check on the effectiveness of field decontamination procedures.

Laboratory blanks are aliquots of analyte free matrix that are processed by the laboratory using the same procedures as the field samples. Laboratory blanks are used to monitor for contamination introduced by the laboratory during sample preparation and analysis.

5.2 LABORATORY CONTROL SAMPLE RECOVERIES

LCSs are aliquots of analyte-free matrix that are spiked with the analytes of interest for an analytical method. The spiked matrix is then processed through the same preparation and analytical procedures as the samples they accompany. LCS recovery is an indication of a laboratory's ability to successfully perform an analytical method in an interference-free matrix.

5.3 INTERNAL STANDARDS

Internal standards are compounds that are added to a sample after all preparatory steps are completed and before instrumental analysis. These compounds serve as standards for qualitative analysis using relative retention time and quantitative analysis using relative response factors. Methods that use internal standard calibration include requirements for changes in response to the internal standard relative to the initial calibration or the CCV.

5.4 CALIBRATION

Instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. Calibration is verified at the beginning of the analytical run and on an ongoing basis.

6 CHAIN OF CUSTODY AND SAMPLE RECEIPT CONDITION DOCUMENTATION

The samples were received by Merit under proper COC, intact, properly preserved, and at temperatures within the QAPP specified temperature range of 2 to 6 degrees Celsius (°C), with the following exception:

- All samples reviewed in this report were received at an elevated temperature of 14.6°C. WSP J qualified the detected and UJ qualified the non-detect results from all samples reviewed in this report because of the temperature exceedance. (J/UJ, RT)

7 SPECIFIC DATA VALIDATION FINDINGS

Sections 7.1 through 8.0 contain narrative descriptions of the data validation findings and data quality limitations.

7.1 PFAS BY ASTM METHOD D7979

PFAS results generated by Merit may be considered fully usable with the limitations summarized in Sections 7.1.1 through 7.1.11.

7.1.1 HOLDING TIME COMPLIANCE

The samples were analyzed for PFAS within the method-specified maximum holding time of 28 days from sample collection.

7.1.2 INITIAL CALIBRATION COMPLIANCE

The ICALs associated with the analysis of these samples met the method-specified criteria of the calibration standards calculating to 70 to 130% of their true concentrations.

7.1.3 INITIAL CALIBRATION VERIFICATION RECOVERIES

ICV recoveries were within the method-specified 70 to 130% limits, with the following exceptions:

- Perfluorooctanesulfonic acid (PFOS) and 8:2 fluorotelomer sulfonic acid (FTS) recoveries were low at 69% and 67%, respectively, in the ICV associated with the analysis of samples SW-01-05012023, SW-02-05012023, SW-03-05012023, SW-04-05012023, SW-05-05012023, and SW-06-05012023. WSP J qualified the detected and UJ qualified the non-detect PFOS and 8:2 FTS results from the associated samples because of potential low analytical bias. (J/UJ, LV)
-

7.1.4 CONTINUING CALIBRATION VERIFICATION RECOVERIES

CCV recoveries were within the method-specified 70 to 130% limits, with the following exception:

- 3-Perfluoropropyl propanoic acid (3:3 FTCA) recovery was high at 140% in the CCV associated with the analysis of samples DUP-01-05022023, DUP-02-05032023, Foam-01-05012023, MW-01R-05022023, MW-03-05022023, MW-04-05022023, MW-08-05022023, MW-10-05022023, MW-33-05032023, MW-34-05032023, MW-35-05022023, MW-36-05012023, MW-37-05012023, MW-38-05012023, MW-39-05012023, MW-40-05012023, PZ-13-05022023, PZ-14-05022023, PZ-23-05032023, PZ-28-05022023, and PZ-32-05022023. 3:3 FTCA was not detected in the associated samples and data usability is not adversely affected by potential high analytical bias.
-

7.1.5 LABORATORY AND EQUIPMENT BLANK DETECTIONS

Target analytes were not detected in the laboratory and equipment blanks associated with the analysis of the samples reviewed in this report.

7.1.6 LABORATORY CONTROL SAMPLE ACCURACY AND PRECISION

LCS and LCSD recoveries were within the laboratory-specified 70 to 130% limits and relative percent differences (RPDs) between LCS and LCSD results were less than the QAPP-specified maximum of 30%, with the following exceptions:

- 3:3 FTCA (147%, 153%), 3-perfluoropentyl propanoic acid (5:3 FTCA [152%, LCSD]), and 3-perfluoroheptyl propanoic acid (7:3 FTCA [131%, 148%]) recoveries were high in the LCS and/or LCSD associated with the analysis of samples DUP-01-05022023, Foam-01-05012023, MW-01R-05022023, MW-03-05022023, MW-04-05022023, MW-08-05022023, MW-10-05022023, MW-33-05032023, MW-34-05032023,

MW-35-05022023, MW-36-05012023, MW-37-05012023, MW-38-05012023, MW-39-05012023, MW-40-05012023, PZ-13-05022023, PZ-14-05022023, PZ-28-05022023, and PZ-32-05022023. Data limitations are summarized below.

- WSP J qualified the detected 5:3 FTCA results from samples MW-36-05012023, MW-38-05012023, MW-40-05012023, and PZ-13-05022023 because of potential high analytical bias. (J, HL)
- 5:3 FTCA was not detected in the remaining associated samples, and 3:3 FTCA and 7:3 FTCA were not detected in any associated samples. Data usability is not adversely affected by potential high analytical bias.
- 3:3 FTCA (151%, 139%) and 7:3 FTCA (152%, 131%) recoveries were high in the LCS and LCSD associated with the analysis of samples DUP-02-05032023 and PZ-23-05032023. 3:3 FTCA and 7:3 FTCA were not detected in the associated samples and data usability is not adversely affected by potential high analytical bias.

7.1.7 MATRIX SPIKE ACCURACY AND PRECISION

Merit performed MS and/or MSD analyses on sample MW-08-05022023. MS and MSD recoveries were within the laboratory-specified 70 to 130% limits, and RPDs between MS and MSD results were less than the QAPP-specified maximum of 30%, with the following exception:

- 8:2 FTS recovery was low at 65% in the MSD performed on sample MW-08-05022023. WSP UJ qualified the non-detect 8:2 FTS result from sample MW-08-05022023 because of potential low analytical bias. (UJ, LM)
- 7:3 FTCA recoveries were high at 149% and 136% in the MS and MSD performed on sample MW-08-05022023. 7:3 FTCA was not detected in the unspiked native sample and data usability is not adversely affected by potential high analytical bias.

7.1.8 LABORATORY DUPLICATE PRECISION

Merit did not perform duplicate analyses on the samples reviewed in this report.

7.1.9 INTERNAL STANDARD AREA COUNTS

IS area counts were within the QAPP-specified limits of 50 to 150% of the area counts from the ICAL midpoint or the most current CCV, with the following exception:

- Recoveries of the ISs M₂-6:2 FTS (216%), M₂-8:2 FTS (193%), and M-perfluorododecanoic acid (PFDoDA [46%]) were outside of limits in sample Foam-01-05012023. Data limitations are summarized below.
 - WSP J qualified the detected 6:2 FTS and 8:2 FTS results from sample Foam-01-05012023 because of the high IS recoveries. (J, HI)
 - WSP J qualified the detected PFDoDA and perfluorotridecanoic acid results from sample Foam-01-05012023 because of the low IS recovery. (J, LI)
- Recoveries of the ISs M₂-6:2 FTS and M₂-8:2 FTS were high at 270% and 173%, respectively, in sample MW-38-05012023. Data limitations are summarized below.
 - WSP J qualified the detected 6:2 FTS result from sample MW-38-05012023 because of the high IS recovery. (J, HI)
 - 8:2 FTS was not detected in sample MW-38-05012023 and data usability is not adversely affected by the high IS recovery.
- Recovery of the IS M₂-4:2 FTS was high at 166% in sample MW-01R-05012023. 4:2 FTS was not detected in the associated sample and data usability is not adversely affected by the high IS recovery.

7.1.10 STAGE 4 VALIDATION

WSP reviewed the raw data, checked analyte IDs, and recalculated the reported results for samples SW-01-05012023, SW-02-05012023, and SW-03-05012023. Reported results matched the raw analytical data and target analytes were correctly identified.

7.1.11 DATA REPORTING AND ANALYTICAL PROCEDURES

Merit J qualified results with detected concentrations less than the RL. WSP agrees these results are quantitatively uncertain and has maintained the laboratory's J qualifiers. (J, DL)

8 FIELD DUPLICATE PRECISION

WSP collected field duplicates with samples PZ-14-05022023 (DUP-01-05022023) and MW-34-05032023 (DUP-02-05032023). RPDs between primary and duplicate results were less than the QAPP-specified maximum of 30% or differences between concentrations were less than the average RL, indicating acceptable sampling and analytical precision.

Target analyte detections are summarized in Table 2.

9 SUMMARY AND CONCLUSIONS

WSP reviewed 1,026 data points from field samples during this validation and applied the following qualifiers to the data:

- WSP J qualified 381 data points (37%) as being estimated concentrations due to elevated receipt temperature; low ICV and/or IS recoveries; high IS and/or LCS recoveries; and/or detections less than the RL; and
- WSP UJ qualified 645 data points (63%) as being estimated non-detections due to elevated receipt temperature; low MS and/or ICV recoveries.

No data were rejected during validation and the data may be considered 100% usable, meeting the QAPP-specified 95% completeness goal. Qualifiers applied during data validation are summarized in Table 3.

10 REFERENCES

WSP Environment & Infrastructure, Inc. (WSP), 2022. *Quality Assurance Project Plan PFAS Investigation at Former JB SIMS Generating Station Harbor Island, Grand Haven, Michigan*. October 14.

EPA, 2009. *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*. EPA-540-R-08-005, January 13, 2009.

11 LIMITATIONS

This report was prepared exclusively for HDR Michigan, Inc. by WSP USA Environment & Infrastructure, Inc. The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in WSP services and based on: i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this report. This data validation report is intended to be used by HDR Michigan, Inc. for the Former JB SIMS Generating Station Harbor Island Site only, subject to the terms and conditions of its contract with WSP. Any other use of, or reliance on, this report by any third party is at that party's sole risk.

TABLES

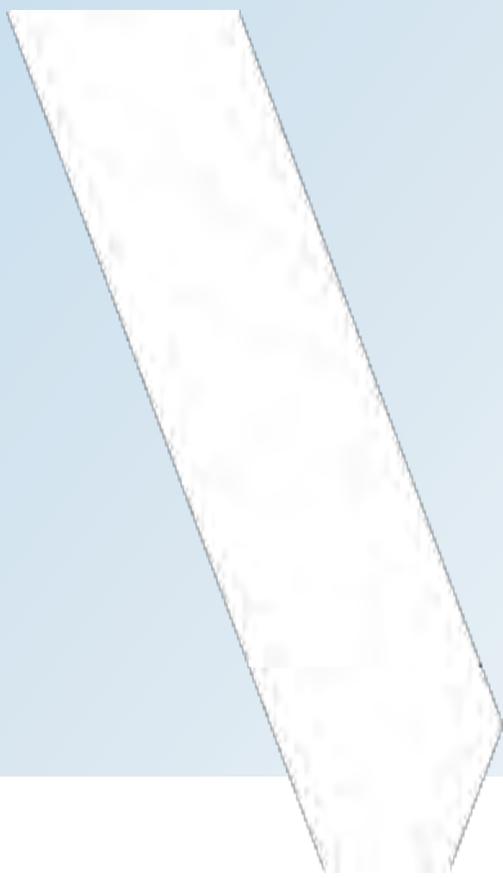


Table 1
Field Samples Submitted to Merit Laboratories, Inc.
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Sample Collection Date and Time | Laboratory Sample Identification | Notes |
|------------------------------------|--|---|-----------------------------------|
| SW-01-05012023 | 5/1/2023 11:45 | S48122.01 | Stage 4 |
| SW-02-05012023 | 5/1/2023 12:00 | S48122.02 | Stage 4 |
| SW-03-05012023 | 5/1/2023 12:15 | S48122.03 | Stage 4 |
| SW-04-05012023 | 5/1/2023 12:30 | S48122.04 | |
| SW-06-05012023 | 5/1/2023 13:00 | S48122.05 | |
| SW-05-05012023 | 5/1/2023 13:45 | S48122.06 | |
| Foam-01-05012023 | 5/1/2023 13:45 | S48122.07 | |
| MW-38-05012023 | 5/1/2023 14:18 | S48122.08 | |
| MW-37-05012023 | 5/1/2023 15:18 | S48122.09 | |
| MW-36-05012023 | 5/1/2023 16:10 | S48122.10 | |
| MW-39-05012023 | 5/1/2023 17:03 | S48122.11 | |
| MW-40-05012023 | 5/1/2023 17:50 | S48122.12 | |
| PZ-14-05022023 | 5/2/2023 9:05 | S48122.13 | |
| PZ-13-05022023 | 5/2/2023 9:50 | S48122.14 | |
| MW-04-05022023 | 5/2/2023 10:50 | S48122.15 | |
| MW-03-05022023 | 5/2/2023 11:33 | S48122.16 | |
| MW-01R-05022023 | 5/2/2023 12:20 | S48122.17 | |
| Equipment Blank-01-05022023 | 5/2/2023 12:20 | S48122.18 | Equipment blank |
| MW-10-05022023 | 5/2/2023 13:18 | S48122.19 | |
| PZ-32-05022023 | 5/2/2023 14:16 | S48122.20 | |
| MW-08-05022023 | 5/2/2023 15:05 | S48122.21 | |
| PZ-28-05022023 | 5/2/2023 15:55 | S48122.24 | |
| DUP-01-05022023 | 5/2/2023 12:00 | S48122.25 | Field duplicate of PZ-14-05022023 |
| MW-35-05022023 | 5/2/2023 16:48 | S48122.26 | |
| MW-34-05032023 | 5/3/2023 9:08 | S48122.27 | |
| MW-33-05032023 | 5/3/2023 10:28 | S48122.28 | |
| PZ-23-05032023 | 5/3/2023 11:21 | S48122.29 | |
| DUP-02-05032023 | 5/3/2023 12:00 | S48122.30 | Field duplicate of MW-34-05032023 |

Table 2
Field Duplicate Detections
Harbor Island
Grand Haven, Michigan

| Analyte | Reporting Limit | Primary Result | Duplicate Result | RPD | Notes |
|--|-----------------|----------------|------------------|------|-------|
| Samples PZ-14-05022023 and DUP-01-05022023 | | | | | |
| Perfluoropentanoic acid | 4.0 ng/L | 2.4 J | 2.1 J | 13% | |
| Perfluorohexanoic acid | 2.0 ng/L | 2.1 | 2.4 | 13% | |
| Perfluorooctanesulfonic acid | 2.0 ng/L | 4.5 | 4.5 | 0% | |
| Perfluorooctanesulfonic acid-LN | 2.0 ng/L | 1.9 U | 2.0 J | NC | ± RL |
| Perfluorooctanesulfonic acid-BR | 2.0 ng/L | 2.0 | 2.1 | 4.9% | |
| Samples MW-34-05032023 and DUP-02-05032023 | | | | | |
| Perfluoropentanoic acid | 4.0 ng/L | 10 | 10 | 0% | |
| Perfluorohexanoic acid | 2.0 ng/L | 8.2 | 8.1 | 1.2% | |
| Perfluorobutanesulfonic acid | 2.0 ng/L | 8.2 | 7.8 | 5.0% | |
| Perfluoroheptanoic acid | 2.0 ng/L | 7.3 | 7.0 | 4.2% | |
| Perfluoropentanesulfonic acid | 2.0 ng/L | 1.9 J | 1.9 J | 0% | |
| Perfluorooctanoic acid | 2.0 ng/L | 53 | 64 | 19% | |
| Perfluorohexanesulfonic acid | 2.0 ng/L | 10 | 9.5 | 5.1% | |
| Perfluorohexanesulfonic acid-LN | 2.0 ng/L | 7.8 | 7.7 | 1.3% | |
| Perfluorohexanesulfonic acid-BR | 2.0 ng/L | 1.7 J | 1.6 U | NC | ± RL |
| Perfluoroheptanesulfonic acid | 2.0 ng/L | 3.2 | 3 | 6.5% | |
| EtFOSAA | 4.0 ng/L | 11 | 11 | 0% | |
| Perfluorooctanesulfonic acid | 2.0 ng/L | 130 | 120 | 8.0% | |
| Perfluorooctanesulfonic acid-LN | 2.0 ng/L | 75 | 72 | 4.1% | |
| Perfluorooctanesulfonic acid-BR | 2.0 ng/L | 51 | 44 | 15% | |
| PFECHS | 2.0 ng/L | 6.5 | 5.7 | 13% | |
| Perfluorohexanesulfonic acid | 2.0 ng/L | 1.1 J | 0.99 U | NC | ± RL |

Notes:

BR = branched
 EtFOSAA = N-Ethyl perfluorooctane sulfonamidoacetic acid
 LN = linear
 NC = not calculable
 ng/L = nanograms per liter
 PFECHS = Perfluoro-4-ethylcyclohexanesulfonate
 RPD = relative percent difference

Qualifiers:

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
 U = The analyte was analyzed for, but was not detected.

Reason Codes:

± RL = The difference between analyte concentrations is less than the reporting limit, indicating acceptable sampling and analytical precision.

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|----------------------------------|----------|---------------------------|
| DUP-01-05022023 | 11Cl-PF3OUdS | 1.8 ng/L | UJ RT |
| DUP-01-05022023 | 3-Perfluorohetpyl propanoic acid | 3.0 ng/L | UJ RT |
| DUP-01-05022023 | 3-Perfluoropentyl propanoic acid | 2.2 ng/L | UJ RT |
| DUP-01-05022023 | 3-Perfluoropropyl propanoic acid | 1.2 ng/L | UJ RT |
| DUP-01-05022023 | 4:2 Fluorotelomer sulfonic acid | 1.6 ng/L | UJ RT |
| DUP-01-05022023 | 6:2 Fluorotelomer sulfonic acid | 2.0 ng/L | UJ RT |
| DUP-01-05022023 | 8:2 Fluorotelomer sulfonic acid | 1.0 ng/L | UJ RT |
| DUP-01-05022023 | 9Cl-PF3ONS | 1.4 ng/L | UJ RT |
| DUP-01-05022023 | ADONA | 2.0 ng/L | UJ RT |
| DUP-01-05022023 | EtFOSAA | 2.0 ng/L | UJ RT |
| DUP-01-05022023 | HFPO-DA | 2.0 ng/L | UJ RT |
| DUP-01-05022023 | NMeFOSAA | 2.0 ng/L | UJ RT |
| DUP-01-05022023 | Perfluorobutanesulfonamide | 1.2 ng/L | UJ RT |
| DUP-01-05022023 | Perfluorobutanesulfonic acid | 1.4 ng/L | UJ RT |
| DUP-01-05022023 | Perfluorobutanoic acid | 10 ng/L | UJ RT |
| DUP-01-05022023 | Perfluorodecanesulfonic acid | 1.4 ng/L | UJ RT |
| DUP-01-05022023 | Perfluorodecanoic acid | 2.0 ng/L | UJ RT |
| DUP-01-05022023 | Perfluorododecanoic acid | 1.6 ng/L | UJ RT |
| DUP-01-05022023 | Perfluoroheptanesulfonic acid | 2.0 ng/L | UJ RT |
| DUP-01-05022023 | Perfluoroheptanoic acid | 1.4 ng/L | UJ RT |
| DUP-01-05022023 | Perfluorohexanesulfonamide | 1.0 ng/L | UJ RT |
| DUP-01-05022023 | Perfluorohexanesulfonic acid | 1.6 ng/L | UJ RT |
| DUP-01-05022023 | Perfluorohexanesulfonic acid-BR | 1.6 ng/L | UJ RT |
| DUP-01-05022023 | Perfluorohexanesulfonic acid-LN | 1.6 ng/L | UJ RT |
| DUP-01-05022023 | Perfluorohexanoic acid | 2.4 ng/L | J RT |
| DUP-01-05022023 | Perfluorononanesulfonic acid | 1.4 ng/L | UJ RT |
| DUP-01-05022023 | Perfluorononanoic acid | 1.8 ng/L | UJ RT |
| DUP-01-05022023 | Perfluorooctanesulfonamide | 1.8 ng/L | UJ RT |
| DUP-01-05022023 | Perfluorooctanesulfonic acid | 4.5 ng/L | J RT |
| DUP-01-05022023 | Perfluorooctanesulfonic acid-BR | 2.4 ng/L | J RT |
| DUP-01-05022023 | Perfluorooctanesulfonic acid-LN | 2.0 ng/L | J RT, DL |
| DUP-01-05022023 | Perfluorooctanoic acid | 1.6 ng/L | UJ RT |
| DUP-01-05022023 | Perfluoropentanesulfonic acid | 1.8 ng/L | UJ RT |
| DUP-01-05022023 | Perfluoropentanoic acid | 2.1 ng/L | J RT, DL |
| DUP-01-05022023 | Perfluorotetradecanoic acid | 1.8 ng/L | UJ RT |
| DUP-01-05022023 | Perfluorotridecanoic acid | 1.2 ng/L | UJ RT |
| DUP-01-05022023 | Perfluoroundecanoic acid | 1.4 ng/L | UJ RT |
| DUP-01-05022023 | PFECHS | 1.2 ng/L | UJ RT |
| DUP-02-05032023 | 11Cl-PF3OUdS | 1.8 ng/L | UJ RT |
| DUP-02-05032023 | 3-Perfluorohetpyl propanoic acid | 3.0 ng/L | UJ RT |
| DUP-02-05032023 | 3-Perfluoropentyl propanoic acid | 2.2 ng/L | UJ RT |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|------------------------------------|----------------------------------|---------------|----------------------------------|
| DUP-02-05032023 | 3-Perfluoropropyl propanoic acid | 1.2 ng/L | UJ RT |
| DUP-02-05032023 | 4:2 Fluorotelomer sulfonic acid | 1.6 ng/L | UJ RT |
| DUP-02-05032023 | 6:2 Fluorotelomer sulfonic acid | 2.0 ng/L | UJ RT |
| DUP-02-05032023 | 8:2 Fluorotelomer sulfonic acid | 0.99 ng/L | UJ RT |
| DUP-02-05032023 | 9Cl-PF3ONS | 1.4 ng/L | UJ RT |
| DUP-02-05032023 | ADONA | 2.0 ng/L | UJ RT |
| DUP-02-05032023 | EtFOSAA | 11 ng/L | J RT |
| DUP-02-05032023 | HFPO-DA | 2.0 ng/L | UJ RT |
| DUP-02-05032023 | NMeFOSAA | 2.0 ng/L | UJ RT |
| DUP-02-05032023 | Perfluorobutanesulfonamide | 1.2 ng/L | UJ RT |
| DUP-02-05032023 | Perfluorobutanesulfonic acid | 7.8 ng/L | J RT |
| DUP-02-05032023 | Perfluorobutanoic acid | 9.9 ng/L | UJ RT |
| DUP-02-05032023 | Perfluorodecanesulfonic acid | 1.4 ng/L | UJ RT |
| DUP-02-05032023 | Perfluorodecanoic acid | 2.0 ng/L | UJ RT |
| DUP-02-05032023 | Perfluorododecanoic acid | 1.6 ng/L | UJ RT |
| DUP-02-05032023 | Perfluoroheptanesulfonic acid | 3.0 ng/L | J RT |
| DUP-02-05032023 | Perfluoroheptanoic acid | 7.0 ng/L | J RT |
| DUP-02-05032023 | Perfluorohexanesulfonamide | 0.99 ng/L | UJ RT |
| DUP-02-05032023 | Perfluorohexanesulfonic acid | 9.5 ng/L | J RT |
| DUP-02-05032023 | Perfluorohexanesulfonic acid-BR | 1.6 ng/L | UJ RT |
| DUP-02-05032023 | Perfluorohexanesulfonic acid-LN | 7.7 ng/L | J RT |
| DUP-02-05032023 | Perfluorohexanoic acid | 8.1 ng/L | J RT |
| DUP-02-05032023 | Perfluorononanesulfonic acid | 1.4 ng/L | UJ RT |
| DUP-02-05032023 | Perfluorononanoic acid | 1.8 ng/L | UJ RT |
| DUP-02-05032023 | Perfluorooctanesulfonamide | 1.8 ng/L | UJ RT |
| DUP-02-05032023 | Perfluorooctanesulfonic acid | 120 ng/L | J RT |
| DUP-02-05032023 | Perfluorooctanesulfonic acid-BR | 44 ng/L | J RT |
| DUP-02-05032023 | Perfluorooctanesulfonic acid-LN | 72 ng/L | J RT |
| DUP-02-05032023 | Perfluorooctanoic acid | 64 ng/L | J RT |
| DUP-02-05032023 | Perfluoropentanesulfonic acid | 1.9 ng/L | J RT, DL |
| DUP-02-05032023 | Perfluoropentanoic acid | 10.0 ng/L | J RT |
| DUP-02-05032023 | Perfluorotetradecanoic acid | 1.8 ng/L | UJ RT |
| DUP-02-05032023 | Perfluorotridecanoic acid | 1.2 ng/L | UJ RT |
| DUP-02-05032023 | Perfluoroundecanoic acid | 1.4 ng/L | UJ RT |
| DUP-02-05032023 | PFECHS | 5.7 ng/L | J RT |
| Foam-01-05012023 | 11Cl-PF3OUdS | 17 ng/L | UJ RT |
| Foam-01-05012023 | 3-Perfluorohetpyl propanoic acid | 29 ng/L | UJ RT |
| Foam-01-05012023 | 3-Perfluoropentyl propanoic acid | 21 ng/L | UJ RT |
| Foam-01-05012023 | 3-Perfluoropropyl propanoic acid | 11 ng/L | UJ RT |
| Foam-01-05012023 | 4:2 Fluorotelomer sulfonic acid | 15 ng/L | UJ RT |
| Foam-01-05012023 | 6:2 Fluorotelomer sulfonic acid | 120 ng/L | J RT, HI |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|------------------------------------|----------------------------------|---------------|----------------------------------|
| Foam-01-05012023 | 8:2 Fluorotelomer sulfonic acid | 510 ng/L | J RT, HI |
| Foam-01-05012023 | 9Cl-PF3ONS | 13 ng/L | UJ RT |
| Foam-01-05012023 | ADONA | 19 ng/L | UJ RT |
| Foam-01-05012023 | EtFOSAA | 280 ng/L | J RT |
| Foam-01-05012023 | HFPO-DA | 19 ng/L | UJ RT |
| Foam-01-05012023 | NMeFOSAA | 73 ng/L | J RT |
| Foam-01-05012023 | Perfluorobutanesulfonamide | 11 ng/L | UJ RT |
| Foam-01-05012023 | Perfluorobutanesulfonic acid | 13 ng/L | UJ RT |
| Foam-01-05012023 | Perfluorobutanoic acid | 96 ng/L | UJ RT |
| Foam-01-05012023 | Perfluorodecanesulfonic acid | 84 ng/L | J RT |
| Foam-01-05012023 | Perfluorodecanoic acid | 1,000 ng/L | J RT |
| Foam-01-05012023 | Perfluorododecanoic acid | 100 ng/L | J RT, LI |
| Foam-01-05012023 | Perfluoroheptanesulfonic acid | 83 ng/L | J RT |
| Foam-01-05012023 | Perfluoroheptanoic acid | 63 ng/L | J RT |
| Foam-01-05012023 | Perfluorohexanesulfonamide | 170 ng/L | J RT |
| Foam-01-05012023 | Perfluorohexanesulfonic acid | 61 ng/L | J RT |
| Foam-01-05012023 | Perfluorohexanesulfonic acid-BR | 15 ng/L | UJ RT |
| Foam-01-05012023 | Perfluorohexanesulfonic acid-LN | 57 ng/L | J RT |
| Foam-01-05012023 | Perfluorohexanoic acid | 27 ng/L | J RT |
| Foam-01-05012023 | Perfluorononanesulfonic acid | 13 ng/L | UJ RT |
| Foam-01-05012023 | Perfluorononanoic acid | 5,300 ng/L | J RT |
| Foam-01-05012023 | Perfluorooctanesulfonamide | 76 ng/L | J RT |
| Foam-01-05012023 | Perfluorooctanesulfonic acid | 31,000 ng/L | J RT |
| Foam-01-05012023 | Perfluorooctanesulfonic acid-BR | 11,000 ng/L | J RT |
| Foam-01-05012023 | Perfluorooctanesulfonic acid-LN | 20,000 ng/L | J RT |
| Foam-01-05012023 | Perfluorooctanoic acid | 360 ng/L | J RT |
| Foam-01-05012023 | Perfluoropentanesulfonic acid | 17 ng/L | UJ RT |
| Foam-01-05012023 | Perfluoropentanoic acid | 9.6 ng/L | UJ RT |
| Foam-01-05012023 | Perfluorotetradecanoic acid | 17 ng/L | UJ RT |
| Foam-01-05012023 | Perfluorotridecanoic acid | 20 ng/L | J RT, LI |
| Foam-01-05012023 | Perfluoroundecanoic acid | 350 ng/L | J RT |
| Foam-01-05012023 | PFECHS | 36 ng/L | J RT |
| MW-01R-05022023 | 11Cl-PF3OUdS | 1.8 ng/L | UJ RT |
| MW-01R-05022023 | 3-Perfluorohetpyl propanoic acid | 3.0 ng/L | UJ RT |
| MW-01R-05022023 | 3-Perfluoropentyl propanoic acid | 2.2 ng/L | UJ RT |
| MW-01R-05022023 | 3-Perfluoropropyl propanoic acid | 1.2 ng/L | UJ RT |
| MW-01R-05022023 | 4:2 Fluorotelomer sulfonic acid | 1.6 ng/L | UJ RT |
| MW-01R-05022023 | 6:2 Fluorotelomer sulfonic acid | 2.0 ng/L | UJ RT |
| MW-01R-05022023 | 8:2 Fluorotelomer sulfonic acid | 1.0 ng/L | UJ RT |
| MW-01R-05022023 | 9Cl-PF3ONS | 1.4 ng/L | UJ RT |
| MW-01R-05022023 | ADONA | 2.0 ng/L | UJ RT |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|----------------------------------|-----------|---------------------------|
| MW-01R-05022023 | EtFOSAA | 2.0 ng/L | UJ RT |
| MW-01R-05022023 | HFPO-DA | 2.0 ng/L | UJ RT |
| MW-01R-05022023 | NMeFOSAA | 2.0 ng/L | UJ RT |
| MW-01R-05022023 | Perfluorobutanesulfonamide | 1.2 ng/L | UJ RT |
| MW-01R-05022023 | Perfluorobutanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-01R-05022023 | Perfluorobutanoic acid | 10 ng/L | UJ RT |
| MW-01R-05022023 | Perfluorodecanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-01R-05022023 | Perfluorodecanoic acid | 2.0 ng/L | UJ RT |
| MW-01R-05022023 | Perfluorododecanoic acid | 1.6 ng/L | UJ RT |
| MW-01R-05022023 | Perfluoroheptanesulfonic acid | 2.0 ng/L | UJ RT |
| MW-01R-05022023 | Perfluoroheptanoic acid | 1.4 ng/L | UJ RT |
| MW-01R-05022023 | Perfluorohexanesulfonamide | 1.0 ng/L | UJ RT |
| MW-01R-05022023 | Perfluorohexanesulfonic acid | 2.3 ng/L | J RT |
| MW-01R-05022023 | Perfluorohexanesulfonic acid-BR | 1.6 ng/L | UJ RT |
| MW-01R-05022023 | Perfluorohexanesulfonic acid-LN | 1.6 ng/L | UJ RT |
| MW-01R-05022023 | Perfluorohexanoic acid | 2.8 ng/L | J RT |
| MW-01R-05022023 | Perfluorononanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-01R-05022023 | Perfluorononanoic acid | 1.8 ng/L | UJ RT |
| MW-01R-05022023 | Perfluorooctanesulfonamide | 1.8 ng/L | UJ RT |
| MW-01R-05022023 | Perfluorooctanesulfonic acid | 11 ng/L | J RT |
| MW-01R-05022023 | Perfluorooctanesulfonic acid-BR | 5.0 ng/L | J RT |
| MW-01R-05022023 | Perfluorooctanesulfonic acid-LN | 5.4 ng/L | J RT |
| MW-01R-05022023 | Perfluorooctanoic acid | 1.7 ng/L | J RT, DL |
| MW-01R-05022023 | Perfluoropentanesulfonic acid | 1.8 ng/L | UJ RT |
| MW-01R-05022023 | Perfluoropentanoic acid | 3.3 ng/L | J RT, DL |
| MW-01R-05022023 | Perfluorotetradecanoic acid | 1.8 ng/L | UJ RT |
| MW-01R-05022023 | Perfluorotridecanoic acid | 1.2 ng/L | UJ RT |
| MW-01R-05022023 | Perfluoroundecanoic acid | 1.4 ng/L | UJ RT |
| MW-01R-05022023 | PFCHS | 4.7 ng/L | J RT |
| MW-03-05022023 | 11Cl-PF3OUdS | 1.7 ng/L | UJ RT |
| MW-03-05022023 | 3-Perfluorohetpyl propanoic acid | 2.9 ng/L | UJ RT |
| MW-03-05022023 | 3-Perfluoropentyl propanoic acid | 2.1 ng/L | UJ RT |
| MW-03-05022023 | 3-Perfluoropropyl propanoic acid | 1.2 ng/L | UJ RT |
| MW-03-05022023 | 4:2 Fluorotelomer sulfonic acid | 1.5 ng/L | UJ RT |
| MW-03-05022023 | 6:2 Fluorotelomer sulfonic acid | 1.9 ng/L | UJ RT |
| MW-03-05022023 | 8:2 Fluorotelomer sulfonic acid | 0.97 ng/L | UJ RT |
| MW-03-05022023 | 9Cl-PF3ONS | 1.4 ng/L | UJ RT |
| MW-03-05022023 | ADONA | 1.9 ng/L | UJ RT |
| MW-03-05022023 | EtFOSAA | 5.5 ng/L | J RT |
| MW-03-05022023 | HFPO-DA | 1.9 ng/L | UJ RT |
| MW-03-05022023 | NMeFOSAA | 1.9 ng/L | UJ RT |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|----------------------------------|-----------|---------------------------|
| MW-03-05022023 | Perfluorobutanesulfonamide | 1.2 ng/L | UJ RT |
| MW-03-05022023 | Perfluorobutanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-03-05022023 | Perfluorobutanoic acid | 9.7 ng/L | UJ RT |
| MW-03-05022023 | Perfluorodecanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-03-05022023 | Perfluorodecanoic acid | 1.9 ng/L | UJ RT |
| MW-03-05022023 | Perfluorododecanoic acid | 1.5 ng/L | UJ RT |
| MW-03-05022023 | Perfluoroheptanesulfonic acid | 1.9 ng/L | UJ RT |
| MW-03-05022023 | Perfluoroheptanoic acid | 1.4 ng/L | UJ RT |
| MW-03-05022023 | Perfluorohexanesulfonamide | 1.5 ng/L | J RT, DL |
| MW-03-05022023 | Perfluorohexanesulfonic acid | 8.0 ng/L | J RT |
| MW-03-05022023 | Perfluorohexanesulfonic acid-BR | 1.5 ng/L | UJ RT |
| MW-03-05022023 | Perfluorohexanesulfonic acid-LN | 6.7 ng/L | J RT |
| MW-03-05022023 | Perfluorohexanoic acid | 2.4 ng/L | J RT |
| MW-03-05022023 | Perfluorononanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-03-05022023 | Perfluorononanoic acid | 1.7 ng/L | UJ RT |
| MW-03-05022023 | Perfluorooctanesulfonamide | 1.7 ng/L | UJ RT |
| MW-03-05022023 | Perfluorooctanesulfonic acid | 88 ng/L | J RT |
| MW-03-05022023 | Perfluorooctanesulfonic acid-BR | 42 ng/L | J RT |
| MW-03-05022023 | Perfluorooctanesulfonic acid-LN | 44 ng/L | J RT |
| MW-03-05022023 | Perfluorooctanoic acid | 10 ng/L | J RT |
| MW-03-05022023 | Perfluoropentanesulfonic acid | 1.7 ng/L | UJ RT |
| MW-03-05022023 | Perfluoropentanoic acid | 2.4 ng/L | J RT, DL |
| MW-03-05022023 | Perfluorotetradecanoic acid | 1.7 ng/L | UJ RT |
| MW-03-05022023 | Perfluorotridecanoic acid | 1.2 ng/L | UJ RT |
| MW-03-05022023 | Perfluoroundecanoic acid | 1.4 ng/L | UJ RT |
| MW-03-05022023 | PFECHS | 9.2 ng/L | J RT |
| MW-04-05022023 | 11Cl-PF3OUdS | 1.8 ng/L | UJ RT |
| MW-04-05022023 | 3-Perfluorohetpyl propanoic acid | 3.0 ng/L | UJ RT |
| MW-04-05022023 | 3-Perfluoropentyl propanoic acid | 2.2 ng/L | UJ RT |
| MW-04-05022023 | 3-Perfluoropropyl propanoic acid | 1.2 ng/L | UJ RT |
| MW-04-05022023 | 4:2 Fluorotelomer sulfonic acid | 1.6 ng/L | UJ RT |
| MW-04-05022023 | 6:2 Fluorotelomer sulfonic acid | 7.1 ng/L | J RT |
| MW-04-05022023 | 8:2 Fluorotelomer sulfonic acid | 1.00 ng/L | UJ RT |
| MW-04-05022023 | 9Cl-PF3ONS | 1.4 ng/L | UJ RT |
| MW-04-05022023 | ADONA | 2.0 ng/L | UJ RT |
| MW-04-05022023 | EtFOSAA | 2.0 ng/L | UJ RT |
| MW-04-05022023 | HFPO-DA | 2.0 ng/L | UJ RT |
| MW-04-05022023 | NMeFOSAA | 2.0 ng/L | UJ RT |
| MW-04-05022023 | Perfluorobutanesulfonamide | 4.6 ng/L | J RT |
| MW-04-05022023 | Perfluorobutanesulfonic acid | 21 ng/L | J RT |
| MW-04-05022023 | Perfluorobutanoic acid | 140 ng/L | J RT |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|------------------------------------|----------------------------------|---------------|----------------------------------|
| MW-04-05022023 | Perfluorodecanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-04-05022023 | Perfluorodecanoic acid | 2.0 ng/L | UJ RT |
| MW-04-05022023 | Perfluorododecanoic acid | 1.6 ng/L | UJ RT |
| MW-04-05022023 | Perfluoroheptanesulfonic acid | 2.0 ng/L | UJ RT |
| MW-04-05022023 | Perfluoroheptanoic acid | 9.9 ng/L | J RT |
| MW-04-05022023 | Perfluorohexanesulfonamide | 1.00 ng/L | UJ RT |
| MW-04-05022023 | Perfluorohexanesulfonic acid | 7.7 ng/L | J RT |
| MW-04-05022023 | Perfluorohexanesulfonic acid-BR | 1.8 ng/L | J RT, DL |
| MW-04-05022023 | Perfluorohexanesulfonic acid-LN | 4.9 ng/L | J RT |
| MW-04-05022023 | Perfluorohexanoic acid | 170 ng/L | J RT |
| MW-04-05022023 | Perfluorononanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-04-05022023 | Perfluorononanoic acid | 1.8 ng/L | UJ RT |
| MW-04-05022023 | Perfluorooctanesulfonamide | 1.8 ng/L | UJ RT |
| MW-04-05022023 | Perfluorooctanesulfonic acid | 14 ng/L | J RT |
| MW-04-05022023 | Perfluorooctanesulfonic acid-BR | 7.5 ng/L | J RT |
| MW-04-05022023 | Perfluorooctanesulfonic acid-LN | 6.2 ng/L | J RT |
| MW-04-05022023 | Perfluorooctanoic acid | 12 ng/L | J RT |
| MW-04-05022023 | Perfluoropentanesulfonic acid | 4.3 ng/L | J RT |
| MW-04-05022023 | Perfluoropentanoic acid | 490 ng/L | J RT |
| MW-04-05022023 | Perfluorotetradecanoic acid | 1.8 ng/L | UJ RT |
| MW-04-05022023 | Perfluorotridecanoic acid | 1.2 ng/L | UJ RT |
| MW-04-05022023 | Perfluoroundecanoic acid | 1.4 ng/L | UJ RT |
| MW-04-05022023 | PFECHS | 4.6 ng/L | J RT |
| MW-08-05022023 | 11Cl-PF3OUdS | 1.8 ng/L | UJ RT |
| MW-08-05022023 | 3-Perfluorohetpyl propanoic acid | 3.0 ng/L | UJ RT |
| MW-08-05022023 | 3-Perfluoropentyl propanoic acid | 2.2 ng/L | UJ RT |
| MW-08-05022023 | 3-Perfluoropropyl propanoic acid | 1.2 ng/L | UJ RT |
| MW-08-05022023 | 4:2 Fluorotelomer sulfonic acid | 1.6 ng/L | UJ RT |
| MW-08-05022023 | 6:2 Fluorotelomer sulfonic acid | 2.0 ng/L | UJ RT |
| MW-08-05022023 | 8:2 Fluorotelomer sulfonic acid | 1.0 ng/L | UJ RT, LM |
| MW-08-05022023 | 9Cl-PF3ONS | 1.4 ng/L | UJ RT |
| MW-08-05022023 | ADONA | 2.0 ng/L | UJ RT |
| MW-08-05022023 | EtFOSAA | 5.9 ng/L | J RT |
| MW-08-05022023 | HFPO-DA | 2.0 ng/L | UJ RT |
| MW-08-05022023 | NMeFOSAA | 2.0 ng/L | UJ RT |
| MW-08-05022023 | Perfluorobutanesulfonamide | 1.2 ng/L | UJ RT |
| MW-08-05022023 | Perfluorobutanesulfonic acid | 1.8 ng/L | J RT, DL |
| MW-08-05022023 | Perfluorobutanoic acid | 10 ng/L | UJ RT |
| MW-08-05022023 | Perfluorodecanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-08-05022023 | Perfluorodecanoic acid | 2.0 ng/L | UJ RT |
| MW-08-05022023 | Perfluorododecanoic acid | 1.6 ng/L | UJ RT |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|----------------------------------|-----------|---------------------------|
| MW-08-05022023 | Perfluoroheptanesulfonic acid | 2.0 ng/L | UJ RT |
| MW-08-05022023 | Perfluoroheptanoic acid | 5.3 ng/L | J RT |
| MW-08-05022023 | Perfluorohexanesulfonamide | 1.0 ng/L | UJ RT |
| MW-08-05022023 | Perfluorohexanesulfonic acid | 4.5 ng/L | J RT |
| MW-08-05022023 | Perfluorohexanesulfonic acid-BR | 1.6 ng/L | UJ RT |
| MW-08-05022023 | Perfluorohexanesulfonic acid-LN | 3.6 ng/L | J RT |
| MW-08-05022023 | Perfluorohexanoic acid | 6.5 ng/L | J RT |
| MW-08-05022023 | Perfluorononanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-08-05022023 | Perfluorononanoic acid | 1.8 ng/L | UJ RT |
| MW-08-05022023 | Perfluorooctanesulfonamide | 1.8 ng/L | UJ RT |
| MW-08-05022023 | Perfluorooctanesulfonic acid | 99 ng/L | J RT |
| MW-08-05022023 | Perfluorooctanesulfonic acid-BR | 33 ng/L | J RT |
| MW-08-05022023 | Perfluorooctanesulfonic acid-LN | 63 ng/L | J RT |
| MW-08-05022023 | Perfluorooctanoic acid | 20 ng/L | J RT |
| MW-08-05022023 | Perfluoropentanesulfonic acid | 1.8 ng/L | UJ RT |
| MW-08-05022023 | Perfluoropentanoic acid | 7.0 ng/L | J RT |
| MW-08-05022023 | Perfluorotetradecanoic acid | 1.8 ng/L | UJ RT |
| MW-08-05022023 | Perfluorotridecanoic acid | 1.2 ng/L | UJ RT |
| MW-08-05022023 | Perfluoroundecanoic acid | 1.4 ng/L | UJ RT |
| MW-08-05022023 | PFECHS | 6.4 ng/L | J RT |
| MW-10-05022023 | 11Cl-PF3OUdS | 1.7 ng/L | UJ RT |
| MW-10-05022023 | 3-Perfluorohetpyl propanoic acid | 2.9 ng/L | UJ RT |
| MW-10-05022023 | 3-Perfluoropentyl propanoic acid | 2.1 ng/L | UJ RT |
| MW-10-05022023 | 3-Perfluoropropyl propanoic acid | 1.2 ng/L | UJ RT |
| MW-10-05022023 | 4:2 Fluorotelomer sulfonic acid | 1.6 ng/L | UJ RT |
| MW-10-05022023 | 6:2 Fluorotelomer sulfonic acid | 1.9 ng/L | UJ RT |
| MW-10-05022023 | 8:2 Fluorotelomer sulfonic acid | 0.97 ng/L | UJ RT |
| MW-10-05022023 | 9Cl-PF3ONS | 1.4 ng/L | UJ RT |
| MW-10-05022023 | ADONA | 1.9 ng/L | UJ RT |
| MW-10-05022023 | EtFOSAA | 3.1 ng/L | J RT, DL |
| MW-10-05022023 | HFPO-DA | 1.9 ng/L | UJ RT |
| MW-10-05022023 | NMeFOSAA | 1.9 ng/L | UJ RT |
| MW-10-05022023 | Perfluorobutanesulfonamide | 1.2 ng/L | UJ RT |
| MW-10-05022023 | Perfluorobutanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-10-05022023 | Perfluorobutanoic acid | 9.7 ng/L | UJ RT |
| MW-10-05022023 | Perfluorodecanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-10-05022023 | Perfluorodecanoic acid | 1.9 ng/L | UJ RT |
| MW-10-05022023 | Perfluorododecanoic acid | 1.6 ng/L | UJ RT |
| MW-10-05022023 | Perfluoroheptanesulfonic acid | 1.9 ng/L | UJ RT |
| MW-10-05022023 | Perfluoroheptanoic acid | 1.7 ng/L | J RT, DL |
| MW-10-05022023 | Perfluorohexanesulfonamide | 0.97 ng/L | UJ RT |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|----------------------------------|----------|---------------------------|
| MW-10-05022023 | Perfluorohexanesulfonic acid | 1.6 ng/L | UJ RT |
| MW-10-05022023 | Perfluorohexanesulfonic acid-BR | 1.6 ng/L | UJ RT |
| MW-10-05022023 | Perfluorohexanesulfonic acid-LN | 1.6 ng/L | UJ RT |
| MW-10-05022023 | Perfluorohexanoic acid | 2.9 ng/L | J RT |
| MW-10-05022023 | Perfluorononanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-10-05022023 | Perfluorononanoic acid | 1.7 ng/L | UJ RT |
| MW-10-05022023 | Perfluorooctanesulfonamide | 1.7 ng/L | UJ RT |
| MW-10-05022023 | Perfluorooctanesulfonic acid | 13 ng/L | J RT |
| MW-10-05022023 | Perfluorooctanesulfonic acid-BR | 5.5 ng/L | J RT |
| MW-10-05022023 | Perfluorooctanesulfonic acid-LN | 7.6 ng/L | J RT |
| MW-10-05022023 | Perfluorooctanoic acid | 3.3 ng/L | J RT |
| MW-10-05022023 | Perfluoropentanesulfonic acid | 1.7 ng/L | UJ RT |
| MW-10-05022023 | Perfluoropentanoic acid | 4.0 ng/L | J RT |
| MW-10-05022023 | Perfluorotetradecanoic acid | 1.7 ng/L | UJ RT |
| MW-10-05022023 | Perfluorotridecanoic acid | 1.2 ng/L | UJ RT |
| MW-10-05022023 | Perfluoroundecanoic acid | 1.4 ng/L | UJ RT |
| MW-10-05022023 | PFECHS | 1.2 ng/L | UJ RT |
| MW-33-05032023 | 11Cl-PF3OUdS | 1.8 ng/L | UJ RT |
| MW-33-05032023 | 3-Perfluorohetpyl propanoic acid | 3.0 ng/L | UJ RT |
| MW-33-05032023 | 3-Perfluoropentyl propanoic acid | 2.2 ng/L | UJ RT |
| MW-33-05032023 | 3-Perfluoropropyl propanoic acid | 1.2 ng/L | UJ RT |
| MW-33-05032023 | 4:2 Fluorotelomer sulfonic acid | 1.6 ng/L | UJ RT |
| MW-33-05032023 | 6:2 Fluorotelomer sulfonic acid | 2.0 ng/L | UJ RT |
| MW-33-05032023 | 8:2 Fluorotelomer sulfonic acid | 1.0 ng/L | UJ RT |
| MW-33-05032023 | 9Cl-PF3ONS | 1.4 ng/L | UJ RT |
| MW-33-05032023 | ADONA | 2.0 ng/L | UJ RT |
| MW-33-05032023 | EtFOSAA | 2.0 ng/L | UJ RT |
| MW-33-05032023 | HFPO-DA | 2.0 ng/L | UJ RT |
| MW-33-05032023 | NMeFOSAA | 2.0 ng/L | UJ RT |
| MW-33-05032023 | Perfluorobutanesulfonamide | 1.2 ng/L | UJ RT |
| MW-33-05032023 | Perfluorobutanesulfonic acid | 9.5 ng/L | J RT |
| MW-33-05032023 | Perfluorobutanoic acid | 13 ng/L | J RT |
| MW-33-05032023 | Perfluorodecanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-33-05032023 | Perfluorodecanoic acid | 2.0 ng/L | UJ RT |
| MW-33-05032023 | Perfluorododecanoic acid | 1.6 ng/L | UJ RT |
| MW-33-05032023 | Perfluoroheptanesulfonic acid | 2.0 ng/L | UJ RT |
| MW-33-05032023 | Perfluoroheptanoic acid | 7.2 ng/L | J RT |
| MW-33-05032023 | Perfluorohexanesulfonamide | 1.0 ng/L | UJ RT |
| MW-33-05032023 | Perfluorohexanesulfonic acid | 14 ng/L | J RT |
| MW-33-05032023 | Perfluorohexanesulfonic acid-BR | 2.9 ng/L | J RT |
| MW-33-05032023 | Perfluorohexanesulfonic acid-LN | 11 ng/L | J RT |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|------------------------------------|----------------------------------|---------------|----------------------------------|
| MW-33-05032023 | Perfluorohexanoic acid | 14 ng/L | J RT |
| MW-33-05032023 | Perfluorononanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-33-05032023 | Perfluorononanoic acid | 2.9 ng/L | J RT |
| MW-33-05032023 | Perfluorooctanesulfonamide | 1.8 ng/L | UJ RT |
| MW-33-05032023 | Perfluorooctanesulfonic acid | 86 ng/L | J RT |
| MW-33-05032023 | Perfluorooctanesulfonic acid-BR | 59 ng/L | J RT |
| MW-33-05032023 | Perfluorooctanesulfonic acid-LN | 27 ng/L | J RT |
| MW-33-05032023 | Perfluorooctanoic acid | 51 ng/L | J RT |
| MW-33-05032023 | Perfluoropentanesulfonic acid | 1.8 ng/L | J RT, DL |
| MW-33-05032023 | Perfluoropentanoic acid | 14 ng/L | J RT |
| MW-33-05032023 | Perfluorotetradecanoic acid | 1.8 ng/L | UJ RT |
| MW-33-05032023 | Perfluorotridecanoic acid | 1.2 ng/L | UJ RT |
| MW-33-05032023 | Perfluoroundecanoic acid | 1.4 ng/L | UJ RT |
| MW-33-05032023 | PFECHS | 5.5 ng/L | J RT |
| MW-34-05032023 | 11Cl-PF3OUdS | 1.8 ng/L | UJ RT |
| MW-34-05032023 | 3-Perfluorohetpyl propanoic acid | 3.0 ng/L | UJ RT |
| MW-34-05032023 | 3-Perfluoropentyl propanoic acid | 2.2 ng/L | UJ RT |
| MW-34-05032023 | 3-Perfluoropropyl propanoic acid | 1.2 ng/L | UJ RT |
| MW-34-05032023 | 4:2 Fluorotelomer sulfonic acid | 1.6 ng/L | UJ RT |
| MW-34-05032023 | 6:2 Fluorotelomer sulfonic acid | 2.0 ng/L | UJ RT |
| MW-34-05032023 | 8:2 Fluorotelomer sulfonic acid | 1.0 ng/L | UJ RT |
| MW-34-05032023 | 9Cl-PF3ONS | 1.4 ng/L | UJ RT |
| MW-34-05032023 | ADONA | 2.0 ng/L | UJ RT |
| MW-34-05032023 | EtFOSAA | 11 ng/L | J RT |
| MW-34-05032023 | HFPO-DA | 2.0 ng/L | UJ RT |
| MW-34-05032023 | NMeFOSAA | 2.0 ng/L | UJ RT |
| MW-34-05032023 | Perfluorobutanesulfonamide | 1.2 ng/L | UJ RT |
| MW-34-05032023 | Perfluorobutanesulfonic acid | 8.2 ng/L | J RT |
| MW-34-05032023 | Perfluorobutanoic acid | 10 ng/L | UJ RT |
| MW-34-05032023 | Perfluorodecanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-34-05032023 | Perfluorodecanoic acid | 2.0 ng/L | UJ RT |
| MW-34-05032023 | Perfluorododecanoic acid | 1.6 ng/L | UJ RT |
| MW-34-05032023 | Perfluoroheptanesulfonic acid | 3.2 ng/L | J RT |
| MW-34-05032023 | Perfluoroheptanoic acid | 7.3 ng/L | J RT |
| MW-34-05032023 | Perfluorohexanesulfonamide | 1.1 ng/L | J RT, DL |
| MW-34-05032023 | Perfluorohexanesulfonic acid | 10 ng/L | J RT |
| MW-34-05032023 | Perfluorohexanesulfonic acid-BR | 1.7 ng/L | J RT, DL |
| MW-34-05032023 | Perfluorohexanesulfonic acid-LN | 7.8 ng/L | J RT |
| MW-34-05032023 | Perfluorohexanoic acid | 8.2 ng/L | J RT |
| MW-34-05032023 | Perfluorononanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-34-05032023 | Perfluorononanoic acid | 1.8 ng/L | UJ RT |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|------------------------------------|----------------------------------|---------------|----------------------------------|
| MW-34-05032023 | Perfluorooctanesulfonamide | 1.8 ng/L | UJ RT |
| MW-34-05032023 | Perfluorooctanesulfonic acid | 130 ng/L | J RT |
| MW-34-05032023 | Perfluorooctanesulfonic acid-BR | 51 ng/L | J RT |
| MW-34-05032023 | Perfluorooctanesulfonic acid-LN | 75 ng/L | J RT |
| MW-34-05032023 | Perfluorooctanoic acid | 53 ng/L | J RT |
| MW-34-05032023 | Perfluoropentanesulfonic acid | 1.9 ng/L | J RT, DL |
| MW-34-05032023 | Perfluoropentanoic acid | 10 ng/L | J RT |
| MW-34-05032023 | Perfluorotetradecanoic acid | 1.8 ng/L | UJ RT |
| MW-34-05032023 | Perfluorotridecanoic acid | 1.2 ng/L | UJ RT |
| MW-34-05032023 | Perfluoroundecanoic acid | 1.4 ng/L | UJ RT |
| MW-34-05032023 | PFECHS | 6.5 ng/L | J RT |
| MW-35-05022023 | 11Cl-PF3OUdS | 1.8 ng/L | UJ RT |
| MW-35-05022023 | 3-Perfluorohetpyl propanoic acid | 3.0 ng/L | UJ RT |
| MW-35-05022023 | 3-Perfluoropentyl propanoic acid | 2.2 ng/L | UJ RT |
| MW-35-05022023 | 3-Perfluoropropyl propanoic acid | 1.2 ng/L | UJ RT |
| MW-35-05022023 | 4:2 Fluorotelomer sulfonic acid | 1.6 ng/L | UJ RT |
| MW-35-05022023 | 6:2 Fluorotelomer sulfonic acid | 2.0 ng/L | UJ RT |
| MW-35-05022023 | 8:2 Fluorotelomer sulfonic acid | 1.00 ng/L | UJ RT |
| MW-35-05022023 | 9Cl-PF3ONS | 1.4 ng/L | UJ RT |
| MW-35-05022023 | ADONA | 2.0 ng/L | UJ RT |
| MW-35-05022023 | EtFOSAA | 20 ng/L | J RT |
| MW-35-05022023 | HFPO-DA | 2.0 ng/L | UJ RT |
| MW-35-05022023 | NMeFOSAA | 2.0 ng/L | UJ RT |
| MW-35-05022023 | Perfluorobutanesulfonamide | 1.2 ng/L | UJ RT |
| MW-35-05022023 | Perfluorobutanesulfonic acid | 11 ng/L | J RT |
| MW-35-05022023 | Perfluorobutanoic acid | 10.0 ng/L | UJ RT |
| MW-35-05022023 | Perfluorodecanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-35-05022023 | Perfluorodecanoic acid | 2.0 ng/L | UJ RT |
| MW-35-05022023 | Perfluorododecanoic acid | 1.6 ng/L | UJ RT |
| MW-35-05022023 | Perfluoroheptanesulfonic acid | 2.0 ng/L | UJ RT |
| MW-35-05022023 | Perfluoroheptanoic acid | 4.4 ng/L | J RT |
| MW-35-05022023 | Perfluorohexanesulfonamide | 1.00 ng/L | UJ RT |
| MW-35-05022023 | Perfluorohexanesulfonic acid | 8.8 ng/L | J RT |
| MW-35-05022023 | Perfluorohexanesulfonic acid-BR | 1.8 ng/L | J RT, DL |
| MW-35-05022023 | Perfluorohexanesulfonic acid-LN | 6.7 ng/L | J RT |
| MW-35-05022023 | Perfluorohexanoic acid | 7.5 ng/L | J RT |
| MW-35-05022023 | Perfluorononanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-35-05022023 | Perfluorononanoic acid | 1.9 ng/L | J RT, DL |
| MW-35-05022023 | Perfluorooctanesulfonamide | 1.8 ng/L | UJ RT |
| MW-35-05022023 | Perfluorooctanesulfonic acid | 68 ng/L | J RT |
| MW-35-05022023 | Perfluorooctanesulfonic acid-BR | 26 ng/L | J RT |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|----------------------------------|----------|---------------------------|
| MW-35-05022023 | Perfluorooctanesulfonic acid-LN | 41 ng/L | J RT |
| MW-35-05022023 | Perfluorooctanoic acid | 57 ng/L | J RT |
| MW-35-05022023 | Perfluoropentanesulfonic acid | 1.8 ng/L | UJ RT |
| MW-35-05022023 | Perfluoropentanoic acid | 4.5 ng/L | J RT |
| MW-35-05022023 | Perfluorotetradecanoic acid | 1.8 ng/L | UJ RT |
| MW-35-05022023 | Perfluorotridecanoic acid | 1.2 ng/L | UJ RT |
| MW-35-05022023 | Perfluoroundecanoic acid | 1.4 ng/L | UJ RT |
| MW-35-05022023 | PFECHS | 11 ng/L | J RT |
| MW-36-05012023 | 11Cl-PF3OUdS | 1.8 ng/L | UJ RT |
| MW-36-05012023 | 3-Perfluorohetpyl propanoic acid | 3.0 ng/L | UJ RT |
| MW-36-05012023 | 3-Perfluoropentyl propanoic acid | 9.9 ng/L | J RT, HL |
| MW-36-05012023 | 3-Perfluoropropyl propanoic acid | 1.2 ng/L | UJ RT |
| MW-36-05012023 | 4:2 Fluorotelomer sulfonic acid | 1.6 ng/L | UJ RT |
| MW-36-05012023 | 6:2 Fluorotelomer sulfonic acid | 64 ng/L | J RT |
| MW-36-05012023 | 8:2 Fluorotelomer sulfonic acid | 3.7 ng/L | J RT |
| MW-36-05012023 | 9Cl-PF3ONS | 1.4 ng/L | UJ RT |
| MW-36-05012023 | ADONA | 2.0 ng/L | UJ RT |
| MW-36-05012023 | EtFOSAA | 2.0 ng/L | UJ RT |
| MW-36-05012023 | HFPO-DA | 2.0 ng/L | UJ RT |
| MW-36-05012023 | NMeFOSAA | 2.0 ng/L | UJ RT |
| MW-36-05012023 | Perfluorobutanesulfonamide | 9.4 ng/L | J RT |
| MW-36-05012023 | Perfluorobutanesulfonic acid | 13 ng/L | J RT |
| MW-36-05012023 | Perfluorobutanoic acid | 130 ng/L | J RT |
| MW-36-05012023 | Perfluorodecanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-36-05012023 | Perfluorodecanoic acid | 2.0 ng/L | UJ RT |
| MW-36-05012023 | Perfluorododecanoic acid | 1.6 ng/L | UJ RT |
| MW-36-05012023 | Perfluoroheptanesulfonic acid | 2.0 ng/L | UJ RT |
| MW-36-05012023 | Perfluoroheptanoic acid | 36 ng/L | J RT |
| MW-36-05012023 | Perfluorohexanesulfonamide | 3.6 ng/L | J RT |
| MW-36-05012023 | Perfluorohexanesulfonic acid | 13 ng/L | J RT |
| MW-36-05012023 | Perfluorohexanesulfonic acid-BR | 2.6 ng/L | J RT |
| MW-36-05012023 | Perfluorohexanesulfonic acid-LN | 9.1 ng/L | J RT |
| MW-36-05012023 | Perfluorohexanoic acid | 98 ng/L | J RT |
| MW-36-05012023 | Perfluorononanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-36-05012023 | Perfluorononanoic acid | 2.8 ng/L | J RT |
| MW-36-05012023 | Perfluorooctanesulfonamide | 1.8 ng/L | UJ RT |
| MW-36-05012023 | Perfluorooctanesulfonic acid | 19 ng/L | J RT |
| MW-36-05012023 | Perfluorooctanesulfonic acid-BR | 10 ng/L | J RT |
| MW-36-05012023 | Perfluorooctanesulfonic acid-LN | 8.2 ng/L | J RT |
| MW-36-05012023 | Perfluorooctanoic acid | 52 ng/L | J RT |
| MW-36-05012023 | Perfluoropentanesulfonic acid | 3.2 ng/L | J RT |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|----------------------------------|-----------|---------------------------|
| MW-36-05012023 | Perfluoropentanoic acid | 99 ng/L | J RT |
| MW-36-05012023 | Perfluorotetradecanoic acid | 1.8 ng/L | UJ RT |
| MW-36-05012023 | Perfluorotridecanoic acid | 1.2 ng/L | UJ RT |
| MW-36-05012023 | Perfluoroundecanoic acid | 1.4 ng/L | UJ RT |
| MW-36-05012023 | PFECHS | 6.1 ng/L | J RT |
| MW-37-05012023 | 11Cl-PF3OUdS | 1.8 ng/L | UJ RT |
| MW-37-05012023 | 3-Perfluorohetpyl propanoic acid | 2.9 ng/L | UJ RT |
| MW-37-05012023 | 3-Perfluoropentyl propanoic acid | 2.2 ng/L | UJ RT |
| MW-37-05012023 | 3-Perfluoropropyl propanoic acid | 1.2 ng/L | UJ RT |
| MW-37-05012023 | 4:2 Fluorotelomer sulfonic acid | 1.6 ng/L | UJ RT |
| MW-37-05012023 | 6:2 Fluorotelomer sulfonic acid | 53 ng/L | J RT |
| MW-37-05012023 | 8:2 Fluorotelomer sulfonic acid | 0.98 ng/L | UJ RT |
| MW-37-05012023 | 9Cl-PF3ONS | 1.4 ng/L | UJ RT |
| MW-37-05012023 | ADONA | 2.0 ng/L | UJ RT |
| MW-37-05012023 | EtFOSAA | 2.0 ng/L | UJ RT |
| MW-37-05012023 | HFPO-DA | 2.0 ng/L | UJ RT |
| MW-37-05012023 | NMeFOSAA | 2.0 ng/L | UJ RT |
| MW-37-05012023 | Perfluorobutanesulfonamide | 8.9 ng/L | J RT |
| MW-37-05012023 | Perfluorobutanesulfonic acid | 26 ng/L | J RT |
| MW-37-05012023 | Perfluorobutanoic acid | 85 ng/L | J RT |
| MW-37-05012023 | Perfluorodecanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-37-05012023 | Perfluorodecanoic acid | 2.0 ng/L | UJ RT |
| MW-37-05012023 | Perfluorododecanoic acid | 1.6 ng/L | UJ RT |
| MW-37-05012023 | Perfluoroheptanesulfonic acid | 2.0 ng/L | UJ RT |
| MW-37-05012023 | Perfluoroheptanoic acid | 48 ng/L | J RT |
| MW-37-05012023 | Perfluorohexanesulfonamide | 1.6 ng/L | J RT, DL |
| MW-37-05012023 | Perfluorohexanesulfonic acid | 17 ng/L | J RT |
| MW-37-05012023 | Perfluorohexanesulfonic acid-BR | 7.1 ng/L | J RT |
| MW-37-05012023 | Perfluorohexanesulfonic acid-LN | 8.9 ng/L | J RT |
| MW-37-05012023 | Perfluorohexanoic acid | 170 ng/L | J RT |
| MW-37-05012023 | Perfluorononanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-37-05012023 | Perfluorononanoic acid | 1.8 ng/L | UJ RT |
| MW-37-05012023 | Perfluorooctanesulfonamide | 1.8 ng/L | UJ RT |
| MW-37-05012023 | Perfluorooctanesulfonic acid | 2.7 ng/L | J RT |
| MW-37-05012023 | Perfluorooctanesulfonic acid-BR | 2.0 ng/L | J RT |
| MW-37-05012023 | Perfluorooctanesulfonic acid-LN | 1.9 ng/L | UJ RT |
| MW-37-05012023 | Perfluorooctanoic acid | 23 ng/L | J RT |
| MW-37-05012023 | Perfluoropentanesulfonic acid | 9.4 ng/L | J RT |
| MW-37-05012023 | Perfluoropentanoic acid | 270 ng/L | J RT |
| MW-37-05012023 | Perfluorotetradecanoic acid | 1.8 ng/L | UJ RT |
| MW-37-05012023 | Perfluorotridecanoic acid | 1.2 ng/L | UJ RT |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|----------------------------------|----------|---------------------------|
| MW-37-05012023 | Perfluoroundecanoic acid | 1.4 ng/L | UJ RT |
| MW-37-05012023 | PFECHS | 2.1 ng/L | J RT |
| MW-38-05012023 | 11Cl-PF3OUdS | 1.8 ng/L | UJ RT |
| MW-38-05012023 | 3-Perfluorohetpyl propanoic acid | 3.0 ng/L | UJ RT |
| MW-38-05012023 | 3-Perfluoropentyl propanoic acid | 7.5 ng/L | J RT, HL |
| MW-38-05012023 | 3-Perfluoropropyl propanoic acid | 1.2 ng/L | UJ RT |
| MW-38-05012023 | 4:2 Fluorotelomer sulfonic acid | 1.6 ng/L | UJ RT |
| MW-38-05012023 | 6:2 Fluorotelomer sulfonic acid | 64 ng/L | J RT, HI |
| MW-38-05012023 | 8:2 Fluorotelomer sulfonic acid | 1.0 ng/L | UJ RT |
| MW-38-05012023 | 9Cl-PF3ONS | 1.4 ng/L | UJ RT |
| MW-38-05012023 | ADONA | 2.0 ng/L | UJ RT |
| MW-38-05012023 | EtFOSAA | 2.0 ng/L | UJ RT |
| MW-38-05012023 | HFPO-DA | 2.0 ng/L | UJ RT |
| MW-38-05012023 | NMeFOSAA | 2.0 ng/L | UJ RT |
| MW-38-05012023 | Perfluorobutanesulfonamide | 15 ng/L | J RT |
| MW-38-05012023 | Perfluorobutanesulfonic acid | 9.9 ng/L | J RT |
| MW-38-05012023 | Perfluorobutanoic acid | 36 ng/L | J RT |
| MW-38-05012023 | Perfluorodecanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-38-05012023 | Perfluorodecanoic acid | 2.0 ng/L | UJ RT |
| MW-38-05012023 | Perfluorododecanoic acid | 1.6 ng/L | UJ RT |
| MW-38-05012023 | Perfluoroheptanesulfonic acid | 2.0 ng/L | UJ RT |
| MW-38-05012023 | Perfluoroheptanoic acid | 40 ng/L | J RT |
| MW-38-05012023 | Perfluorohexanesulfonamide | 9.7 ng/L | J RT |
| MW-38-05012023 | Perfluorohexanesulfonic acid | 28 ng/L | J RT |
| MW-38-05012023 | Perfluorohexanesulfonic acid-BR | 6.9 ng/L | J RT |
| MW-38-05012023 | Perfluorohexanesulfonic acid-LN | 20 ng/L | J RT |
| MW-38-05012023 | Perfluorohexanoic acid | 100 ng/L | J RT |
| MW-38-05012023 | Perfluorononanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-38-05012023 | Perfluorononanoic acid | 4.3 ng/L | J RT |
| MW-38-05012023 | Perfluorooctanesulfonamide | 1.8 ng/L | UJ RT |
| MW-38-05012023 | Perfluorooctanesulfonic acid | 13 ng/L | J RT |
| MW-38-05012023 | Perfluorooctanesulfonic acid-BR | 8.4 ng/L | J RT |
| MW-38-05012023 | Perfluorooctanesulfonic acid-LN | 4.2 ng/L | J RT |
| MW-38-05012023 | Perfluorooctanoic acid | 64 ng/L | J RT |
| MW-38-05012023 | Perfluoropentanesulfonic acid | 8.1 ng/L | J RT |
| MW-38-05012023 | Perfluoropentanoic acid | 120 ng/L | J RT |
| MW-38-05012023 | Perfluorotetradecanoic acid | 1.8 ng/L | UJ RT |
| MW-38-05012023 | Perfluorotridecanoic acid | 1.2 ng/L | UJ RT |
| MW-38-05012023 | Perfluoroundecanoic acid | 1.4 ng/L | UJ RT |
| MW-38-05012023 | PFECHS | 10 ng/L | J RT |
| MW-39-05012023 | 11Cl-PF3OUdS | 1.8 ng/L | UJ RT |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|----------------------------------|-----------|---------------------------|
| MW-39-05012023 | 3-Perfluorohetpyl propanoic acid | 3.0 ng/L | UJ RT |
| MW-39-05012023 | 3-Perfluoropentyl propanoic acid | 2.2 ng/L | UJ RT |
| MW-39-05012023 | 3-Perfluoropropyl propanoic acid | 1.2 ng/L | UJ RT |
| MW-39-05012023 | 4:2 Fluorotelomer sulfonic acid | 1.6 ng/L | UJ RT |
| MW-39-05012023 | 6:2 Fluorotelomer sulfonic acid | 110 ng/L | J RT |
| MW-39-05012023 | 8:2 Fluorotelomer sulfonic acid | 0.99 ng/L | UJ RT |
| MW-39-05012023 | 9Cl-PF3ONS | 1.4 ng/L | UJ RT |
| MW-39-05012023 | ADONA | 2.0 ng/L | UJ RT |
| MW-39-05012023 | EtFOSAA | 2.0 ng/L | UJ RT |
| MW-39-05012023 | HFPO-DA | 2.0 ng/L | UJ RT |
| MW-39-05012023 | NMeFOSAA | 2.0 ng/L | UJ RT |
| MW-39-05012023 | Perfluorobutanesulfonamide | 8.6 ng/L | J RT |
| MW-39-05012023 | Perfluorobutanesulfonic acid | 12 ng/L | J RT |
| MW-39-05012023 | Perfluorobutanoic acid | 60 ng/L | J RT |
| MW-39-05012023 | Perfluorodecanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-39-05012023 | Perfluorodecanoic acid | 2.0 ng/L | UJ RT |
| MW-39-05012023 | Perfluorododecanoic acid | 1.6 ng/L | UJ RT |
| MW-39-05012023 | Perfluoroheptanesulfonic acid | 2.0 ng/L | UJ RT |
| MW-39-05012023 | Perfluoroheptanoic acid | 37 ng/L | J RT |
| MW-39-05012023 | Perfluorohexanesulfonamide | 0.99 ng/L | J RT, DL |
| MW-39-05012023 | Perfluorohexanesulfonic acid | 15 ng/L | J RT |
| MW-39-05012023 | Perfluorohexanesulfonic acid-BR | 5.9 ng/L | J RT |
| MW-39-05012023 | Perfluorohexanesulfonic acid-LN | 8.7 ng/L | J RT |
| MW-39-05012023 | Perfluorohexanoic acid | 160 ng/L | J RT |
| MW-39-05012023 | Perfluorononanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-39-05012023 | Perfluorononanoic acid | 1.8 ng/L | UJ RT |
| MW-39-05012023 | Perfluorooctanesulfonamide | 1.8 ng/L | UJ RT |
| MW-39-05012023 | Perfluorooctanesulfonic acid | 12 ng/L | J RT |
| MW-39-05012023 | Perfluorooctanesulfonic acid-BR | 7.3 ng/L | J RT |
| MW-39-05012023 | Perfluorooctanesulfonic acid-LN | 3.7 ng/L | J RT |
| MW-39-05012023 | Perfluorooctanoic acid | 19 ng/L | J RT |
| MW-39-05012023 | Perfluoropentanesulfonic acid | 8.0 ng/L | J RT |
| MW-39-05012023 | Perfluoropentanoic acid | 260 ng/L | J RT |
| MW-39-05012023 | Perfluorotetradecanoic acid | 1.8 ng/L | UJ RT |
| MW-39-05012023 | Perfluorotridecanoic acid | 1.2 ng/L | UJ RT |
| MW-39-05012023 | Perfluoroundecanoic acid | 1.4 ng/L | UJ RT |
| MW-39-05012023 | PFCHS | 4.3 ng/L | J RT |
| MW-40-05012023 | 11Cl-PF3OUdS | 1.8 ng/L | UJ RT |
| MW-40-05012023 | 3-Perfluorohetpyl propanoic acid | 3.0 ng/L | UJ RT |
| MW-40-05012023 | 3-Perfluoropentyl propanoic acid | 8.0 ng/L | J RT, HL |
| MW-40-05012023 | 3-Perfluoropropyl propanoic acid | 1.2 ng/L | UJ RT |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|----------------------------------|-----------|---------------------------|
| MW-40-05012023 | 4:2 Fluorotelomer sulfonic acid | 5.6 ng/L | J RT |
| MW-40-05012023 | 6:2 Fluorotelomer sulfonic acid | 250 ng/L | J RT |
| MW-40-05012023 | 8:2 Fluorotelomer sulfonic acid | 12 ng/L | J RT |
| MW-40-05012023 | 9Cl-PF3ONS | 1.4 ng/L | UJ RT |
| MW-40-05012023 | ADONA | 2.0 ng/L | UJ RT |
| MW-40-05012023 | EtFOSAA | 2.0 ng/L | UJ RT |
| MW-40-05012023 | HFPO-DA | 2.0 ng/L | UJ RT |
| MW-40-05012023 | NMeFOSAA | 2.0 ng/L | UJ RT |
| MW-40-05012023 | Perfluorobutanesulfonamide | 7.4 ng/L | J RT |
| MW-40-05012023 | Perfluorobutanesulfonic acid | 8.9 ng/L | J RT |
| MW-40-05012023 | Perfluorobutanoic acid | 9.9 ng/L | UJ RT |
| MW-40-05012023 | Perfluorodecanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-40-05012023 | Perfluorodecanoic acid | 2.0 ng/L | UJ RT |
| MW-40-05012023 | Perfluorododecanoic acid | 1.6 ng/L | UJ RT |
| MW-40-05012023 | Perfluoroheptanesulfonic acid | 2.0 ng/L | UJ RT |
| MW-40-05012023 | Perfluoroheptanoic acid | 14 ng/L | J RT |
| MW-40-05012023 | Perfluorohexanesulfonamide | 8.6 ng/L | J RT |
| MW-40-05012023 | Perfluorohexanesulfonic acid | 12 ng/L | J RT |
| MW-40-05012023 | Perfluorohexanesulfonic acid-BR | 3.9 ng/L | J RT |
| MW-40-05012023 | Perfluorohexanesulfonic acid-LN | 7.9 ng/L | J RT |
| MW-40-05012023 | Perfluorohexanoic acid | 79 ng/L | J RT |
| MW-40-05012023 | Perfluorononanesulfonic acid | 1.4 ng/L | UJ RT |
| MW-40-05012023 | Perfluorononanoic acid | 1.8 ng/L | UJ RT |
| MW-40-05012023 | Perfluorooctanesulfonamide | 1.8 ng/L | UJ RT |
| MW-40-05012023 | Perfluorooctanesulfonic acid | 7.4 ng/L | J RT |
| MW-40-05012023 | Perfluorooctanesulfonic acid-BR | 4.8 ng/L | J RT |
| MW-40-05012023 | Perfluorooctanesulfonic acid-LN | 2.6 ng/L | J RT |
| MW-40-05012023 | Perfluorooctanoic acid | 16 ng/L | J RT |
| MW-40-05012023 | Perfluoropentanesulfonic acid | 3.4 ng/L | J RT |
| MW-40-05012023 | Perfluoropentanoic acid | 88 ng/L | J RT |
| MW-40-05012023 | Perfluorotetradecanoic acid | 1.8 ng/L | UJ RT |
| MW-40-05012023 | Perfluorotridecanoic acid | 1.2 ng/L | UJ RT |
| MW-40-05012023 | Perfluoroundecanoic acid | 1.4 ng/L | UJ RT |
| MW-40-05012023 | PFECHS | 1.2 ng/L | UJ RT |
| PZ-13-05022023 | 11Cl-PF3OUdS | 1.9 ng/L | UJ RT |
| PZ-13-05022023 | 3-Perfluorohetpyl propanoic acid | 3.1 ng/L | UJ RT |
| PZ-13-05022023 | 3-Perfluoropentyl propanoic acid | 13 ng/L | J RT, HL |
| PZ-13-05022023 | 3-Perfluoropropyl propanoic acid | 1.2 ng/L | UJ RT |
| PZ-13-05022023 | 4:2 Fluorotelomer sulfonic acid | 13 ng/L | J RT |
| PZ-13-05022023 | 6:2 Fluorotelomer sulfonic acid | 1500 ng/L | J RT |
| PZ-13-05022023 | 8:2 Fluorotelomer sulfonic acid | 9.6 ng/L | J RT |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|----------------------------------|-----------|---------------------------|
| PZ-13-05022023 | 9CI-PF3ONS | 1.4 ng/L | UJ RT |
| PZ-13-05022023 | ADONA | 2.1 ng/L | UJ RT |
| PZ-13-05022023 | EtFOSAA | 2.1 ng/L | UJ RT |
| PZ-13-05022023 | HFPO-DA | 2.1 ng/L | UJ RT |
| PZ-13-05022023 | NMeFOSAA | 2.1 ng/L | UJ RT |
| PZ-13-05022023 | Perfluorobutanesulfonamide | 100 ng/L | J RT |
| PZ-13-05022023 | Perfluorobutanesulfonic acid | 50 ng/L | J RT |
| PZ-13-05022023 | Perfluorobutanoic acid | 400 ng/L | J RT |
| PZ-13-05022023 | Perfluorodecanesulfonic acid | 1.4 ng/L | UJ RT |
| PZ-13-05022023 | Perfluorodecanoic acid | 2.1 ng/L | UJ RT |
| PZ-13-05022023 | Perfluorododecanoic acid | 1.7 ng/L | UJ RT |
| PZ-13-05022023 | Perfluoroheptanesulfonic acid | 5.8 ng/L | J RT |
| PZ-13-05022023 | Perfluoroheptanoic acid | 180 ng/L | J RT |
| PZ-13-05022023 | Perfluorohexanesulfonamide | 93 ng/L | J RT |
| PZ-13-05022023 | Perfluorohexanesulfonic acid | 140 ng/L | J RT |
| PZ-13-05022023 | Perfluorohexanesulfonic acid-BR | 37 ng/L | J RT |
| PZ-13-05022023 | Perfluorohexanesulfonic acid-LN | 98 ng/L | J RT |
| PZ-13-05022023 | Perfluorohexanoic acid | 1200 ng/L | J RT |
| PZ-13-05022023 | Perfluorononanesulfonic acid | 1.4 ng/L | UJ RT |
| PZ-13-05022023 | Perfluorononanoic acid | 3.6 ng/L | J RT |
| PZ-13-05022023 | Perfluorooctanesulfonamide | 1.9 ng/L | UJ RT |
| PZ-13-05022023 | Perfluorooctanesulfonic acid | 120 ng/L | J RT |
| PZ-13-05022023 | Perfluorooctanesulfonic acid-BR | 86 ng/L | J RT |
| PZ-13-05022023 | Perfluorooctanesulfonic acid-LN | 37 ng/L | J RT |
| PZ-13-05022023 | Perfluorooctanoic acid | 73 ng/L | J RT |
| PZ-13-05022023 | Perfluoropentanesulfonic acid | 37 ng/L | J RT |
| PZ-13-05022023 | Perfluoropentanoic acid | 1900 ng/L | J RT |
| PZ-13-05022023 | Perfluorotetradecanoic acid | 1.9 ng/L | UJ RT |
| PZ-13-05022023 | Perfluorotridecanoic acid | 1.2 ng/L | UJ RT |
| PZ-13-05022023 | Perfluoroundecanoic acid | 1.4 ng/L | UJ RT |
| PZ-13-05022023 | PFECHS | 1.7 ng/L | J RT, DL |
| PZ-14-05022023 | 11Cl-PF3OUdS | 1.8 ng/L | UJ RT |
| PZ-14-05022023 | 3-Perfluorohetpyl propanoic acid | 3.0 ng/L | UJ RT |
| PZ-14-05022023 | 3-Perfluoropentyl propanoic acid | 2.2 ng/L | UJ RT |
| PZ-14-05022023 | 3-Perfluoropropyl propanoic acid | 1.2 ng/L | UJ RT |
| PZ-14-05022023 | 4:2 Fluorotelomer sulfonic acid | 1.6 ng/L | UJ RT |
| PZ-14-05022023 | 6:2 Fluorotelomer sulfonic acid | 2.0 ng/L | UJ RT |
| PZ-14-05022023 | 8:2 Fluorotelomer sulfonic acid | 0.99 ng/L | UJ RT |
| PZ-14-05022023 | 9CI-PF3ONS | 1.4 ng/L | UJ RT |
| PZ-14-05022023 | ADONA | 2.0 ng/L | UJ RT |
| PZ-14-05022023 | EtFOSAA | 2.0 ng/L | UJ RT |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|----------------------------------|-----------|---------------------------|
| PZ-14-05022023 | HFPO-DA | 2.0 ng/L | UJ RT |
| PZ-14-05022023 | NMeFOSAA | 2.0 ng/L | UJ RT |
| PZ-14-05022023 | Perfluorobutanesulfonamide | 1.2 ng/L | UJ RT |
| PZ-14-05022023 | Perfluorobutanesulfonic acid | 1.4 ng/L | UJ RT |
| PZ-14-05022023 | Perfluorobutanoic acid | 9.9 ng/L | UJ RT |
| PZ-14-05022023 | Perfluorodecanesulfonic acid | 1.4 ng/L | UJ RT |
| PZ-14-05022023 | Perfluorodecanoic acid | 2.0 ng/L | UJ RT |
| PZ-14-05022023 | Perfluorododecanoic acid | 1.6 ng/L | UJ RT |
| PZ-14-05022023 | Perfluoroheptanesulfonic acid | 2.0 ng/L | UJ RT |
| PZ-14-05022023 | Perfluoroheptanoic acid | 1.4 ng/L | UJ RT |
| PZ-14-05022023 | Perfluorohexanesulfonamide | 0.99 ng/L | UJ RT |
| PZ-14-05022023 | Perfluorohexanesulfonic acid | 1.6 ng/L | UJ RT |
| PZ-14-05022023 | Perfluorohexanesulfonic acid-BR | 1.6 ng/L | UJ RT |
| PZ-14-05022023 | Perfluorohexanesulfonic acid-LN | 1.6 ng/L | UJ RT |
| PZ-14-05022023 | Perfluorohexanoic acid | 2.1 ng/L | J RT |
| PZ-14-05022023 | Perfluorononanesulfonic acid | 1.4 ng/L | UJ RT |
| PZ-14-05022023 | Perfluorononanoic acid | 1.8 ng/L | UJ RT |
| PZ-14-05022023 | Perfluorooctanesulfonamide | 1.8 ng/L | UJ RT |
| PZ-14-05022023 | Perfluorooctanesulfonic acid | 4.5 ng/L | J RT |
| PZ-14-05022023 | Perfluorooctanesulfonic acid-BR | 2.8 ng/L | J RT |
| PZ-14-05022023 | Perfluorooctanesulfonic acid-LN | 1.9 ng/L | UJ RT |
| PZ-14-05022023 | Perfluorooctanoic acid | 1.6 ng/L | UJ RT |
| PZ-14-05022023 | Perfluoropentanesulfonic acid | 1.8 ng/L | UJ RT |
| PZ-14-05022023 | Perfluoropentanoic acid | 2.4 ng/L | J RT, DL |
| PZ-14-05022023 | Perfluorotetradecanoic acid | 1.8 ng/L | UJ RT |
| PZ-14-05022023 | Perfluorotridecanoic acid | 1.2 ng/L | UJ RT |
| PZ-14-05022023 | Perfluoroundecanoic acid | 1.4 ng/L | UJ RT |
| PZ-14-05022023 | PFECHS | 1.2 ng/L | UJ RT |
| PZ-23-05032023 | 11Cl-PF3OUdS | 1.7 ng/L | UJ RT |
| PZ-23-05032023 | 3-Perfluorohetpyl propanoic acid | 2.9 ng/L | UJ RT |
| PZ-23-05032023 | 3-Perfluoropentyl propanoic acid | 2.1 ng/L | UJ RT |
| PZ-23-05032023 | 3-Perfluoropropyl propanoic acid | 1.2 ng/L | UJ RT |
| PZ-23-05032023 | 4:2 Fluorotelomer sulfonic acid | 1.6 ng/L | UJ RT |
| PZ-23-05032023 | 6:2 Fluorotelomer sulfonic acid | 1.9 ng/L | UJ RT |
| PZ-23-05032023 | 8:2 Fluorotelomer sulfonic acid | 0.97 ng/L | UJ RT |
| PZ-23-05032023 | 9Cl-PF3ONS | 1.4 ng/L | UJ RT |
| PZ-23-05032023 | ADONA | 1.9 ng/L | UJ RT |
| PZ-23-05032023 | EtFOSAA | 1.9 ng/L | UJ RT |
| PZ-23-05032023 | HFPO-DA | 1.9 ng/L | UJ RT |
| PZ-23-05032023 | NMeFOSAA | 1.9 ng/L | UJ RT |
| PZ-23-05032023 | Perfluorobutanesulfonamide | 1.2 ng/L | UJ RT |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|----------------------------------|-----------|---------------------------|
| PZ-23-05032023 | Perfluorobutanesulfonic acid | 2.3 ng/L | J RT |
| PZ-23-05032023 | Perfluorobutanoic acid | 14 ng/L | J RT |
| PZ-23-05032023 | Perfluorodecanesulfonic acid | 1.4 ng/L | UJ RT |
| PZ-23-05032023 | Perfluorodecanoic acid | 1.9 ng/L | UJ RT |
| PZ-23-05032023 | Perfluorododecanoic acid | 1.6 ng/L | UJ RT |
| PZ-23-05032023 | Perfluoroheptanesulfonic acid | 1.9 ng/L | UJ RT |
| PZ-23-05032023 | Perfluoroheptanoic acid | 2.5 ng/L | J RT |
| PZ-23-05032023 | Perfluorohexanesulfonamide | 0.97 ng/L | UJ RT |
| PZ-23-05032023 | Perfluorohexanesulfonic acid | 1.6 ng/L | UJ RT |
| PZ-23-05032023 | Perfluorohexanesulfonic acid-BR | 1.6 ng/L | UJ RT |
| PZ-23-05032023 | Perfluorohexanesulfonic acid-LN | 1.6 ng/L | UJ RT |
| PZ-23-05032023 | Perfluorohexanoic acid | 6.6 ng/L | J RT |
| PZ-23-05032023 | Perfluorononanesulfonic acid | 1.4 ng/L | UJ RT |
| PZ-23-05032023 | Perfluorononanoic acid | 1.7 ng/L | UJ RT |
| PZ-23-05032023 | Perfluorooctanesulfonamide | 1.7 ng/L | UJ RT |
| PZ-23-05032023 | Perfluorooctanesulfonic acid | 1.9 ng/L | UJ RT |
| PZ-23-05032023 | Perfluorooctanesulfonic acid-BR | 1.9 ng/L | UJ RT |
| PZ-23-05032023 | Perfluorooctanesulfonic acid-LN | 1.9 ng/L | UJ RT |
| PZ-23-05032023 | Perfluorooctanoic acid | 4.0 ng/L | J RT |
| PZ-23-05032023 | Perfluoropentanesulfonic acid | 1.7 ng/L | UJ RT |
| PZ-23-05032023 | Perfluoropentanoic acid | 5.2 ng/L | J RT |
| PZ-23-05032023 | Perfluorotetradecanoic acid | 1.7 ng/L | UJ RT |
| PZ-23-05032023 | Perfluorotridecanoic acid | 1.2 ng/L | UJ RT |
| PZ-23-05032023 | Perfluoroundecanoic acid | 1.4 ng/L | UJ RT |
| PZ-23-05032023 | PFECHS | 1.2 ng/L | J RT, DL |
| PZ-28-05022023 | 11Cl-PF3OUdS | 1.8 ng/L | UJ RT |
| PZ-28-05022023 | 3-Perfluorohetpyl propanoic acid | 3.0 ng/L | UJ RT |
| PZ-28-05022023 | 3-Perfluoropentyl propanoic acid | 2.2 ng/L | UJ RT |
| PZ-28-05022023 | 3-Perfluoropropyl propanoic acid | 1.2 ng/L | UJ RT |
| PZ-28-05022023 | 4:2 Fluorotelomer sulfonic acid | 1.6 ng/L | UJ RT |
| PZ-28-05022023 | 6:2 Fluorotelomer sulfonic acid | 2.0 ng/L | UJ RT |
| PZ-28-05022023 | 8:2 Fluorotelomer sulfonic acid | 1.00 ng/L | UJ RT |
| PZ-28-05022023 | 9Cl-PF3ONS | 1.4 ng/L | UJ RT |
| PZ-28-05022023 | ADONA | 2.0 ng/L | UJ RT |
| PZ-28-05022023 | EtFOSAA | 2.0 ng/L | UJ RT |
| PZ-28-05022023 | HFPO-DA | 2.0 ng/L | UJ RT |
| PZ-28-05022023 | NMeFOSAA | 2.0 ng/L | UJ RT |
| PZ-28-05022023 | Perfluorobutanesulfonamide | 1.2 ng/L | J RT, DL |
| PZ-28-05022023 | Perfluorobutanesulfonic acid | 4.7 ng/L | J RT |
| PZ-28-05022023 | Perfluorobutanoic acid | 10.0 ng/L | J RT |
| PZ-28-05022023 | Perfluorodecanesulfonic acid | 1.4 ng/L | UJ RT |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|----------------------------------|-----------|---------------------------|
| PZ-28-05022023 | Perfluorodecanoic acid | 2.0 ng/L | UJ RT |
| PZ-28-05022023 | Perfluorododecanoic acid | 1.6 ng/L | UJ RT |
| PZ-28-05022023 | Perfluoroheptanesulfonic acid | 2.0 ng/L | UJ RT |
| PZ-28-05022023 | Perfluoroheptanoic acid | 3.4 ng/L | J RT |
| PZ-28-05022023 | Perfluorohexanesulfonamide | 1.00 ng/L | UJ RT |
| PZ-28-05022023 | Perfluorohexanesulfonic acid | 3.3 ng/L | J RT |
| PZ-28-05022023 | Perfluorohexanesulfonic acid-BR | 1.6 ng/L | UJ RT |
| PZ-28-05022023 | Perfluorohexanesulfonic acid-LN | 2.2 ng/L | J RT |
| PZ-28-05022023 | Perfluorohexanoic acid | 6.3 ng/L | J RT |
| PZ-28-05022023 | Perfluorononanesulfonic acid | 1.4 ng/L | UJ RT |
| PZ-28-05022023 | Perfluorononanoic acid | 1.8 ng/L | UJ RT |
| PZ-28-05022023 | Perfluorooctanesulfonamide | 1.8 ng/L | UJ RT |
| PZ-28-05022023 | Perfluorooctanesulfonic acid | 19 ng/L | J RT |
| PZ-28-05022023 | Perfluorooctanesulfonic acid-BR | 12 ng/L | J RT |
| PZ-28-05022023 | Perfluorooctanesulfonic acid-LN | 6.3 ng/L | J RT |
| PZ-28-05022023 | Perfluorooctanoic acid | 9.9 ng/L | J RT |
| PZ-28-05022023 | Perfluoropentanesulfonic acid | 1.8 ng/L | UJ RT |
| PZ-28-05022023 | Perfluoropentanoic acid | 7.0 ng/L | J RT |
| PZ-28-05022023 | Perfluorotetradecanoic acid | 1.8 ng/L | UJ RT |
| PZ-28-05022023 | Perfluorotridecanoic acid | 1.2 ng/L | UJ RT |
| PZ-28-05022023 | Perfluoroundecanoic acid | 1.4 ng/L | UJ RT |
| PZ-28-05022023 | PFECHS | 2.3 ng/L | J RT |
| PZ-32-05022023 | 11Cl-PF3OUdS | 1.8 ng/L | UJ RT |
| PZ-32-05022023 | 3-Perfluorohetpyl propanoic acid | 3.0 ng/L | UJ RT |
| PZ-32-05022023 | 3-Perfluoropentyl propanoic acid | 2.2 ng/L | UJ RT |
| PZ-32-05022023 | 3-Perfluoropropyl propanoic acid | 1.2 ng/L | UJ RT |
| PZ-32-05022023 | 4:2 Fluorotelomer sulfonic acid | 1.6 ng/L | UJ RT |
| PZ-32-05022023 | 6:2 Fluorotelomer sulfonic acid | 2.0 ng/L | UJ RT |
| PZ-32-05022023 | 8:2 Fluorotelomer sulfonic acid | 0.99 ng/L | UJ RT |
| PZ-32-05022023 | 9Cl-PF3ONS | 1.4 ng/L | UJ RT |
| PZ-32-05022023 | ADONA | 2.0 ng/L | UJ RT |
| PZ-32-05022023 | EtFOSAA | 3.0 ng/L | J RT, DL |
| PZ-32-05022023 | HFPO-DA | 2.0 ng/L | UJ RT |
| PZ-32-05022023 | NMeFOSAA | 2.0 ng/L | UJ RT |
| PZ-32-05022023 | Perfluorobutanesulfonamide | 1.2 ng/L | UJ RT |
| PZ-32-05022023 | Perfluorobutanesulfonic acid | 2.8 ng/L | J RT |
| PZ-32-05022023 | Perfluorobutanoic acid | 9.9 ng/L | UJ RT |
| PZ-32-05022023 | Perfluorodecanesulfonic acid | 1.4 ng/L | UJ RT |
| PZ-32-05022023 | Perfluorodecanoic acid | 2.0 ng/L | UJ RT |
| PZ-32-05022023 | Perfluorododecanoic acid | 1.6 ng/L | UJ RT |
| PZ-32-05022023 | Perfluoroheptanesulfonic acid | 2.0 ng/L | UJ RT |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|----------------------------------|-----------|---------------------------|
| PZ-32-05022023 | Perfluoroheptanoic acid | 4.5 ng/L | J RT |
| PZ-32-05022023 | Perfluorohexanesulfonamide | 0.99 ng/L | UJ RT |
| PZ-32-05022023 | Perfluorohexanesulfonic acid | 6.3 ng/L | J RT |
| PZ-32-05022023 | Perfluorohexanesulfonic acid-BR | 1.6 ng/L | UJ RT |
| PZ-32-05022023 | Perfluorohexanesulfonic acid-LN | 5.0 ng/L | J RT |
| PZ-32-05022023 | Perfluorohexanoic acid | 9.9 ng/L | J RT |
| PZ-32-05022023 | Perfluorononanesulfonic acid | 1.4 ng/L | UJ RT |
| PZ-32-05022023 | Perfluorononanoic acid | 1.8 ng/L | UJ RT |
| PZ-32-05022023 | Perfluorooctanesulfonamide | 1.8 ng/L | UJ RT |
| PZ-32-05022023 | Perfluorooctanesulfonic acid | 110 ng/L | J RT |
| PZ-32-05022023 | Perfluorooctanesulfonic acid-BR | 41 ng/L | J RT |
| PZ-32-05022023 | Perfluorooctanesulfonic acid-LN | 68 ng/L | J RT |
| PZ-32-05022023 | Perfluorooctanoic acid | 12 ng/L | J RT |
| PZ-32-05022023 | Perfluoropentanesulfonic acid | 1.8 ng/L | UJ RT |
| PZ-32-05022023 | Perfluoropentanoic acid | 13 ng/L | J RT |
| PZ-32-05022023 | Perfluorotetradecanoic acid | 1.8 ng/L | UJ RT |
| PZ-32-05022023 | Perfluorotridecanoic acid | 1.2 ng/L | UJ RT |
| PZ-32-05022023 | Perfluoroundecanoic acid | 1.4 ng/L | UJ RT |
| PZ-32-05022023 | PFECHS | 14 ng/L | J RT |
| SW-01-05012023 | 11Cl-PF3OUdS | 0.78 ng/L | UJ RT |
| SW-01-05012023 | 3-Perfluorohetpyl propanoic acid | 2.0 ng/L | UJ RT |
| SW-01-05012023 | 3-Perfluoropentyl propanoic acid | 2.0 ng/L | UJ RT |
| SW-01-05012023 | 3-Perfluoropropyl propanoic acid | 0.98 ng/L | UJ RT |
| SW-01-05012023 | 4:2 Fluorotelomer sulfonic acid | 0.78 ng/L | UJ RT |
| SW-01-05012023 | 6:2 Fluorotelomer sulfonic acid | 1.2 ng/L | UJ RT |
| SW-01-05012023 | 8:2 Fluorotelomer sulfonic acid | 0.98 ng/L | UJ RT, LV |
| SW-01-05012023 | 9Cl-PF3ONS | 0.78 ng/L | UJ RT |
| SW-01-05012023 | ADONA | 0.98 ng/L | UJ RT |
| SW-01-05012023 | EtFOSAA | 2.0 ng/L | UJ RT |
| SW-01-05012023 | HFPO-DA | 2.0 ng/L | UJ RT |
| SW-01-05012023 | NMeFOSAA | 1.4 ng/L | UJ RT |
| SW-01-05012023 | Perfluorobutanesulfonamide | 1.2 ng/L | UJ RT |
| SW-01-05012023 | Perfluorobutanesulfonic acid | 2.0 ng/L | J RT |
| SW-01-05012023 | Perfluorobutanoic acid | 1.6 ng/L | J RT, DL |
| SW-01-05012023 | Perfluorodecanesulfonic acid | 1.2 ng/L | UJ RT |
| SW-01-05012023 | Perfluorodecanoic acid | 0.59 ng/L | UJ RT |
| SW-01-05012023 | Perfluorododecanoic acid | 0.59 ng/L | UJ RT |
| SW-01-05012023 | Perfluoroheptanesulfonic acid | 1.2 ng/L | UJ RT |
| SW-01-05012023 | Perfluoroheptanoic acid | 1.5 ng/L | J RT, DL |
| SW-01-05012023 | Perfluorohexanesulfonamide | 0.78 ng/L | UJ RT |
| SW-01-05012023 | Perfluorohexanesulfonic acid | 1.6 ng/L | J RT, DL |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|------------------------------------|----------------------------------|---------------|----------------------------------|
| SW-01-05012023 | Perfluorohexanesulfonic acid-BR | 1.2 ng/L | UJ RT |
| SW-01-05012023 | Perfluorohexanesulfonic acid-LN | 1.3 ng/L | J RT, DL |
| SW-01-05012023 | Perfluorohexanoic acid | 2.0 ng/L | J RT |
| SW-01-05012023 | Perfluorononanesulfonic acid | 0.98 ng/L | UJ RT |
| SW-01-05012023 | Perfluorononanoic acid | 1.2 ng/L | J RT, DL |
| SW-01-05012023 | Perfluorooctanesulfonamide | 0.78 ng/L | UJ RT |
| SW-01-05012023 | Perfluorooctanesulfonic acid | 12 ng/L | J RT, LV |
| SW-01-05012023 | Perfluorooctanesulfonic acid-BR | 6.2 ng/L | J RT |
| SW-01-05012023 | Perfluorooctanesulfonic acid-LN | 5.7 ng/L | J RT |
| SW-01-05012023 | Perfluorooctanoic acid | 2.2 ng/L | J RT |
| SW-01-05012023 | Perfluoropentanesulfonic acid | 0.92 ng/L | J RT, DL |
| SW-01-05012023 | Perfluoropentanoic acid | 1.5 ng/L | J RT, DL |
| SW-01-05012023 | Perfluorotetradecanoic acid | 0.39 ng/L | UJ RT |
| SW-01-05012023 | Perfluorotridecanoic acid | 0.98 ng/L | UJ RT |
| SW-01-05012023 | Perfluoroundecanoic acid | 0.98 ng/L | UJ RT |
| SW-01-05012023 | PFECHS | 1.8 ng/L | J RT, DL |
| SW-02-05012023 | 11Cl-PF3OUdS | 0.78 ng/L | UJ RT |
| SW-02-05012023 | 3-Perfluorohetpyl propanoic acid | 2.0 ng/L | UJ RT |
| SW-02-05012023 | 3-Perfluoropentyl propanoic acid | 2.0 ng/L | UJ RT |
| SW-02-05012023 | 3-Perfluoropropyl propanoic acid | 0.98 ng/L | UJ RT |
| SW-02-05012023 | 4:2 Fluorotelomer sulfonic acid | 0.78 ng/L | UJ RT |
| SW-02-05012023 | 6:2 Fluorotelomer sulfonic acid | 1.2 ng/L | UJ RT |
| SW-02-05012023 | 8:2 Fluorotelomer sulfonic acid | 0.98 ng/L | UJ RT, LV |
| SW-02-05012023 | 9Cl-PF3ONS | 0.78 ng/L | UJ RT |
| SW-02-05012023 | ADONA | 0.98 ng/L | UJ RT |
| SW-02-05012023 | EtFOSAA | 2.0 ng/L | UJ RT |
| SW-02-05012023 | HFPO-DA | 2.0 ng/L | UJ RT |
| SW-02-05012023 | NMeFOSAA | 1.4 ng/L | UJ RT |
| SW-02-05012023 | Perfluorobutanesulfonamide | 1.6 ng/L | J RT, DL |
| SW-02-05012023 | Perfluorobutanesulfonic acid | 2.7 ng/L | J RT |
| SW-02-05012023 | Perfluorobutanoic acid | 7.3 ng/L | J RT, DL |
| SW-02-05012023 | Perfluorodecanesulfonic acid | 1.2 ng/L | UJ RT |
| SW-02-05012023 | Perfluorodecanoic acid | 0.59 ng/L | UJ RT |
| SW-02-05012023 | Perfluorododecanoic acid | 0.59 ng/L | UJ RT |
| SW-02-05012023 | Perfluoroheptanesulfonic acid | 1.2 ng/L | UJ RT |
| SW-02-05012023 | Perfluoroheptanoic acid | 2.5 ng/L | J RT |
| SW-02-05012023 | Perfluorohexanesulfonamide | 0.78 ng/L | UJ RT |
| SW-02-05012023 | Perfluorohexanesulfonic acid | 2.0 ng/L | J RT |
| SW-02-05012023 | Perfluorohexanesulfonic acid-BR | 1.2 ng/L | UJ RT |
| SW-02-05012023 | Perfluorohexanesulfonic acid-LN | 1.7 ng/L | J RT, DL |
| SW-02-05012023 | Perfluorohexanoic acid | 5.7 ng/L | J RT |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|------------------------------------|----------------------------------|---------------|----------------------------------|
| SW-02-05012023 | Perfluorononanesulfonic acid | 0.98 ng/L | UJ RT |
| SW-02-05012023 | Perfluorononanoic acid | 1.1 ng/L | J RT, DL |
| SW-02-05012023 | Perfluorooctanesulfonamide | 0.78 ng/L | UJ RT |
| SW-02-05012023 | Perfluorooctanesulfonic acid | 5.6 ng/L | J RT, LV |
| SW-02-05012023 | Perfluorooctanesulfonic acid-BR | 2.7 ng/L | J RT |
| SW-02-05012023 | Perfluorooctanesulfonic acid-LN | 3.3 ng/L | J RT |
| SW-02-05012023 | Perfluorooctanoic acid | 3.2 ng/L | J RT |
| SW-02-05012023 | Perfluoropentanesulfonic acid | 0.98 ng/L | J RT, DL |
| SW-02-05012023 | Perfluoropentanoic acid | 6.6 ng/L | J RT |
| SW-02-05012023 | Perfluorotetradecanoic acid | 0.39 ng/L | UJ RT |
| SW-02-05012023 | Perfluorotridecanoic acid | 0.98 ng/L | UJ RT |
| SW-02-05012023 | Perfluoroundecanoic acid | 0.98 ng/L | UJ RT |
| SW-02-05012023 | PFECHS | 2.2 ng/L | J RT |
| SW-03-05012023 | 11Cl-PF3OUdS | 0.82 ng/L | UJ RT |
| SW-03-05012023 | 3-Perfluorohetpyl propanoic acid | 2.0 ng/L | UJ RT |
| SW-03-05012023 | 3-Perfluoropentyl propanoic acid | 2.0 ng/L | UJ RT |
| SW-03-05012023 | 3-Perfluoropropyl propanoic acid | 1.0 ng/L | UJ RT |
| SW-03-05012023 | 4:2 Fluorotelomer sulfonic acid | 0.82 ng/L | UJ RT |
| SW-03-05012023 | 6:2 Fluorotelomer sulfonic acid | 1.2 ng/L | UJ RT |
| SW-03-05012023 | 8:2 Fluorotelomer sulfonic acid | 1.0 ng/L | UJ RT, LV |
| SW-03-05012023 | 9Cl-PF3ONS | 0.82 ng/L | UJ RT |
| SW-03-05012023 | ADONA | 1.0 ng/L | UJ RT |
| SW-03-05012023 | EtFOSAA | 2.0 ng/L | UJ RT |
| SW-03-05012023 | HFPO-DA | 2.0 ng/L | UJ RT |
| SW-03-05012023 | NMeFOSAA | 1.4 ng/L | UJ RT |
| SW-03-05012023 | Perfluorobutanesulfonamide | 1.4 ng/L | J RT, DL |
| SW-03-05012023 | Perfluorobutanesulfonic acid | 2.2 ng/L | J RT |
| SW-03-05012023 | Perfluorobutanoic acid | 6.3 ng/L | J RT, DL |
| SW-03-05012023 | Perfluorodecanesulfonic acid | 1.2 ng/L | UJ RT |
| SW-03-05012023 | Perfluorodecanoic acid | 0.61 ng/L | UJ RT |
| SW-03-05012023 | Perfluorododecanoic acid | 0.61 ng/L | UJ RT |
| SW-03-05012023 | Perfluoroheptanesulfonic acid | 1.2 ng/L | UJ RT |
| SW-03-05012023 | Perfluoroheptanoic acid | 2.2 ng/L | J RT |
| SW-03-05012023 | Perfluorohexanesulfonamide | 0.82 ng/L | UJ RT |
| SW-03-05012023 | Perfluorohexanesulfonic acid | 1.8 ng/L | J RT, DL |
| SW-03-05012023 | Perfluorohexanesulfonic acid-BR | 1.2 ng/L | UJ RT |
| SW-03-05012023 | Perfluorohexanesulfonic acid-LN | 1.5 ng/L | J RT, DL |
| SW-03-05012023 | Perfluorohexanoic acid | 4.3 ng/L | J RT |
| SW-03-05012023 | Perfluorononanesulfonic acid | 1.0 ng/L | UJ RT |
| SW-03-05012023 | Perfluorononanoic acid | 1.00 ng/L | J RT, DL |
| SW-03-05012023 | Perfluorooctanesulfonamide | 0.82 ng/L | UJ RT |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|----------------------------------|-----------|---------------------------|
| SW-03-05012023 | Perfluorooctanesulfonic acid | 5.2 ng/L | J RT, LV |
| SW-03-05012023 | Perfluorooctanesulfonic acid-BR | 3.2 ng/L | J RT |
| SW-03-05012023 | Perfluorooctanesulfonic acid-LN | 2.4 ng/L | J RT |
| SW-03-05012023 | Perfluorooctanoic acid | 2.3 ng/L | J RT |
| SW-03-05012023 | Perfluoropentanesulfonic acid | 0.98 ng/L | J RT, DL |
| SW-03-05012023 | Perfluoropentanoic acid | 4.5 ng/L | J RT |
| SW-03-05012023 | Perfluorotetradecanoic acid | 0.41 ng/L | UJ RT |
| SW-03-05012023 | Perfluorotridecanoic acid | 1.0 ng/L | UJ RT |
| SW-03-05012023 | Perfluoroundecanoic acid | 1.0 ng/L | UJ RT |
| SW-03-05012023 | PFECHS | 1.9 ng/L | J RT, DL |
| SW-04-05012023 | 11Cl-PF3OUdS | 0.75 ng/L | UJ RT |
| SW-04-05012023 | 3-Perfluorohetpyl propanoic acid | 1.9 ng/L | UJ RT |
| SW-04-05012023 | 3-Perfluoropentyl propanoic acid | 1.9 ng/L | UJ RT |
| SW-04-05012023 | 3-Perfluoropropyl propanoic acid | 0.94 ng/L | UJ RT |
| SW-04-05012023 | 4:2 Fluorotelomer sulfonic acid | 0.75 ng/L | UJ RT |
| SW-04-05012023 | 6:2 Fluorotelomer sulfonic acid | 1.1 ng/L | UJ RT |
| SW-04-05012023 | 8:2 Fluorotelomer sulfonic acid | 0.94 ng/L | UJ RT, LV |
| SW-04-05012023 | 9Cl-PF3ONS | 0.75 ng/L | UJ RT |
| SW-04-05012023 | ADONA | 0.94 ng/L | UJ RT |
| SW-04-05012023 | EtFOSAA | 1.9 ng/L | UJ RT |
| SW-04-05012023 | HFPO-DA | 1.9 ng/L | UJ RT |
| SW-04-05012023 | NMeFOSAA | 1.3 ng/L | UJ RT |
| SW-04-05012023 | Perfluorobutanesulfonamide | 1.1 ng/L | UJ RT |
| SW-04-05012023 | Perfluorobutanesulfonic acid | 2.2 ng/L | J RT |
| SW-04-05012023 | Perfluorobutanoic acid | 3.8 ng/L | J RT, DL |
| SW-04-05012023 | Perfluorodecanesulfonic acid | 1.1 ng/L | UJ RT |
| SW-04-05012023 | Perfluorodecanoic acid | 0.56 ng/L | UJ RT |
| SW-04-05012023 | Perfluorododecanoic acid | 0.56 ng/L | UJ RT |
| SW-04-05012023 | Perfluoroheptanesulfonic acid | 1.1 ng/L | UJ RT |
| SW-04-05012023 | Perfluoroheptanoic acid | 2.1 ng/L | J RT |
| SW-04-05012023 | Perfluorohexanesulfonamide | 0.75 ng/L | UJ RT |
| SW-04-05012023 | Perfluorohexanesulfonic acid | 1.7 ng/L | J RT, DL |
| SW-04-05012023 | Perfluorohexanesulfonic acid-BR | 1.1 ng/L | UJ RT |
| SW-04-05012023 | Perfluorohexanesulfonic acid-LN | 1.5 ng/L | J RT, DL |
| SW-04-05012023 | Perfluorohexanoic acid | 3.6 ng/L | J RT |
| SW-04-05012023 | Perfluorononanesulfonic acid | 0.94 ng/L | UJ RT |
| SW-04-05012023 | Perfluorononanoic acid | 1.1 ng/L | J RT, DL |
| SW-04-05012023 | Perfluorooctanesulfonamide | 0.75 ng/L | UJ RT |
| SW-04-05012023 | Perfluorooctanesulfonic acid | 4.9 ng/L | J RT, LV |
| SW-04-05012023 | Perfluorooctanesulfonic acid-BR | 2.7 ng/L | J RT |
| SW-04-05012023 | Perfluorooctanesulfonic acid-LN | 2.5 ng/L | J RT |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|------------------------------------|----------------------------------|---------------|----------------------------------|
| SW-04-05012023 | Perfluorooctanoic acid | 2.6 ng/L | J RT |
| SW-04-05012023 | Perfluoropentanesulfonic acid | 0.90 ng/L | J RT, DL |
| SW-04-05012023 | Perfluoropentanoic acid | 3.9 ng/L | J RT |
| SW-04-05012023 | Perfluorotetradecanoic acid | 0.37 ng/L | UJ RT |
| SW-04-05012023 | Perfluorotridecanoic acid | 0.94 ng/L | UJ RT |
| SW-04-05012023 | Perfluoroundecanoic acid | 0.94 ng/L | UJ RT |
| SW-04-05012023 | PFECHS | 1.3 ng/L | J RT, DL |
| SW-05-05012023 | 11Cl-PF3OUdS | 0.81 ng/L | UJ RT |
| SW-05-05012023 | 3-Perfluorohetpyl propanoic acid | 2.0 ng/L | UJ RT |
| SW-05-05012023 | 3-Perfluoropentyl propanoic acid | 2.0 ng/L | UJ RT |
| SW-05-05012023 | 3-Perfluoropropyl propanoic acid | 1.0 ng/L | UJ RT |
| SW-05-05012023 | 4:2 Fluorotelomer sulfonic acid | 0.81 ng/L | UJ RT |
| SW-05-05012023 | 6:2 Fluorotelomer sulfonic acid | 1.2 ng/L | UJ RT |
| SW-05-05012023 | 8:2 Fluorotelomer sulfonic acid | 1.0 ng/L | UJ RT, LV |
| SW-05-05012023 | 9Cl-PF3ONS | 0.81 ng/L | UJ RT |
| SW-05-05012023 | ADONA | 1.0 ng/L | UJ RT |
| SW-05-05012023 | EtFOSAA | 2.0 ng/L | UJ RT |
| SW-05-05012023 | HFPO-DA | 2.0 ng/L | UJ RT |
| SW-05-05012023 | NMeFOSAA | 1.4 ng/L | UJ RT |
| SW-05-05012023 | Perfluorobutanesulfonamide | 1.6 ng/L | J RT, DL |
| SW-05-05012023 | Perfluorobutanesulfonic acid | 1.1 ng/L | J RT, DL |
| SW-05-05012023 | Perfluorobutanoic acid | 5.0 ng/L | J RT, DL |
| SW-05-05012023 | Perfluorodecanesulfonic acid | 1.2 ng/L | UJ RT |
| SW-05-05012023 | Perfluorodecanoic acid | 0.61 ng/L | UJ RT |
| SW-05-05012023 | Perfluorododecanoic acid | 0.61 ng/L | UJ RT |
| SW-05-05012023 | Perfluoroheptanesulfonic acid | 1.2 ng/L | UJ RT |
| SW-05-05012023 | Perfluoroheptanoic acid | 6.8 ng/L | J RT |
| SW-05-05012023 | Perfluorohexanesulfonamide | 1.1 ng/L | J RT, DL |
| SW-05-05012023 | Perfluorohexanesulfonic acid | 3.8 ng/L | J RT |
| SW-05-05012023 | Perfluorohexanesulfonic acid-BR | 1.2 ng/L | UJ RT |
| SW-05-05012023 | Perfluorohexanesulfonic acid-LN | 3.1 ng/L | J RT |
| SW-05-05012023 | Perfluorohexanoic acid | 5.9 ng/L | J RT |
| SW-05-05012023 | Perfluorononanesulfonic acid | 1.0 ng/L | UJ RT |
| SW-05-05012023 | Perfluorononanoic acid | 3.2 ng/L | J RT |
| SW-05-05012023 | Perfluorooctanesulfonamide | 0.81 ng/L | UJ RT |
| SW-05-05012023 | Perfluorooctanesulfonic acid | 6.6 ng/L | J RT, LV |
| SW-05-05012023 | Perfluorooctanesulfonic acid-BR | 3.1 ng/L | J RT |
| SW-05-05012023 | Perfluorooctanesulfonic acid-LN | 3.9 ng/L | J RT |
| SW-05-05012023 | Perfluorooctanoic acid | 5.1 ng/L | J RT |
| SW-05-05012023 | Perfluoropentanesulfonic acid | 1.1 ng/L | J RT, DL |
| SW-05-05012023 | Perfluoropentanoic acid | 11 ng/L | J RT |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|----------------------------------|-----------|---------------------------|
| SW-05-05012023 | Perfluorotetradecanoic acid | 0.41 ng/L | UJ RT |
| SW-05-05012023 | Perfluorotridecanoic acid | 1.0 ng/L | UJ RT |
| SW-05-05012023 | Perfluoroundecanoic acid | 1.0 ng/L | UJ RT |
| SW-05-05012023 | PFECHS | 1.0 ng/L | UJ RT |
| SW-06-05012023 | 11Cl-PF3OUdS | 0.80 ng/L | UJ RT |
| SW-06-05012023 | 3-Perfluorohetpyl propanoic acid | 2.0 ng/L | UJ RT |
| SW-06-05012023 | 3-Perfluoropentyl propanoic acid | 2.0 ng/L | UJ RT |
| SW-06-05012023 | 3-Perfluoropropyl propanoic acid | 1.0 ng/L | UJ RT |
| SW-06-05012023 | 4:2 Fluorotelomer sulfonic acid | 0.80 ng/L | UJ RT |
| SW-06-05012023 | 6:2 Fluorotelomer sulfonic acid | 1.3 ng/L | J RT, DL |
| SW-06-05012023 | 8:2 Fluorotelomer sulfonic acid | 1.0 ng/L | UJ RT, LV |
| SW-06-05012023 | 9Cl-PF3ONS | 0.80 ng/L | UJ RT |
| SW-06-05012023 | ADONA | 1.0 ng/L | UJ RT |
| SW-06-05012023 | EtFOSAA | 2.0 ng/L | UJ RT |
| SW-06-05012023 | HFPO-DA | 2.0 ng/L | UJ RT |
| SW-06-05012023 | NMeFOSAA | 1.4 ng/L | UJ RT |
| SW-06-05012023 | Perfluorobutanesulfonamide | 310 ng/L | J RT |
| SW-06-05012023 | Perfluorobutanesulfonic acid | 1500 ng/L | J RT |
| SW-06-05012023 | Perfluorobutanoic acid | 380 ng/L | J RT |
| SW-06-05012023 | Perfluorodecanesulfonic acid | 1.2 ng/L | UJ RT |
| SW-06-05012023 | Perfluorodecanoic acid | 0.60 ng/L | UJ RT |
| SW-06-05012023 | Perfluorododecanoic acid | 0.60 ng/L | UJ RT |
| SW-06-05012023 | Perfluoroheptanesulfonic acid | 21 ng/L | J RT |
| SW-06-05012023 | Perfluoroheptanoic acid | 92 ng/L | J RT |
| SW-06-05012023 | Perfluorohexanesulfonamide | 83 ng/L | J RT |
| SW-06-05012023 | Perfluorohexanesulfonic acid | 2600 ng/L | J RT |
| SW-06-05012023 | Perfluorohexanesulfonic acid-BR | 550 ng/L | J RT |
| SW-06-05012023 | Perfluorohexanesulfonic acid-LN | 2100 ng/L | J RT |
| SW-06-05012023 | Perfluorohexanoic acid | 880 ng/L | J RT |
| SW-06-05012023 | Perfluorononanesulfonic acid | 1.0 ng/L | UJ RT |
| SW-06-05012023 | Perfluorononanoic acid | 2.5 ng/L | J RT |
| SW-06-05012023 | Perfluorooctanesulfonamide | 0.80 ng/L | UJ RT |
| SW-06-05012023 | Perfluorooctanesulfonic acid | 300 ng/L | J RT, LV |
| SW-06-05012023 | Perfluorooctanesulfonic acid-BR | 210 ng/L | J RT |
| SW-06-05012023 | Perfluorooctanesulfonic acid-LN | 99 ng/L | J RT |
| SW-06-05012023 | Perfluorooctanoic acid | 94 ng/L | J RT |
| SW-06-05012023 | Perfluoropentanesulfonic acid | 940 ng/L | J RT |
| SW-06-05012023 | Perfluoropentanoic acid | 350 ng/L | J RT |
| SW-06-05012023 | Perfluorotetradecanoic acid | 0.40 ng/L | UJ RT |
| SW-06-05012023 | Perfluorotridecanoic acid | 1.0 ng/L | UJ RT |
| SW-06-05012023 | Perfluoroundecanoic acid | 1.0 ng/L | UJ RT |

Table 3
Qualifiers Added During Validation
Harbor Island
Grand Haven, Michigan

| Field Sample Identification | Analyte | Result | Qualifier and Reason Code |
|-----------------------------|---------|----------|---------------------------|
| SW-06-05012023 | PFECHS | 1.9 ng/L | J RT, DL |

Notes:

11Cl-PF3OUdS = 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid

9Cl-PF3OUdS = 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid

ADONA = 4,8-dioxa-3H-perfluorononanoic acid

BR = branched

EtFOSAA = N-Ethyl perfluorooctane sulfonamidoacetic acid

HFPO-DA = Hexafluoropropylene oxide dimer

LN = linear

ng/L = nanograms per liter

NMeFOSAA = N-Methyl perfluorooctane sulfonamidoacetic acid

PFECHS = Perfluoro-4-ethylcyclohexanesulfonate

Qualifiers:

J = The result was an estimated quantity.

UJ = The analyte was not detected and was reported as less than the limit of detection. However, the associated numerical value is approximate.

Reason Codes:

DL = Detected analyte concentration is less than the reporting limit.

HI = High internal standard (IS) recovery.

HL = High laboratory control sample recovery.

LI = Low IS recovery.

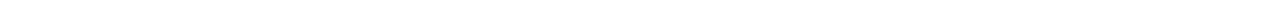
LM = Low matrix spike recovery.

LV = Low initial calibration verification recovery.

RT = Elevated receipt temperature.

Appendix H

Supplemental Figures





6:2 FTS Results (ng/L)

- ND
- >ND-100
- 100-1000
- >1000

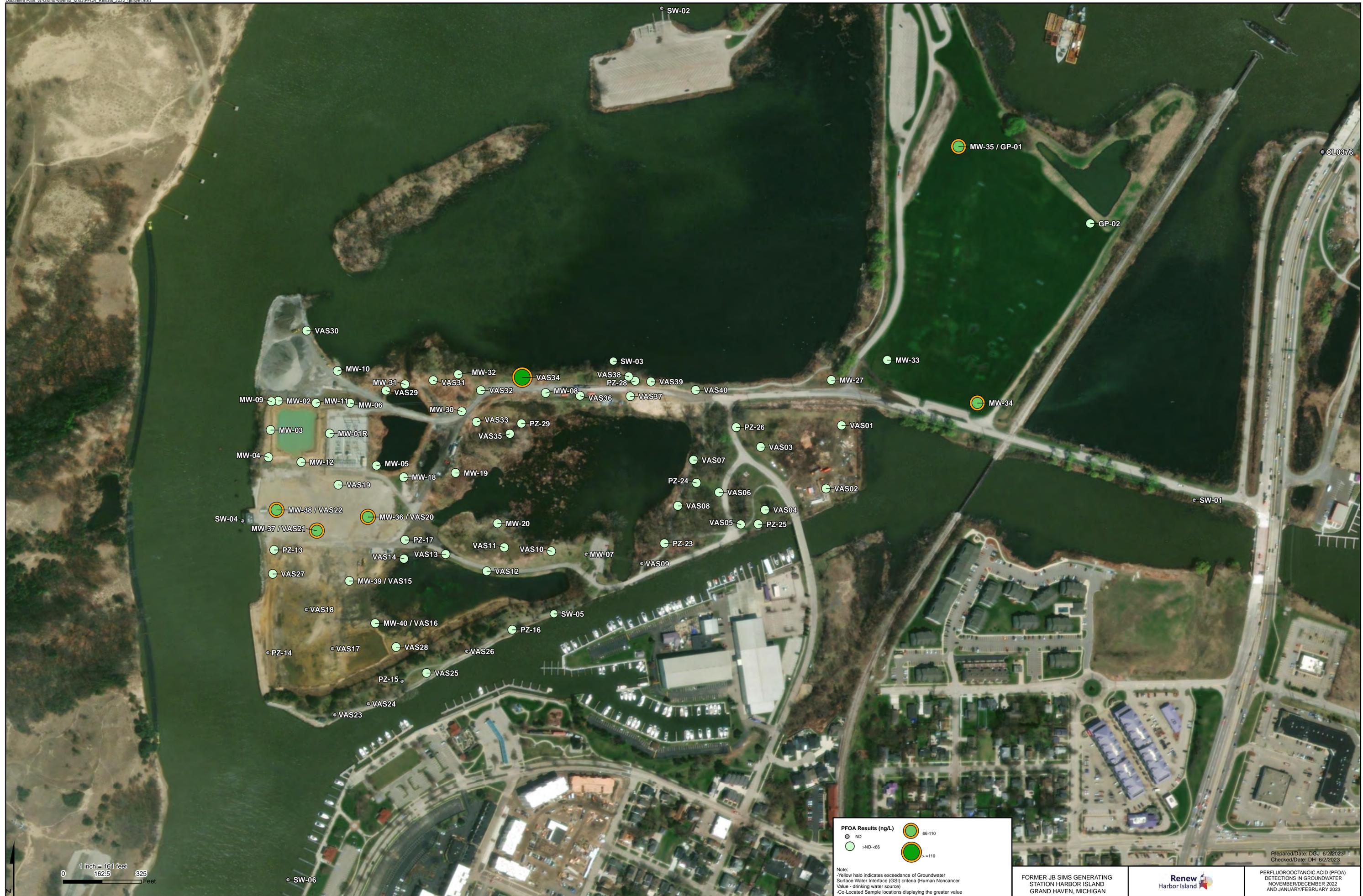
Note:
 -Co-Located Sample locations displaying the greater value

FORMER JB SIMS GENERATING
 STATION HARBOR ISLAND
 GRAND HAVEN, MICHIGAN



Prepared/Date: DGJ 6/2/2023
 Checked/Date: DH 6/2/2023

6:2 FLUOROTELOMER SULFONIC ACID (6:2 FTS)
 NOVEMBER/DECEMBER 2022
 AND JANUARY/FEBRUARY 2023



Prepared/Date: DGJ 6/2/2023
Checked/Date: DH 6/2/2023

FORMER JB SIMS GENERATING
STATION HARBOR ISLAND
GRAND HAVEN, MICHIGAN



PERFLUOROCTANOIC ACID (PFOA)
DETECTIONS IN GROUNDWATER
NOVEMBER/DECEMBER 2022
AND JANUARY/FEBRUARY 2023



PFOS Results (ng/L)

- ND
- >ND - <11
- 11 - 110
- >110

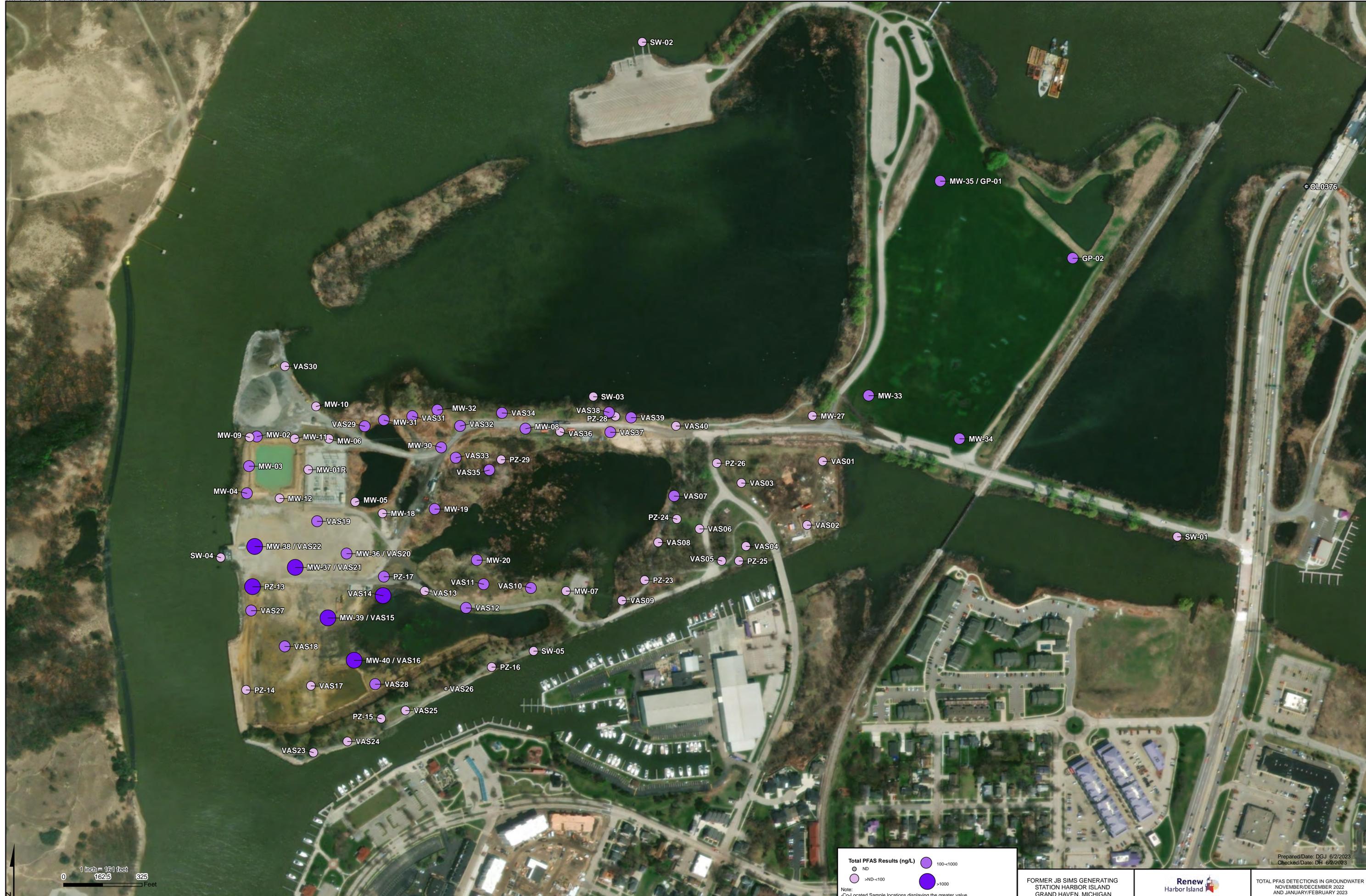
Note:

- Yellow halo indicates exceedance of Groundwater Surface Water Interface (GSI) criteria (Human Noncancer Value - drinking water source)
- Co-Located Sample locations displaying the greater value

1 inch = 161 feet
 0 162.5 325 Feet

Prepared/Date: DGJ 6/22/2023
 Checked/Date: DH 6/22/2023

| | | |
|---|--|--|
| FORMER JB SIMS GENERATING STATION HARBOR ISLAND GRAND HAVEN, MICHIGAN | | PERFLUOROOCETANESULFONIC ACID (PFOS) DETECTIONS IN GROUNDWATER NOVEMBER/DECEMBER 2022 AND JANUARY/FEBRUARY 2023 |
|---|--|--|



1 inch = 161 feet
 0 162.5 325 Feet

Total PFAS Results (ng/L)

- ND
- <ND<-100
- 100-1000
- >1000

Note:
 -Co-Located Sample locations displaying the greater value

FORMER JB SIMS GENERATING
 STATION HARBOR ISLAND
 GRAND HAVEN, MICHIGAN



Prepared/Date: DGJ 6/2/2023
 Checked/Date: DH 6/2/2023

TOTAL PFAS DETECTIONS IN GROUNDWATER
 NOVEMBER/DECEMBER 2022
 AND JANUARY/FEBRUARY 2023