Groundwater Monitoring Summary Report December 2023 to October 2024

Marshall Landfill
Spokane County, Washington

for
Herrera Environmental Consultants, Inc.

April 25, 2025

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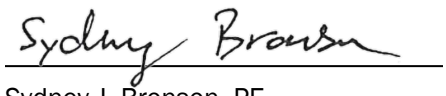

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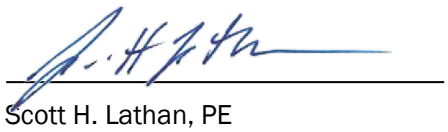

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1.0 Introduction

This report summarizes four quarters of groundwater monitoring completed between December 2023 and October 2024 at the Marshall Landfill (herein referred to as "Site") located in Spokane County, Washington. Groundwater monitoring was conducted by GeoEngineers, Inc. (GeoEngineers) for the Washington State Department of Ecology (Ecology) under Herrera Environmental Consultants, Inc. (Herrera) Client Contract No. C2200149, Amendments 2, 4 and 5. The purpose of this sampling was to assess current groundwater conditions to inform Site cleanup (landfill capping) design. Groundwater analysis included historic contaminants of concern (COCs) for the Site identified in the Remedial Investigation (RI) report (GEI 2018a) and COCs which had not been previously evaluated, including per- and polyfluoroalkyl substances (PFAS). The Site location is shown in the Vicinity Map, Figure 1. Key Site features, including monitoring well locations and approximate landfill boundaries, are presented in the Site Plan, Figure 2.

Groundwater monitoring results for December 2023, March 2024 and June 2024 events have been summarized in previous quarterly reports (GEI 2024a, GEI 2024b and GEI 2024c respectively). October 2024 results have not been reported previously, and as such are described separate from the summary results presented in Section 4.0. Note that this report uses Model Toxics Control Act (MTCA) cleanup levels (CULs) for PFAS from cleanup levels and risk calculation (CLARC) data tables updated in February 2025. Previous groundwater monitoring reports used MTCA CULs available at the time of reporting and other applicable screening levels (Department of Health State Action Levels and U.S. Environmental Protection Agency [EPA] Maximum Contaminant Levels).

2.0 Site Description and Background

The Site is located northwest of Cheney-Spokane Road about 1 mile southwest of the town of Marshall, Washington and 7 miles southwest of Spokane, Washington. The Site is bounded to the north by a gravel pit and privately-owned undeveloped land, to the east by South Cheney-Spokane Road, to the south by a landfill property owned by Spokane County and to the west by undeveloped land owned by Spokane County Engineers.

The Site consists of two primary historic land use areas, (1) the Main Landfill and (2) the Five-Acre Landfill, as shown in Figure 2 and described below.

- Main Landfill: This approximate 25-acre waste disposal area is located within the south-central portion of the Site. Sand and gravel was removed and replaced with waste during the period from 1970 through 1990. The landfilled waste thickness in this area was estimated to be 100 feet (Fetrow 1991).
- Five-Acre Landfill: This approximate 5-acre waste disposal area is located within the northwest portion of the Site. Waste was disposed within the Five-Acre Landfill during the period from 1980 through 1984. The landfilled waste thickness in this area was estimated to be 45 feet (Fetrow 1991).

The landfills are capped with varying thicknesses of gravel and silt or clay and are generally vegetated. The Site is generally flat to the west and steeply sloped to the east. The Site is described in detail in GeoEngineers' RI and Feasibility Study (FS) reports (2018a and 2018b).

2.1 GEOLOGY AND HYDROGEOLOGY

Geologic and hydrogeologic conditions at the Site are relatively complex. A high-level summary is provided below as it relates to groundwater occurrence and flow[1].

The Site generally is underlain by a minimum of three hydrostratigraphic units. These units occur within: (1) basement rocks; (2) the Columbia River Basalt Group (CRBG); and (3) glaciofluvial sediments. The basement rock unit is interpreted to underlie the entire area surrounding the Site at depth and, in places, is overlain by the CRBG unit in the northernmost portion of the Five Acre landfill and the gravel pit and/or the glaciofluvial unit. The CRBG unit is truncated by an ancestral drainageway, which underlies the southern portion of the Site. The glaciofluvial unit occurs within the saturated portion of the ancestral drainageway which includes the Former Spokane County Landfill, most of the Main Landfill and the southeast corner of the gravel pit.

The predominant uppermost aquifers at the Site are within the basement rock and glaciofluvial units. The approximate boundaries of the glaciofluvial unit are shown in Figures 3 through 6. Shallow groundwater flow within these units generally mimics topographic conditions and is directed from the area surrounding the Site towards discharge areas situated to the northeast and east.

2.2 CONCEPTUAL SITE MODEL AND PREVIOUS GROUNDWATER MONITORING RESULTS

As part of the RI, a conceptual site model (CSM) was developed for the Site. The CSM is a representation of the potential contaminant sources, release mechanisms and transport mechanisms currently present at the Site. The source of contamination at the Site is the landfilled waste. Potentially complete exposure pathways, including release mechanisms, exposure points, and exposure routes for contamination contained within the landfill generally, as identified in the RI, are:

1. Direct contact with soil impacted by waste and/or leachate from the landfill (dermal contact and inhalation/incidental ingestion of dust and contaminants).
2. Inhalation of landfill gases emanating from the landfill.
3. Direct contact and/or ingestion of groundwater and/or surface water impacted by leachate from the landfill.

Groundwater contamination from historic COCs is limited, discontinuous and variable between monitoring events based on the results of the RI/FS and supplemental groundwater monitoring completed by Ecology. Groundwater results suggest that landfill leachate exposure to groundwater is not a significant transport mechanism at the Site.

[1] Refer to the RI, particularly Sections 2.2.9 through 2.2.11 and Figure 14 (Uppermost Aquifer Boundaries), for additional information.

3.0 Groundwater Monitoring Program

Four quarters of groundwater monitoring were conducted at the Site between December 2023 and October 2024. The scope of the groundwater monitoring included groundwater elevation monitoring (gauging) and collection of groundwater samples from a subset of the 20 monitoring wells on Site. Groundwater monitoring program details (i.e., wells gauged and sampled) per quarter are presented in Groundwater Monitoring Program, Table 1, and the monitoring well network is shown in Figure 2.

Chemical analysis of groundwater samples varied per quarter, but generally included historic COCs and water quality parameters associated with potential landfill leachate impacts to groundwater at the Site, including:

- Volatile organic compounds (VOCs);
- Semi-volatile organic compounds (SVOCs);
- Herbicides;
- Metals and other general chemistry parameters.

PFAS which were not analyzed during previous groundwater investigations at the Site but have been identified as potential COCs for landfill sites. For that reason, PFAS were added to the analytical suite for this groundwater monitoring program for all four quarters, although the specific wells where PFAS were analyzed varied per quarter. Additionally, artificial sweeteners (sucralose and acesulfame potassium) were analyzed in select groundwater samples during one event (June 2024). Artificial sweetener data was used in combination with PFAS data to date groundwater and interpret potential PFAS sources downgradient from the landfill, including septic tank discharge and/or landfill leachate.

3.1 SCOPE OF SERVICES

Our specific scope of services for each quarter varied but generally included the tasks below to evaluate groundwater conditions, including depth, flow direction and COC concentrations at the Site to support landfill cap design. Groundwater monitoring activities were completed in accordance with the Ecology-approved Work Plan (GEI 2023), except where noted.

- Removing existing pumps and redeveloping wells using surging and pumping methods. Well redevelopment data is summarized in Table 2.
- Installing new, dedicated PFAS-free low-flow bladder pumps and PFAS-free tubing in groundwater monitoring wells.
- Measuring depth to groundwater in monitoring wells.
- Collecting water quality parameters and groundwater samples using low-flow well purging techniques and dedicated bladder pumps from groundwater monitoring wells. During one event (June 2024), water quality parameters and a water sample were also collected from the gravel pit support building's hose bib using the methods described in the Work Plan (GEI 2023) to understand the geochemistry of water from the gravel pit's supply well compared to that of the monitoring wells.

- Submitting one groundwater sample from each monitoring well sampled and the hose bib (June 2024 only) to Eurofins Environment Testing Northwest (Eurofins) in Spokane Valley, Washington for chemical analysis.
- Collecting and submitting quality assurance/quality control (QA/QC) samples, including one duplicate, one field blank and one trip blank to Eurofins for chemical analysis.
- Drumming and labeling investigation-derived waste (IDW) produced from redevelopment and groundwater sampling activities. Coordinating transport and off-site disposal of redevelopment fluids at the Chemical Waste Management facility in Arlington, Oregon. Three separate IDW disposal events were completed for the four quarters of redevelopment and groundwater sampling; the waste manifests are provided in Appendix A. Disposal at the Chemical Waste Management facility in Arlington, Oregon was required because of the PFAS in groundwater, as discussed in Section 4.0.
- Documenting sampling activities in this report and prior quarterly reports (GEI 2024a, 2024b and 2024c).

The following deviations from the Work Plan were conducted during this investigation:

- During the March and June 2024 events, three wells (MW-8A, MW-15A and MW-16A) were sampled instead of monitoring wells MW-8B, MW-15 and MW-16 that were specified in the Work Plan for sampling. MW-8A, MW-15A and MW-16A were historically installed as paired wells with the monitoring wells that were intended for sampling (MW-8B, MW-15 and MW-16) and are the deeper of the well pair. Groundwater samples collected from wells MW-8A, MW-15A and MW-16A were submitted for chemical analysis based on the analysis intended for its well pair per the Work Plan. Data presented herein and in the applicable previous reports (GEI 2024b and 2024c) reflect actual wells sampled.
- Monitoring well MW-16A was added to the well gauging program for March, June and October 2024 events, and a depth to water measurement was not collected in MW-16 during the March 2024.

4.0 Groundwater Monitoring Results

4.1 GROUNDWATER ELEVATION AND FLOW DIRECTION

Depth to groundwater was measured in eighteen monitoring wells. Monitoring wells MW-4 and MW-5,which have historically been dry, were not gauged. Monitoring well construction details and depth to water measurements and associated groundwater elevations for the four quarters are summarized in Table 3. Groundwater elevations were calculated by subtracting the depth to water measurement from the surveyed top of well casing elevation and are referenced to the North American Vertical Datum of 1988 (NAVD88). Of the 18 wells monitored, 11 wells are completed within the glaciofluvial unit, one well is completed in the CRBG unit, and six wells are completed in the basement rock unit, as identified in Table 3.

OCTOBER 2024 RESULTS

Depth to groundwater was measured on October 24, 2024. Calculated groundwater elevations for the glaciofluvial wells ranged between approximately 2,098 and 2,072, with an inferred groundwater flow direction generally to the northeast. Groundwater elevations in basement rock wells ranged from approximately 2,128 to 2,072 with an inferred flow direction to the southeast.

DECEMBER 2023 TO OCTOBER 2024 SUMMARY

A general comparison of observed groundwater elevations between monitoring events, and some observations from the data are as follows.

- The highest groundwater elevations were generally observed during the June 2024 event, although groundwater elevations observed during the March 2024 and June 2024 events were similar.
- In March 2024, groundwater levels in the glaciofluvial and basement rock units increased by averages of 22 feet and 10 feet, respectively, compared to December 2023. The one well in the CRBG unit (MW-12A) increased by approximately 15 feet during this period.
- In June 2024, groundwater levels in the glaciofluvial and basement rock units increased by averages of 2 feet and 3 feet, respectively, compared to March 2024. The one well in the CRBG unit (MW-12A) decreased by approximately 7 feet during this period.
- In October 2024, groundwater levels in the glaciofluvial and basement rock units decreased by averages of 20 feet and 11 feet, respectively, compared to June 2024. The one well in the CRBG unit (MW-12A) decreased by approximately 6 feet during this period.
- The magnitude of the seasonal fluctuation in groundwater elevation in individual glaciofluvial wells is high relative to the other hydrostratigraphic units, up to approximately 36 feet (observed in MW-9A in between December 2023 and March 2024).
- As was identified in the RI, a strong seasonal fluctuation is observed in glaciofluvial wells, with high relative groundwater elevations generally observed during spring and early summer and low relative groundwater elevations during fall and early winter. This suggests glaciofluvial aquifer groundwater level is highly influenced by recharge associated with winter precipitation and snowmelt. Similar, but muted, behavior was observed in the CRBG well and the basement rock wells, except for the basement rock wells located within the boundaries of the glaciofluvial unit (MW-8A and MW-16A). These basement rock wells mirrored glaciofluvial unit fluctuations in timing/magnitude suggesting hydraulic connection between the glaciofluvial and basement rock units.

Groundwater elevations for the December 2023, March 2024, June 2024 and October 2024 events are graphically presented in Figures 3 through 6, respectively. Aquifer boundaries, groundwater elevation contours, and groundwater flow direction are shown for the glaciofluvial unit. For each event, groundwater flow direction within the glaciofluvial unit generally was directed along the axis of the ancestral drainageway to the east and northeast. Hydraulic gradient during the four monitoring events was relatively consistent in the glaciofluvial unit and on the order of 1×10^{-2} to 1×10^{-3} feet per foot, with the shallower gradients observed during the December 2023 and October 2024 events. Based on examination of groundwater elevations in basement rock monitoring wells MW-8A, MW-11A and MW-16A, groundwater flow direction in the basement rock unit is to the east-southeast, with a hydraulic gradient consistent with the glaciofluvial unit.

4.2 GROUNDWATER ANALYTICAL RESULTS

Groundwater samples collected during the monitoring program were submitted for chemical analysis to Eurofins in Spokane Valley, Washington on a standard turnaround time. Groundwater quality parameters are summarized in Table 4. Chemical analytical results are summarized below and in Table 5. Regulatory criteria used for comparison include MTCA Method A/B groundwater CULs. The MTCA Method B potable groundwater CUL was used for PFAS compounds[2].

OCTOBER 2024 RESULTS

Groundwater samples were collected between October 25 and 29, 2024 from 12 wells: MW-2A, MW-3, MW-4A, MW-5A, MW-7B, MW-8B, MW-9A, MW-11A, MW-12A, MW-15, MW-15A and MW-16. A summary of the chemical analytical results is presented in Table 5, and as described below. The only COCs detected above applicable MTCA CULs were PFAS, consistent with the results from previous events.

- PFAS: Perfluorooctanoic acid (PFOA), Perfluorohexanesulfonic acid (PFHxS), and Perfluorooctanesulfonic acid (PFOS) compounds were detected above MTCA Method B CULs for potable groundwater in the following wells:
  - PFOA: MW-2A, MW-5A and MW-8B;
  - PFHxS: MW-5A and MW-16;
  - PFOS: MW-2A, MW-3, MW-5A, MW-9A, MW-15 and MW-16.

  The other PFAS compounds analyzed were either detected at concentrations less than their respective MTCA CULs, where established or were not detected at concentrations exceeding the laboratory reporting limits.
- VOCs: TCE was detected below the MTCA Method A CUL of 5 micrograms per liter (µg/L) in well MW-5A.
- SVOCs: 1,4-dioxane was detected below the MTCA Method B CUL of 240 µg/L in wells MW-5A and MW-7B.
- Other COCs analyzed were either not detected exceeding the laboratory reporting limits or were detected at concentrations less than their MTCA CULs where established.

DECEMBER 2023 TO OCTOBER 2024 SUMMARY

- PFAS:
  - One or more PFAS compounds were detected at concentrations greater than the MTCA Method B CULs in groundwater samples from eight locations: MW-2A, MW-3, MW-5A, MW-8B, MW-9A, MW-15, MW-15A and MW-16. PFAS exceedances per quarter are presented graphically in Figures 3 through 6.
  - The highest concentrations of PFAS compounds were identified in well MW-5A, directly downgradient from the gravel pit (Figure 2).

[2] This report uses MTCA CULs for PFAS from CLARC updated in February 2025. Previous groundwater monitoring reports used MTCA CULs available at the time of reporting and other applicable screening levels (Department of Health State Action Levels and EPA Maximum Contaminant Levels). The EPA MCL was used in lieu of the MTCA B CUL for potable groundwater for PFAS compounds with MTCA B CULs below EPA practical quantitation limits (ex. PFHxS).

- In general, the highest concentrations of PFAS compounds were detected during the December 2023 event, followed closely by the October 2024 event.
- The predominant PFAS compounds detected in site monitoring wells included: Perfluorobutanoic acid (PFBA), Perfluorohexanoic acid (PFHxA), PFOA, Perfluorononanoic acid (PFNA), Perfluorobutanesulfonic acid (PFBS), PFHxS and PFOS. Of those, PFBA, PFOA, PFHxS, and PFOS were detected most frequently and at the highest concentrations. PFAS compounds detected at concentrations greater than the MTCA Method B CULs for potable groundwater include:
  - PFOA was detected greater than the MTCA Method B CUL (4 nanograms per liter [ng/L]) in groundwater samples from six locations: MW-2A, MW-3, MW-5A and its duplicate, MW-8B, MW-9A and MW-15A in concentrations ranging from 5.8 to 59 ng/L.
  - PFOS was detected greater than the MTCA Method B CUL (4 ng/L) in groundwater samples from five locations: MW-2A, MW-3, MW-5A and its duplicate, MW-9A, MW-15, MW-15A and MW-16 in concentrations ranging from 4.4 to 29 ng/L. The MTCA Method B CUL is lower than both the DOH SAL and EPA maximum contaminant level (MCL) for PFOS.
  - PFHxS was detected greater than the MTCA Method B CUL (0.0064 ng/L) and the EPA MCL (10 ng/L) in groundwater samples from three locations: MW-2A, MW-5A and its duplicate and MW-16 in concentrations ranging from 11 to 49 ng/L.
- The other PFAS compounds analyzed were either detected at concentrations less than their respective MTCA CULs where established or were not detected at concentrations exceeding the laboratory reporting limits. Note that the wells sampled and analyzed for PFAS compounds varied per quarter (Table 1) so the PFAS trends discussed above are based on the available data set.
- In addition to comparing individual PFAS compounds to MTCA Method B CULs, a hazard index (HI)[3] was calculated for each sample where PFAS were analyzed. For wells with more than one quarter of data, a running average HI was calculated and compared to the dimensionless EPA MCL of 1. Two wells (MW-2A and MW-5A) exceeded the running average HI MCL. Groundwater from MW-16 would likely exceed the running average HI MCL given the high HI value calculated for the only quarter of data available from that well (October 2024; HI value of 3).

- Artificial Sweeteners:
  - Acesulfame potassium (Acesulfame-K) was detected in each sample where it was analyzed, which included samples from monitoring wells MW-2A, MW-3, MW-5A, MW-8A, MW-9A, MW-15A and MW-16A in June 2024. Concentrations ranged between 0.12 µg/L (MW-8A) to 0.58 µg/L (MW-15A).
  - Sucralose was detected in each sample where it was analyzed, which included samples from monitoring wells MW-2A, MW-3, MW-5A, MW-8A, MW-9A, MW-15A and MW-16A in June 2024. Concentrations ranged between 0.40 µg/L (MW-8A) to 12 µg/L (MW-9A).
  - Artificial sweetener analysis was only performed during the June 2024 event. Risk-based groundwater screening levels for these compounds have not been developed.

- Other COCs analyzed were either not detected exceeding the laboratory reporting limits or were detected at concentrations less than their MTCA CULs where established.

[3] Hazard Index as defined by the PFAS National Primary Drinking Water Regulation (NPDWR) 40 CFR Parts 141 and 142. Environmental Protection Agency (EPA) Final Rule. 89 Fed. Reg. 32532 (April 26, 2024). The Hazard Index is a sum of fractions called Hazard Quotients (HQs) established by the EPA for the following PFAS: HFPO-DA, PFBS, PFHxS, and PFNA.

- QA/QC Samples:
  - QA/QC samples collected per quarter included a field duplicate (collected at well MW-5A during each quarter), a trip blank, and a field blank.
  - No data quality exceptions related to QA/QC samples were noted during the groundwater monitoring program that affected the overall data quality assessment. Field duplicate chemical analytical results are presented in Table 5, and trip blank and field blank results are discussed in the quarterly data validation reports described in Section 4.3.

The chemical analytical laboratory reports are included in Appendix B.

4.3 DATA QUALITY REVIEW AND EIM SUBMITTAL

EPA Stage 2A data validation was completed for each quarter of sampling, as documented in the data validation reports in Appendix C.

OCTOBER 2024 RESULTS

The following sample data qualifiers were identified for the October 2024 data set:

- Nitrate and nitrite holding times were exceeded for the following samples: MW-2A:102524, MW-3:102524, and MW-12A:102524. The positive results and reporting limits for these target analytes were qualified as estimated (J and UJ, accordingly) in these samples.
- The percent recovery of surrogate 1,4-Dioxane was less than the control limits in Sample MW-2A:102524. The reporting limit for 1,4-Dioxane was qualified as estimated (UJ) in this sample.
- The laboratory performed an MS/MSD sample set on Sample MW-3:102524. The percent recovery for chloride was less than the control limits in the MS/MSD. The positive result for this target analyte was qualified as estimated (J) in this sample.
- Method blank contamination was identified associated with the following samples: MW-5A:102924, DUP:102924 and MW-7B:102824. The positive results for total and/or dissolved lead were detected above method detection limits but below reporting limits in the method blanks. The associated positive results were qualified as non-detected (U).
- Field duplicate precision was not within range for total dissolved solids (TDS) for the following samples: MW-5A:102924 and DUP:102924. The positive results for TDS were qualified as estimated (J) in this sample pair.
- The positive result for PFOS in sample MW-16:102924 was noted by the laboratory to represent the Estimated Maximum Possible Concentration for this compound. This is typically due to the compound exhibiting ion abundance ratios that are outside of the allowable control limits set forth in the EPA method and the National Functional Guidelines. The positive result for this target analyte was qualified as estimated (J) in this sample.

Based on our review, the data are acceptable for the intended use with the qualifiers noted above.

DECEMBER 2023 TO OCTOBER 2024 SUMMARY

Based on our data validation results and our overall data quality review for each quarter of data, it is our opinion that the analytical data described in this report are of acceptable quality for their intended use, noting the qualifications discussed in detail in our data validation reports.

Groundwater data, including that from the RI, which was not previously submitted, was uploaded to Ecology's Environmental Information Management database.

5.0 Summary

The groundwater monitoring program was composed of four separate events at the Site conducted between December 2023 and October 2024. The purpose of this sampling was to assess current groundwater conditions to inform Site cleanup design. Groundwater analysis included historic COCs for the Site identified in the RI and COCs which had not been previously evaluated, including PFAS. During these events 14 wells were sampled and 18 wells were gauged; wells which were sampled were redeveloped and new dedicated PFAS-free pumps were deployed prior to sampling. The wells selected for sampling, and the chemical analytical schedule varied per quarter based on the previous quarters sampling results (particularly PFAS results), as documented in the Work Plan (GEI 2023).

OCTOBER 2024 RESULTS

The October 2024 groundwater monitoring event was completed between October 22 and 29, 2024. Calculated groundwater elevations for the glaciofluvial aquifer indicated a northeast flow direction, consistent with previous monitoring data at the Site. The chemical analytical program for this event included more PFAS analysis than previous events, with wells within the glaciofluvial, basement and CRBG aquifers represented. Chemical analytical results were similar to the December 2023 event, with sporadic detections of historic Site COCs TCE, and 1,4-dioxane below MTCA CULs, and PFAS detections above MTCA CULs throughout the glaciofluvial aquifer. PFAS were detected in basement rock and CRBG wells, but at concentrations below MTCA CULs, and generally much lower than in glaciofluvial wells, except in basement rock wells within the glaciofluvial aquifer boundary (MW-8A and MW-16A) where the basement and glaciofluvial aquifers are in strong connection.

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Groundwater elevations, calculated from depth to groundwater measurements, indicated an east to southeast flow direction in the basement rock aquifer across the landfills and an east to northeast flow direction in the glaciofluvial aquifer throughout the Main Landfill and valley bottom. Groundwater elevations fluctuated seasonally in most wells, particularly in the glaciofluvial wells which changed by as much as 36 feet between winter (December 2023) and spring (March 2024).

During the monitoring period, PFAS compounds, including PFOS, PFOA and/or PFHxS were detected at concentrations greater than the MTCA Method B CULs for potable water (established in July 2024) in groundwater samples from eight monitoring wells within the glaciofluvial aquifer: MW-2A, MW-3, MW-5A, MW-8B, MW-9A, MW-15, MW-15A and MW-16. The highest concentrations of PFAS compounds were detected in monitoring well MW-5A, downgradient from the landfills and directly to the southeast of the gravel pit. Detected concentrations of PFAS compounds, and other Site COCs, were highest in the winter;

the highest concentrations were generally observed during the December 2023 event followed by the October 2024 event.

Artificial sweeteners (sucralose and acesulfame potassium) were detected in each sample where it was analyzed, which included samples from monitoring wells MW-2A, MW-3, MW-5A, MW-8A, MW-9A, MW-15A and MW-16A during the June 2024 groundwater monitoring event. This data suggests that groundwater at the Site from the glaciofluvial and basement aquifers, where sampled, is younger than 1998/1999, the year that sucralose was introduced in the United States. This is consistent with seasonal groundwater elevation data which indicates significant groundwater recharge is occurring at the Site, particularly within the glaciofluvial aquifer.

The other COCs analyzed (historic Site COCs) were either not detected greater than laboratory reporting limits or were detected at concentrations less than their respective MTCA CULs, where established, consistent with RI findings.

Additional groundwater monitoring is not planned as part of the landfill closure design, although investigation into the nature and extent of PFAS contamination at the Site, particularly at water supply wells located downgradient from the landfills[4], should be completed. The intermittent PFAS contamination in groundwater from monitoring well MW-9A suggests that potential source(s) of PFAS may exist upgradient from the landfill. Data analysis tying together specific PFAS-compound occurrence and magnitude, groundwater geochemistry signatures, and artificial sweetener detections was beyond the scope of this report but should be completed as part of future nature and extent and source evaluations related to PFAS at the Site.

[4] A water supply well inventory was beyond the scope of the groundwater monitoring program, although several supply wells were identified in the RI (GEI 2018a).

6.0 Limitations

We have prepared this report for Herrera and Ecology in accordance with the generally accepted environmental science practices in this area at the time this report was prepared. We have prepared this report for the exclusive use of Herrera and Ecology, their authorized agents and regulatory agencies; therefore, this report is not intended for use by others and the information contained herein is not applicable to other sites. The data presented in this report are based on the agreed upon scope of services outlined in the report. Use of this report for any purpose whatsoever by any other parties is at their own risk. No third party shall have the right to rely on the product of GeoEngineers, Inc.'s (GeoEngineers') services without GeoEngineers' prior written consent and the third party's Agreement to be bound by the same terms and conditions as Herrera and Ecology. GeoEngineers makes no representation to such other parties as to the accuracy or completeness of this report or the suitability of its use by any other parties for any purpose whatsoever, known or unknown. GeoEngineers, Herrera and Ecology shall not be liable to indemnify or hold harmless any third parties for losses incurred by the actual or purported use or misuse of this report.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

Please refer to Appendix D, Report Limitations and Guidelines for Use, for additional information pertaining to use of this report.

7.0 References

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Tables

Table 1

Groundwater Monitoring Program

Marshall Landfill

Spokane County, Washington

Monitoring Well ID[1]	Sampling Event[2]							
	December 2023		March 2024		June 2024		October 2024	
	Gauge	Sample	Gauge	Sample	Gauge	Sample	Gauge	Sample
MW-1A	X	–	X	–	X	–	X	–
MW-2	X	–	X	–	X	–	X	–
MW-2A	X	X	X	X	X	X	X	X
MW-3	X	–	X	–	X	X	X	X
MW-4	–	–	–	–	–	–	–	–
MW-4A	X	–	X	–	X	–	X	X
MW-5A	X	X	X	X	X	X	X	X
MW-7B	X	X	X	X	X	X	X	X
MW-7D	X	–	X	–	X	–	X	–
MW-8A	X	–	X	X	X	X	X	–
MW-8B	X	–	X	–	X	–	X	X
MW-9A	X	–	X	X	X	X	X	X
MW-11A	X	X	X	–	X	–	X	X
MW-12A	X	X	X	X	X	X	X	X
MW-14	X	–	X	–	X	–	X	–
MW-15	X	–	X	–	X	–	X	X
MW-15A	X	–	X	X	X	X	X	X
MW-16	X	–	–	–	X	–	X	X
MW-16A	–	–	X	X	X	X	X	–
Action Materials/McCallum Hose Bibb	NA	–	NA	–	NA	X	NA	–

Notes:

[1] Monitoring well locations are shown on the Site Plan, Figure 2.

[2] Refer to Table 3 for gauge data and monitoring well construction details and Table 4 for chemical analytical data and specific analyses performed per well.

NA = not applicable

"–" = Activity listed not performed.

Table 2

Well Redevelopment Summary

Marshall Landfill

Spokane County, Washington

Monitoring Well ID[1]	Date of Redevelopment	Measured Well Volume[2] (gallons)	Target Removal Volume (gallons)	Volume Removed (gallons)	Water Quality Observations Following Development[3]
MW-2A	12/8/23	4.8	24	24	Clear
MW-3	6/17/24	6.63	40	40	Clear (<1 NTU)
MW-4A	10/22/24	8.4	42	43	Clear (<1 NTU)
MW-5A	12/8/23	10.9	55	55	Clear
MW-7B	12/6/23	48.9	90	90	Light Brown
MW-8A	3/19/24	22.3	90	35[4]	Clear
MW-8B	10/22/24	26.7	88	89	Clear (<1 NTU)
MW-9A	3/18/24	28.0	90	90	Clear
MW-11A	12/7/23	15.7	79	79	Light Brown
MW-12A	12/4/23	11.9	60	59	Clear
MW-15	10/24/24	3.8	19	20	Slightly Cloudy (<1 NTU)
MW-15A	3/20/24	5.9	30	90	Clear
MW-16	10/23/24	1.6	8	10	Clear (5 NTU)
MW-16A	3/19/24	6.7	34	90	Clear

Notes:

[1]Monitoring well locations are shown on Figure 2.

[2]Measured Well Volume calculated using depth to water and total depth measurements relative to the top of polyvinyl chloride casing.

[3]Turbidity readings were collected at the end of redevelopment, where listed.

[4]Well was purged dry and allowed to recharge before discontinuing redevelopment.

NTU = Nephelometric Turbidity Unit

Table 3

Monitoring Well Construction and Groundwater Measurement Summary

(December 2023 to October 2024)

Marshall Landfill

Spokane County, Washington

Monitoring Well ID and Top of Casing Elevation[1] (feet)	Well Screen Interval (feet bTOC)	Measured Depth to Bottom of Well[2] (feet bTOC)	Aquifer	Date Measured	Depth to Groundwater (feet bTOC)	Groundwater Elevation[3] (feet)
MW-1A	199 to 209	210	Weathered Basement	12/14/2023	Dry (>210)	<2,126
				3/25/2024	205.55	2129.97
2335.52				6/18/2024	205.97	2129.55
				10/24/2024	207.10	2128.42
MW-2	73 to 83	83	Glaciofluvial	12/14/2023	Dry (>83)	>83
				3/25/2024	68.30	2107.75
2176.05				6/18/2024	67.27	2108.78
				10/24/2024	Dry (>83)	<2,093
MW-2A	93 to 108	108	Glaciofluvial	12/14/2023	93.33	2082.47
				3/25/2024	68.49	2107.31
2175.80				6/18/2024	67.25	2108.55
				10/24/2024	88.99	2086.81
MW-3	106 to 116	118	Glaciofluvial	12/14/2023	105.63	2076.67
				3/25/2024	84.75	2097.55
2182.30				6/18/2024	80.16	2102.14
				10/24/2024	100.24	2082.06
MW-4A	63 to 78	80	Glaciofluvial	12/14/2023	69.99	2089.27
				3/25/2024	36.02	2123.24
2,159.26				6/18/2024	41.35	2117.91
				10/24/2024	67.63	2091.63
MW-5A	124.5 to 139.5	143[4]	Glaciofluvial	12/14/2023	116.01	2071.45
				3/25/2024	99.10	2088.36
2,187.46				6/18/2024	92.80	2094.66
				10/24/2024	110.24	2077.22
MW-7B	288.5 to 298.5	299	Basement	12/14/2023	223.91	2103.57
				3/25/2024	218.30	2109.18
2327.48				6/18/2024	214.24	2113.24
				10/24/2024	221.23	2106.25
MW-7D	283 to 298	298	Basement	12/14/2023	214.17	2117.53
				3/25/2024	218.35	2113.35
2331.70				6/18/2024	215.09	2116.61
				10/24/2024	221.65	2110.05
MW-8A	104.5 to 119.5	122	Basement	12/14/2023	73.80	2065.85
				3/25/2024	59.75	2079.90
2,139.65				6/18/2024	50.90	2088.75
				10/24/2024	67.39	2072.26
MW-8B	64.5 to 89.5	94	Glaciofluvial	12/14/2023	73.77	2065.79
				3/25/2024	59.11	2080.45
2139.56				6/18/2024	50.97	2088.59
				10/24/2024	67.41	2072.15

Monitoring Well ID and Top of Casing Elevation[1] (feet)	Well Screen Interval (feet bTOC)	Measured Depth to Bottom of Well[2] (feet bTOC)	Aquifer	Date Measured	Depth to Groundwater (feet bTOC)	Groundwater Elevation[3] (feet)
MW-9A 2,156.97	43.5 to 68.5	72	Glaciofluvial	12/14/2023	65.05	2091.92
				3/25/2024	28.89	2128.08
				6/18/2024	37.05	2119.92
				10/24/2024	64.01	2092.96
MW-11A 2,324.51	207.5 to 237.5	243	Weathered Basement	12/14/2023	218.96	2105.55
				3/25/2024	208.10	2116.41
				6/18/2024	200.19	2124.32
				10/24/2024	212.54	2111.97
MW-12A 2353.36	104.5 to 134.5	135	CRBG	12/14/2023	117.68	2235.68
				3/25/2024	101.75	2251.61
				6/18/2024	109.16	2244.20
				10/24/2024	115.03	2238.33
MW-14 2,313.83	242.3 to 252.3	255	Glaciofluvial	12/14/2023	221.53	2092.30
				3/25/2024	203.30	2110.53
				6/18/2024	197.70	2116.13
				10/24/2024	215.95	2097.88
MW-15 2236.04	160 to 175	179	Glaciofluvial	12/14/2023	161.83	2074.21
				3/25/2024	144.08	2091.96
				6/18/2024	137.36	2098.68
				10/24/2024	156.21	2079.83
MW-15A 2,237.26	192 to 202	205	Glaciofluvial	12/14/2023	162.97	2074.29
				3/25/2024	142.88	2094.38
				6/18/2024	138.60	2098.66
				10/24/2024	157.36	2079.90
MW-16 2170.24	69.5 to 86.5	89	Glaciofluvial	12/14/2023	82.85	2087.39
				3/25/2024	Not measured	--
				6/18/2024	55.32	2114.92
				10/24/2024	79.95	2090.29
MW-16A 2167.89	111 to 126	132[5]	Basement	12/14/2023	Not measured	--
				3/25/2024	49.55	2118.34
				6/20/2024	52.56	2115.33
				10/24/2024	77.50	2090.39

Notes:

[1]Monitoring well locations are shown on Figure 2. Top of monitoring well casing elevations referenced to NAVD88 datum, as reported in the Remedial Investigation Report for the site dated May 22, 2018.

[2]Depth to bottom measured on December 14, 2023 unless otherwise noted.

[3]Groundwater elevations calculated using the formula: Groundwater Elevation = Top of Casing Elevation - Depth to Water

[4]Measured depth to bottom on August 9, 2024.

[5]Measured depth to bottom on August 8, 2024.

bTOC = below top of casing

CRBG = Columbia River Basalt Group

Table 4

Water Quality Parameter Summary (December 2023 to October 2024)

Marshall Landfill

Spokane County, Washington

Monitoring Well ID[1]	Date Measured	pH	Specific Conductivity (µS/cm)	Redox Potential (millivolts)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Temperature (degrees C)
MW-2A	12/15/23	7.19	548.0	-35.5	0.11	1.18	10.0
	03/26/24	6.65	549.0	102.5	3.3	12.7	9.1
	06/20/24	7.06	506.6	-750.2	0.2	<1	8.6
	10/25/24	6.80	561.5	202.1	0.19	<1	8.3
MW-3	06/21/24	7.07	479.1	-471.2	5.1	3.3	9.1
	10/25/24	6.71	543.7	205.2	3.40	<1	7.3
MW-4A	10/29/24	6.87	461.6	265.6	4.69	<1	8.5
MW-5A	12/15/23	7.19	774.0	-35.5	0.1	1.2	10.0
	03/26/24	6.65	549.0	102.5	2.2	12.7	9.1
	06/20/24	7.09	769.0	-536.8	5.2	<1	14.0
	10/24/24	6.89	852	247.1	0.62	<1	10.5
MW-7B	12/14/23	7.25	269.0	-56.8	0.2	32.7	10.2
	03/27/24	6.73	291.1	79.2	0.4	1.7	12.4
	06/19/24	7.05	267.4	-482.0	0.5	<1	13.7
	10/28/24	6.75	282.0	138.4	0.19	<1	13.0
MW-8A	03/26/24	7.08	426.0	118.4	5.3	62.8	10.3
	06/18/24	7.39	409.9	-12.2	4.2	<1	11.7
MW-8B	10/28/24	7.08	659.0	154.2	7.41	<1	10.8
MW-9A	03/26/24	6.77	498.5	136.2	5.9	2.9	4.9
	06/18/24	7.08	530.1	-443.1	0.1	<1	9.7
	10/29/24	6.85	587.0	276.0	2.42	<1	10.5
MW-11A	12/14/23	7.18	325.0	76.2	9.4	2.7	9.3
	10/28/24	6.86	358.8	248.6	10.29	<1	10.1
MW-12A	12/14/23	7.59	246.0	76.9	10.0	2.7	10.3
	03/25/24	7.13	316.4	133.1	11.1	23.0	11.1
	06/19/24	7.55	296.0	-389.3	8.5	<1	12.2
	10/25/24	7.27	302.3	177.2	10.77	<1	11.3
MW-15	10/28/24	6.83	483.0	170.5	4.21	<1	12.1
MW-15A	03/25/24	6.47	644.0	95.3	0.3	221.5	13.0
	06/19/24	7.04	470.4	-553.3	2.2	31.6	15.0
	10/28/24	6.86	534.0	167.6	5.05	<1	12.7
MW-16	10/29/24	6.90	564.1	259.2	2.36	<1	9.2
MW-16A	03/26/24	6.90	620.0	29.7	3.3	1.9	10.1
	06/20/24	7.14	480.8	-544.5	2.0	<1	10.0
Hose Bib	06/21/24	7.05	508.5	-547.3	1.6	Not measured	15.1

Notes:

[1]Monitoring well locations are shown on Figures 2 and 3.

µS/cm = microsiemens per centimeter; mg/L = milligrams per liter; NTU = Nephelometric Turbidity Unit; C = Celsius

Table 5

Groundwater Chemical Analytical Results Summary (December 2023 to October 2024)

Marshall Landfill

Spokane County, Washington

Location ID	MW-2A				MW-3		MW-4A	MW-5A								MW-7B				
Sample ID	MW-2A-121523	MW-2A-032524	MW-2A-062024	MW-2A-102524	MW-3-062124	MW-3-102524	MW-4A-102924	MW-5A-121523	DUP-121523[2]	MW-5A-032524	DUP-032724	MW-5A-062024	DUP-062024	MW-5A-102924	DUP-102924	MW-7B-121423	MW-7B-032524	MW-7B-061924	MW-7B-102824	MTCA Cleanup Level[3]
Sample Date	12/15/2023	3/26/2024	6/20/2024	10/25/2024	6/21/2024	10/25/2024	10/29/2024	12/15/2023		3/27/2024		6/20/2024		10/29/2024		12/14/2023	3/25/2024	6/19/2024	10/28/2024	
Volatile Organic Compounds by EPA 8260D (µg/L)																				
1,1,1,2-Tetrachloroethane	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		240
1,1,1-Trichloroethane	1.0 U	1.0 U	1.0 U	1.0 U	--			1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	200
1,1,2,2-Tetrachloroethane	2.0 U	--	--		--			2.0 U	2.0 U	--	--	--	--			2.0 U	--	--		160
1,1,2-Trichloroethane	2.0 U	--	--		--			2.0 U	2.0 U	--	--	--	--			2.0 U	--	--		32
1,1-Dichloroethane	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		1,600
1,1-Dichloroethene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		400
1,1-Dichloropropene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		240
1,2,3-Trichlorobenzene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		NE
1,2,3-Trichloropropane	2.0 U	--	--		--			2.0 U	2.0 U	--	--	--	--			2.0 U	--	--		32
1,2,4-Trichlorobenzene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		80
1,2,4-Trimethylbenzene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		80
1,2-Dibromo-3-Chloropropane	10.0 U	--	--		--			10.0 U	10.0 U	--	--	--	--			10.0 U	--	--		1.6
1,2-Dibromoethane (EDB)	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		0.01
1,2-Dichlorobenzene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		720
1,2-Dichloroethane	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		5
1,2-Dichloropropane	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		32
1,3,5-Trimethylbenzene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		80
1,3-Dichlorobenzene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		NE
1,3-Dichloropropane	2.0 U	--	--		--			2.0 U	2.0 U	--	--	--	--			2.0 U	--	--		160
1,4-Dichlorobenzene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		560
2,2-Dichloropropane	2.0 U	--	--		--			2.0 U	2.0 U	--	--	--	--			2.0 U	--	--		NE
2-Chlorotoluene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		160
4-Chlorotoluene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		160
Benzene	0.40 U	--	--		--			0.40 U	0.40 U	--	--	--	--			0.40 U	--	--		5
Bromobenzene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		64
Bromochloromethane	2.0 U	--	--		--			2.0 U	2.0 U	--	--	--	--			2.0 U	--	--		NE
Bromodichloromethane	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		160
Bromoform	5.0 U	--	--		--			5.0 U	5.0 U	--	--	--	--			5.0 U	--	--		160
Bromomethane	5.0 U	--	--		--			5.0 U	5.0 U	--	--	--	--			5.0 U	--	--		11
Carbon Tetrachloride	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		32
Chlorobenzene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		160
Chloroethane	2.0 U	--	--		--			2.0 U	2.0 U	--	--	--	--			2.0 U	--	--		NE
Chloroform	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		80
Chloromethane	3.0 U	--	--		--			3.0 U	3.0 U	--	--	--	--			3.0 U	--	--		NE
cis-1,2-Dichloroethene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		16
cis-1,3-Dichloropropene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		NE
Dibromochloromethane	2.0 U	--	--		--			2.0 U	2.0 U	--	--	--	--			2.0 U	--	--		160
Dibromomethane	2.0 U	--	--		--			2.0 U	2.0 U	--	--	--	--			2.0 U	--	--		NE
Dichlorodifluoromethane	2.0 U	--	--		--			2.0 U	2.0 U	--	--	--	--			2.0 U	--	--		1,600
Ethylbenzene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		700
Hexachlorobutadiene	2.0 U	--	--		--			2.0 U	2.0 U	--	--	--	--			2.0 U	--	--		8
Isopropylbenzene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		NE
m,p-Xylene	2.0 U	--	--		--			2.0 U	2.0 U	--	--	--	--			2.0 U	--	--		NE
Methyl tert-butyl ether	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		20
Methylene Chloride	5.0 U	--	--		--			5.0 U	5.0 U	--	--	--	--			5.0 U	--	--		5
Naphthalene	2.0 U	--	--		--			2.0 U	2.0 U	--	--	--	--			2.0 U	--	--		160
n-Butylbenzene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		400
N-Propylbenzene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		800
o-Xylene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		NE
p-Isopropyltoluene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		NE
Sec-Butylbenzene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		800
Styrene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		1,600
tert-Butylbenzene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		800
Tetrachloroethene	1.0 U	1.0 U	1.0 U	1.0 U	--			**0.84 J**	**0.80 J**	1.0 U	1.0 U	**0.47 J**	**0.51 J**	**0.60 J**	**0.69 J**	1.0 U	1.0 U	1.0 U	1.0 U	5
Toluene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		1,000
trans-1,2-Dichloroethene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		160
trans-1,3-Dichloropropene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		NE
Trichloroethene	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		5
Trichlorofluoromethane	1.0 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		2,400
Vinyl Chloride	0.40 U	--	--		--			1.0 U	1.0 U	--	--	--	--			1.0 U	--	--		0.2
Total Xylenes	ND	--	--		--			ND	ND	--	--	--	--			ND	--	--		1,000

Location ID	MW-2A				MW-3		MW-4A	MW-5A								MW-7B				
Sample ID	MW-2A-121523	MW-2A-032524	MW-2A-062024	MW-2A-102524	MW-3-062124	MW-3-102524	MW-4A-102924	MW-5A-121523	DUP-121523[2]	MW-5A-032524	DUP-032724	MW-5A-062024	DUP-062024	MW-5A-102924	DUP-102924	MW-7B-121423	MW-7B-032524	MW-7B-061924	MW-7B-102824	MTCA Cleanup Level[3]
Sample Date	12/15/2023	3/26/2024	6/20/2024	10/25/2024	6/21/2024	10/25/2024	10/29/2024	12/15/2023		3/27/2024		6/20/2024		10/29/2024		12/14/2023	3/25/2024	6/19/2024	10/28/2024	
Semivolatile Organic Compounds and Polycyclic Aromatic Hydrocarbons by EPA 8270E (µg/L)																				
1,2,4-Trichlorobenzene	0.38 U	--	--		--			0.38 U	0.38 U	--	--	--	--			0.38 U	--	--		80
1,2-Dichlorobenzene	0.38 U	--	--		--			0.38 U	0.38 U	--	--	--	--			0.38 U	--	--		720
1,3-Dichlorobenzene	0.38 U	--	--		--			0.38 U	0.38 U	--	--	--	--			0.38 U	--	--		NE
1,4-Dichlorobenzene	0.38 U	--	--		--			0.38 U	0.38 U	--	--	--	--			0.38 U	--	--		560
1,4 Dioxane	--	0.19 U	0.19 U	0.19 UJ	--			--	--	0.19 UJ	0.21 UJ	**0.29**	**0.29**	**0.043 J**	**0.046 J**	--	0.18 UJ	**0.078 J**	**0.089 J**	240
1-Methylnaphthalene	0.95 U	--	--		--			0.96 U	0.95 U	--	--	--	--			0.95 U	--	--		160
2,4,5-Trichlorophenol	0.38 U	--	--		--			0.38 U	0.38 U	--	--	--	--			0.38 U	--	--		1,600
2,4,6-Trichlorophenol	0.57 U	--	--		--			0.57 U	0.57 U	--	--	--	--			0.57 U	--	--		16
2,4-Dichlorophenol	0.95 U	--	--		--			0.96 U	0.95 U	--	--	--	--			0.95 U	--	--		48
2,4-Dimethylphenol	3.8 U	--	--		--			3.8 U	3.8 U	--	--	--	--			3.8 U	--	--		48
2,4-Dinitrophenol	4.8 U	--	--		--			4.8 U	4.8 U	--	--	--	--			4.7 U	--	--		32
2,4-Dinitrotoluene	0.95 U	--	--		--			0.96 U	0.95 U	--	--	--	--			0.95 U	--	--		14
2,6-Dinitrotoluene	0.38 U	--	--		--			0.38 U	0.38 U	--	--	--	--			0.38 U	--	--		14
2-Chloronaphthalene	0.95 U	--	--		--			0.96 U	0.95 U	--	--	--	--			0.95 U	--	--		NE
2-Chlorophenol	0.95 U	--	--		--			0.96 U	0.95 U	--	--	--	--			0.95 U	--	--		40
2-Methylnaphthalene	0.38 U	--	--		--			0.38 U	0.38 U	--	--	--	--			0.38 U	--	--		160
2-Methylphenol	0.57 U	--	--		--			0.57 U	0.57 U	--	--	--	--			0.57 U	--	--		NE
2-Nitroaniline	0.95 U	--	--		--			0.96 U	0.95 U	--	--	--	--			0.95 U	--	--		160
2-Nitrophenol	0.95 U	--	--		--			0.96 U	0.95 U	--	--	--	--			0.95 U	--	--		NE
3 & 4 Methylphenol	0.57 U	--	--		--			0.57 U	0.57 U	--	--	--	--			0.57 U	--	--		NE
3,3'-Dichlorobenzidine	0.95 U	--	--		--			0.96 U	0.95 U	--	--	--	--			0.95 U	--	--		0.19
3-Nitroaniline	2.9 U	--	--		--			2.9 U	2.9 U	--	--	--	--			2.9 U	--	--		64
4,6-Dinitro-2-methylphenol	1.9 U	--	--		--			1.9 U	1.9 U	--	--	--	--			1.9 U	--	--		NE
4-Bromophenyl phenyl ether	0.57 U	--	--		--			0.57 U	0.57 U	--	--	--	--			0.57 U	--	--		NE
4-Chloro-3-methylphenol	0.57 U	--	--		--			0.57 U	0.57 U	--	--	--	--			0.57 U	--	--		NE
4-Chloroaniline	1.9 U	--	--		--			1.9 U	1.9 U	--	--	--	--			1.9 U	--	--		64
4-Chlorophenyl phenyl ether	0.57 U	--	--		--			0.57 U	0.57 U	--	--	--	--			0.57 U	--	--		NE
4-Nitroaniline	1.9 U	--	--		--			1.9 U	1.9 U	--	--	--	--			1.9 U	--	--		64
4-Nitrophenol	9.5 U	--	--		--			9.6 U	9.5 U	--	--	--	--			9.5 U	--	--		NE
Acenaphthene	0.38 U	--	--		--			0.38 U	0.38 U	--	--	--	--			0.38 U	--	--		480
Acenaphthylene	0.95 U	--	--		--			0.96 U	0.95 U	--	--	--	--			0.95 U	--	--		NE
Anthracene	0.95 U	--	--		--			0.96 U	0.95 U	--	--	--	--			0.95 U	--	--		2,400
Benzo[a]anthracene	0.24 U	--	--		--			0.24 U	0.24 U	--	--	--	--			0.24 U	--	--		NE
Benzo[a]pyrene	0.24 U	--	--		--			0.24 U	0.24 U	--	--	--	--			0.24 U	--	--		0.1
Benzo[b]fluoranthene	0.24 U	--	--		--			0.24 U	0.24 U	--	--	--	--			0.24 U	--	--		NE
Benzo[g,h,i]perylene	0.24 U	--	--		--			0.24 U	0.24 U	--	--	--	--			0.24 U	--	--		NE
Benzo[k]fluoranthene	0.24 U	--	--		--			0.24 U	0.24 U	--	--	--	--			0.24 U	--	--		NE
Benzoic acid	9.5 U	--	--		--			9.6 U	9.5 U	--	--	--	--			**3.0 J**	--	--		64,000
Benzyl alcohol	4.8 U	--	--		--			4.8 U	4.8 U	--	--	--	--			4.7 U	--	--		1,600
Bis(2-chloroethoxy)methane	0.57 U	--	--		--			0.57 U	0.57 U	--	--	--	--			0.57 U	--	--		48
Bis(2-chloroethyl)ether	0.095 U	--	--		--			0.096 U	0.095 U	--	--	--	--			0.095 U	--	--		0.04
Bis(2-ethylhexyl) phthalate	2.9 U	--	--		--			2.9 U	2.9 U	--	--	--	--			2.9 U	--	--		320
bis(chloroisopropyl) ether	0.24 U	--	--		--			0.24 U	0.24 U	--	--	--	--			0.24 U	--	--		NE
Butyl benzyl phthalate	3.8 U	--	--		--			3.8 U	3.8 U	--	--	--	--			3.8 U	--	--		3,200
Carbazole	0.57 U	--	--		--			0.57 U	0.57 U	--	--	--	--			0.57 U	--	--		NE
Chrysene	0.24 U	--	--		--			0.24 U	0.24 U	--	--	--	--			0.24 U	--	--		NE
Dibenz(a,h)anthracene	0.24 U	--	--		--			0.24 U	0.24 U	--	--	--	--			0.24 U	--	--		NE
Dibenzofuran	0.38 U	--	--		--			0.38 U	0.38 U	--	--	--	--			0.38 U	--	--		8
Diethyl phthalate	0.95 U	--	--		--			0.96 U	0.95 U	--	--	--	--			0.95 U	--	--		13,000
Dimethyl phthalate	0.57 U	--	--		--			0.57 U	0.57 U	--	--	--	--			0.57 U	--	--		NE
Di-n-butyl phthalate	9.5 U	--	--		--			9.6 U	9.5 U	--	--	--	--			9.5 U	--	--		NE
Di-n-octyl phthalate	0.95 U	--	--		--			0.96 U	0.95 U	--	--	--	--			0.95 U	--	--		160
Fluoranthene	0.24 U	--	--		--			0.24 U	0.24 U	--	--	--	--			0.24 U	--	--		640
Fluorene	0.24 U	--	--		--			0.24 U	0.24 U	--	--	--	--			0.24 U	--	--		320
Hexachlorobenzene	0.57 U	--	--		--			0.57 U	0.57 U	--	--	--	--			0.57 U	--	--		6.4
Hexachlorobutadiene	0.95 U	--	--		--			0.96 U	0.95 U	--	--	--	--			0.95 U	--	--		8
Hexachlorocyclopentadiene	0.95 U	--	--		--			0.96 U	0.95 U	--	--	--	--			0.95 U	--	--		48
Hexachloroethane	0.95 U	--	--		--			0.96 U	0.95 U	--	--	--	--			0.95 U	--	--		NE
Indeno[1,2,3-cd]pyrene	0.38 U	--	--		--			0.38 U	0.38 U	--	--	--	--			0.38 U	--	--		NE
Isophorone	0.38 U	--	--		--			0.38 U	0.38 U	--	--	--	--			0.38 U	--	--		NE
Naphthalene	0.38 U	--	--		--			0.38 U	0.38 U	--	--	--	--			0.38 U	--	--		160
Nitrobenzene	0.95 U	--	--		--			0.95 U	0.95 U	--	--	--	--			0.95 U	--	--		3,200
N-Nitrosodi-n-propylamine	0.38 U	--	--		--			0.38 U	0.38 U	--	--	--	--			0.38 U	--	--		0.013
N-Nitrosodiphenylamine	0.95 U	--	--		--			0.96 U	0.95 U	--	--	--	--			0.95 U	--	--		18
Pentachlorophenol	4.8 U	--	--		--			4.8 U	4.8 U	--	--	--	--			4.7 U	--	--		80
Phenanthrene	0.95 U	--	--		--			0.96 U	0.95 U	--	--	--	--			0.95 U	--	--		NE
Phenol	0.95 U	--	--		--			0.96 U	0.95 U	--	--	--	--			0.95 U	--	--		4,800
Pyrene	0.95 U	--	--		--			0.96 U	0.95 U	--	--	--	--			0.95 U	--	--		240
cPAH TEC[4]	ND	--	--		--			ND	ND	--	--	--	--			ND	--	--		0.1

Location ID	MW-2A				MW-3		MW-4A	MW-5A								MW-7B				
Sample ID	MW-2A-121523	MW-2A-032524	MW-2A-062024	MW-2A-102524	MW-3-062124	MW-3-102524	MW-4A-102924	MW-5A-121523	DUP-121523[2]	MW-5A-032524	DUP-032724	MW-5A-062024	DUP-062024	MW-5A-102924	DUP-102924	MW-7B-121423	MW-7B-032524	MW-7B-061924	MW-7B-102824	MTCA Cleanup Level[3]
Sample Date	12/15/2023	3/26/2024	6/20/2024	10/25/2024	6/21/2024	10/25/2024	10/29/2024	12/15/2023		3/27/2024		6/20/2024		10/29/2024		12/14/2023	3/25/2024	6/19/2024	10/28/2024	
Herbicides by EPA 8151A (µg/L)																				
2,4,5-T	0.48 UJ	--	--		--			0.49 UJ	0.48 UJ	--	--	--	--			0.48 UJ	--	--		NE
2,4,5-TP (Silvex)	0.48 UJ	--	--		--			0.49 UJ	0.48 UJ	--	--	--	--			0.48 UJ	--	--		130
2,4-D	4.8 UJ	--	--		--			4.9 UJ	4.8 UJ	--	--	--	--			4.8 UJ	--	--		NE
2,4-DB	4.8 UJ	--	--		--			4.9 UJ	4.8 UJ	--	--	--	--			4.8 UJ	--	--		NE
Dalapon	12 UJ	--	--		--			12 UJ	12 UJ	--	--	--	--			12 UJ	--	--		480
Dicamba	0.48 UJ	--	--		--			0.49 UJ	0.48 UJ	--	--	--	--			0.48 UJ	--	--		480
Dichlorprop	4.8 UJ	--	--		--			4.9 UJ	4.8 UJ	--	--	--	--			4.8 UJ	--	--		NE
Dinoseb	2.4 UJ	--	--		--			2.4 UJ	2.4 UJ	--	--	--	--			2.4 UJ	--	--		16
MCPA	480 UJ	--	--		--			490 UJ	480 UJ	--	--	--	--			480 UJ	--	--		NE
MCPP	480 UJ	--	--		--			490 UJ	480 UJ	--	--	--	--			480 UJ	--	--		NE
Per- and Polyfluoroalkyl Substances by EPA Draft-4 1633 (ng/L)																				
Perfluorobutanoic acid (PFBA)	**5.6 J**	7.2 U	**20**	**23**	6.7 U	**1.0 J**	3.1 U	**23**	**22**	**19**	**19**	**6.9 J**	**6.7**	**42**	**40**	**11**	**4.3 J**	**5.9 J**	**9.9**	8,000
Perfluoropentanoic acid (PFPeA)	**3.1 J**	3.6 U	3.4 U	**22**	3.4 U	1.4 U	1.5 U	**17**	**17**	**13**	**13**	**8.9**	**9.2**	**44**	**47**	**9.1**	**3.6 J**	**5.6**	**9.2**	NE
Perfluorohexanoic acid (PFHxA)	**1.5 J**	1.8 U	1.7 U	**11**	1.7 U	1.4 U	1.5 U	**27**	**29**	**24**	**23**	**10**	**11**	**61**	**62**	**3.9**	**1.4 J**	**1.9**	**3.0**	8,000
Perfluoroheptanoic acid (PFHpA)	**1.3 J**	1.8 U	**0.45 J**	**3.3**	1.7 U	1.4 U	1.5 U	**20**	**20**	**21**	**19**	**4.8**	**4.8**	**23**	**25**	**1.8**	**0.77 J**	**0.93 J**	**1.7**	NE
Perfluorooctanoic acid (PFOA)	**7.6**	1.8 U	**2.1**	**14**	**0.61 J**	**1.1 J**	1.5 U	**53**	**56**	**39**	**38**	**17**	**16**	**52**	**45**	**0.57 J**	2.1 U	1.7 U	**0.59 J**	4
Perfluorononanoic acid (PFNA)	**0.90 J**	1.8 U	1.7 U	**1.2 J**	1.7 U	**0.62 J**	1.5 U	**2.1**	**2.2**	**1.0 J**	**1.1 J**	**0.94 J**	**0.77 J**	**1.4 J**	**1.4**	1.8 U	2.1 U	1.7 U	1.6 U	10
Perfluorodecanoic acid (PFDA)	1.8 U	1.8 U	1.7 U	1.4 U	1.7 U	1.4 U	1.5 U	1.8 U	1.9 U	1.8 U	1.9 U	1.7 U	1.7 U	1.5 U	1.4 U	1.8 U	2.1 U	1.7 U	1.6 U	0.032
Perfluoroundecanoic acid (PFUnA)	1.8 U	1.8 U	1.7 U	1.4 U	1.7 U	1.4 U	1.5 U	1.8 U	1.9 U	1.8 U	1.9 U	1.7 U	1.7 U	1.5 U	1.4 U	1.8 U	2.1 U	1.7 U	1.6 U	NE
Perfluorododecanoic acid (PFDoA)	1.8 U	1.8 U	1.7 U	1.4 U	1.7 U	1.4 U	1.5 U	1.8 U	1.9 U	1.8 U	1.9 U	1.7 U	1.7 U	1.5 U	1.4 U	1.8 U	2.1 U	1.7 U	1.6 U	NE
Perfluorotridecanoic acid (PFTrDA)	1.8 U	1.8 U	1.7 U	1.4 U	1.7 U	1.4 U	1.5 U	1.8 U	1.9 U	1.8 U	1.9 U	1.7 U	1.7 U	1.5 U	1.4 U	1.8 U	2.1 U	1.7 U	1.6 U	NE
Perfluorotetradecanoic acid (PFTeDA)	1.8 U	1.8 U	1.7 U	1.4 U	1.7 U	1.4 U	1.5 U	1.8 U	1.9 U	1.8 U	1.9 U	1.7 U	1.7 U	1.5 U	1.4 U	1.8 U	2.1 U	1.7 U	1.6 U	NE
Perfluorobutanesulfonic acid (PFBS)	**4.2**	**0.98 J**	**21**	**8.5**	**2.8**	**4.6**	**0.95 J**	**14**	**14**	**7.8**	**8.3**	**3.8**	**4.1**	**28**	**29**	1.8 U	2.1 U	1.7 U	1.6 U	4,800
Perfluoropentanesulfonic acid (PFPeS)	1.8 U	1.8 U	**2.2**	**0.63 J**	1.7 U	1.4 U	1.5 U	**10**	**11**	**2.5**	**2.3**	**1.9**	**1.7**	**18**	**17**	1.8 U	2.1 U	1.7 U	1.6 U	NE
Perfluorohexanesulfonic acid (PFHxS)	**2.6**	**0.58 J**	**11**	**6.3**	**1.5 J**	**1.6**	**0.61 J**	**49**	**46**	**9.3**	**8.8**	**8.7**	**8.8**	**45**	**45**	1.8 U	2.1 U	1.7 U	1.6 U	10
Perfluoroheptanesulfonic acid (PFHpS)	1.8 U	1.8 U	1.7 U	1.4 U	1.7 U	1.4 U	1.5 U	**0.77 J**	**0.70 J**	1.8 U	1.9 U	1.7 U	1.7 U	**0.53 J**	**0.63 J**	1.8 U	2.1 U	1.7 U	1.6 U	NE
Perfluorooctanesulfonic acid (PFOS)	**11**	**2.7**	**8.7**	**11**	**4.4**	**4.9**	**1.7**	**29**	**27**	**15**	**15**	**14**	**14**	**20**	**22**	**0.58 J**	2.1 U	1.7 U	**0.49 J**	4
Perfluorononanesulfonic acid (PFNS)	1.8 U	1.8 U	1.7 U	1.4 U	1.7 U	1.4 U	1.5 U	1.8 U	1.9 U	1.8 U	1.9 U	1.7 U	1.7 U	1.5 U	1.4 U	1.8 U	2.1 U	1.7 U	1.6 U	NE
Perfluorodecanesulfonic acid (PFDS)	1.8 U	1.8 U	1.7 U	1.4 U	1.7 U	1.4 U	1.5 U	1.8 U	1.9 U	1.8 U	1.9 U	1.7 U	1.7 U	1.5 U	1.4 U	1.8 U	2.1 U	1.7 U	1.6 U	NE
Perfluorododecanesulfonic acid (PFDoS)	1.8 U	1.8 U	1.7 U	1.4 U	1.7 U	1.4 U	1.5 U	1.8 U	1.9 U	1.8 U	1.9 U	1.7 U	1.7 U	1.5 U	1.4 U	1.8 U	2.1 U	1.7 U	1.6 U	NE
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	7.2 U	7.2 U	6.7 U	2.9 U	6.7 U	2.8 U	3.1 U	7.3 U	7.6 U	7.2 U	7.4 U	7.0 U	6.7 U	3.1 U	2.8 U	7.2 U	8.4 U	6.7 U	3.1 U	3,200
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	7.2 U	7.2 U	6.7 U	2.9 U	6.7 U	2.8 U	3.1 U	7.3 U	7.6 U	7.2 U	7.4 U	7.0 U	6.7 U	3.1 U	2.8 U	7.2 U	8.4 U	6.7 U	3.1 U	NE
Perfluorooctanesulfonamide (PFOSA)	1.8 U	1.8 U	1.7 U	1.4 U	1.7 U	1.4 U	1.5 U	1.8 U	1.9 U	1.8 U	1.9 U	1.7 U	1.7 U	1.5 U	1.4 U	1.8 U	2.1 U	1.7 U	1.6 U	NE
N-methylperfluorooctane sulfonamide (NMeFOSA)	1.8 U	1.8 U	1.7 U	1.4 U	1.7 U	1.4 U	1.5 U	1.8 U	1.9 U	1.8 U	1.9 U	1.7 U	1.7 U	1.5 U	1.4 U	1.8 U	2.1 U	1.7 U	1.6 U	NE
N-ethylperfluorooctane sulfonamide (NEtFOSA)	1.8 U	1.8 U	1.7 U	1.4 U	1.7 U	1.4 U	1.5 U	1.8 U	1.9 U	1.8 U	1.9 U	1.7 U	1.7 U	1.5 U	1.4 U	1.8 U	2.1 U	1.7 U	1.6 U	NE
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	1.8 U	1.8 U	1.7 U	1.4 U	1.7 U	1.4 U	1.5 U	1.8 U	1.9 U	1.8 U	1.9 U	1.7 U	1.7 U	1.5 U	1.4 U	1.8 U	2.1 U	1.7 U	1.6 U	NE
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	1.8 U	1.8 U	1.7 U	1.4 U	1.7 U	1.4 U	1.5 U	1.8 U	1.9 U	1.8 U	1.9 U	1.7 U	1.7 U	1.5 U	1.4 U	1.8 U	2.1 U	1.7 U	1.6 U	NE
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	18 U	18 U	1.7 U	7.2 U	1.7 U	6.9 U	7.6 U	18 U	19 U	18 U	19 U	1.7 U	1.7 U	7.7 U	7.1 U	18 U	21 U	1.7 U	7.9 U	NE
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	18 U	18 U	1.7 U	7.2 U	1.7 U	6.9 U	7.6 U	18 U	19 U	18 U	19 U	1.7 U	1.7 U	7.7 U	7.1 U	18 U	21 U	1.7 U	7.9 U	NE
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	7.2 U	7.2 U	6.7 U	1.1 U	6.7 U	1.0 U	1.1 U	7.3 U	7.6 U	7.2 U	7.4 U	7.0 U	6.7 U	1.2 U	1.1 U	7.2 U	8.4 U	6.7 U	1.2 U	10
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	7.2 U	7.2 U	6.7 U	1.4 U	6.7 U	1.4 U	1.5 U	7.3 U	7.6 U	7.2 U	7.4 U	7.0 U	6.7 U	1.5 U	1.4 U	7.2 U	8.4 U	6.7 U	1.6 U	NE
Perfluoro-3-methoxypropanoic acid (PFMPA)	3.6 U	3.6 U	3.4 U	1.4 U	3.4 U	1.4 U	1.5 U	3.6 U	3.8 U	3.6 U	3.7 U	3.5 U	3.4 U	1.5 U	1.4 U	3.6 U	4.2 U	3.3 U	1.6 U	NE
Perfluoro-4-methoxybutanoic acid (PFMBA)	3.6 U	3.6 U	3.4 U	1.4 U	3.4 U	1.4 U	1.5 U	3.6 U	3.8 U	3.6 U	3.7 U	3.5 U	3.4 U	1.5 U	1.4 U	3.6 U	4.2 U	3.3 U	1.6 U	NE
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	3.6 U	3.6 U	3.4 U	1.4 U	3.4 U	1.4 U	1.5 U	3.6 U	3.8 U	3.6 U	3.7 U	3.5 U	3.4 U	1.5 U	1.4 U	3.6 U	4.2 U	3.3 U	1.6 U	NE
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	7.2 U	7.2 U	6.6 U	1.4 U	6.7 U	1.4 U	1.5 U	7.3 U	7.6 U	7.2 U	7.4 U	6.9 U	7.0 U	1.5 U	1.4 U	7.2 U	8.4 U	22 U	1.6 U	NE
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	7.2 U	7.2 U	6.7 U	1.4 U	6.7 U	1.4 U	1.5 U	7.3 U	7.6 U	7.2 U	7.4 U	7.0 U	6.7 U	1.5 U	1.4 U	7.2 U	8.4 U	6.7 U	1.6 U	NE
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	3.6 U	3.6 U	3.4 U	1.4 U	3.4 U	1.4 U	1.5 U	3.6 U	3.8 U	3.6 U	3.7 U	3.5 U	3.4 U	1.5 U	1.4 U	3.6 U	4.2 U	3.3 U	1.6 U	NE
3-Perfluoropropylpropanoic acid (3:3 FTCA)	9.0 U	9.0 U	8.4 U	2.9 U	8.4 U	2.8 U	3.1 U	9.0 U	9.5 U	8.9 U	9.3 U	8.7 U	8.4 U	3.1 U	2.8 U	9.0 U	10.0 U	8.3 U	3.1 U	NE
3-Perfluoropentylpropanoic acid (5:3 FTCA)	45 U	45 U	42 U	7.2 U	42 U	6.9 U	7.6 U	45 U	48 U	45 U	46 U	44 U	42 U	7.7 U	7.1 U	45 U	52 U	42 U	7.9 U	NE
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	45 U	45 U	42 U	7.2 U	42 U	6.9 U	7.6 U	45 U	48 U	45 U	46 U	44 U	42 U	7.7 U	7.1 U	45 U	52 U	42 U	7.9 U	NE
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	7.2 U	7.2 U	6.7 U	2.9 U	6.7 U	2.8 U	3.1 U	7.3 U	7.6 U	7.2 U	7.4 U	7.0 U	6.7 U	3.1 U	2.8 U	7.2 U	8.4 U	6.7 U	3.1 U	NE
Hazard Index (HI) Calculation (HFPO-DA+PFBS+PFNA+PFHxS)[5]	0.7	0.6	**2.0**	0.8	0.7	0.3	0.3	**5.0**	**5.0**	1.0	1.0	1.0	1.0	**5.0**	**5.0**	0.7	0.8	0.7	0.7	1 (unitless)
Running Average HI (HI/# sampling events)[5]			**1.03**			0.5	NA					**3.0**						0.73		
Artificial Sweeteners by EPA 1694 (µg/L)																				
Acesulfame K	**--**		**0.16**		**0.31**			**--**				**0.30**	**0.30**			--		--		NE
Sucralose	--		**11**		**9.9**			--				**9.8**	**9.8**			--		--		NE
Total Metals by EPA 6020B (mg/L)																				
Arsenic	**0.0020 J**	**0.0018 J**	**0.0024 J**	**0.0022 J**	--			**0.0011 J**	**0.0011 J**	**0.0012 J**	**0.0014 J**	**0.0017 J**	**0.0014 J**	**0.0014 J**	**0.0014 J**	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.005
Cadmium	0.0020 U	0.0020 U	0.0020 U	0.0020 U	--			0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.005
Iron	0.50 U	0.50 U	0.50 U	0.50 U	--			**0.095 J**	**0.10 J**	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	**0.21 J**	**0.13 J**	**0.34 J**	**0.18 J**	11
Lead	0.0020 U	0.0020 U	**0.00034 J**	0.0020 U	--			0.0020 U	0.0020 U	0.0020 U	0.0020 U	**0.00026 J**	**0.00023 J**	0.0020 U	0.0020 U	**0.0015 J**	**0.00088 J**	0.0020 U	0.0020 U	0.015
Manganese	0.010 U	0.010 U	0.010 U	0.010 U	--			0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	**0.0068 J**	**0.0050 J**	**0.0059 J**	0.010 U	0.75
Zinc	0.035 U	0.035 U	0.035 U	0.035 U	--			0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	**0.018 J**	**0.0055 J**	0.035 U	0.035 U	4.8

Location ID	MW-2A				MW-3		MW-4A	MW-5A								MW-7B				MTCA
Sample ID	MW-2A-121523	MW-2A-032524	MW-2A-062024	MW-2A-102524	MW-3-062124	MW-3-102524	MW-4A-102924	MW-5A-121523	DUP-121523[2]	MW-5A-032524	DUP-032724	MW-5A-062024	DUP-062024	MW-5A-102924	DUP-102924	MW-7B-121423	MW-7B-032524	MW-7B-061924	MW-7B-102824	Cleanup
Sample Date	12/15/2023	3/26/2024	6/20/2024	10/25/2024	6/21/2024	10/25/2024	10/29/2024	12/15/2023		3/27/2024		6/20/2024		10/29/2024		12/14/2023	3/25/2024	6/19/2024	10/28/2024	Level[3]
Total Metals by EPA 7470A (µg/L)																				
Mercury	0.20 U	0.12 U	0.20 U	0.20 U	–			0.20 U	0.20 U	0.13 U	0.13 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.12 U	0.20 U	**0.10 J**	2
Dissolved Metals[6] by EPA 6020B (mg/L)																				
Arsenic	**0.0024 J**	**0.0019 J**	**0.0020 J**	**0.0020 J**	--			**0.0014 J**	**0.0014 J**	**0.0012 J**	**0.0013 J**	**0.0014 J**	**0.0014 J**	**0.0014 J**	**0.0012 J**	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.005
Cadmium	0.0020 U	0.0020 U	0.0020 U	0.0020 U	--			0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.005
Iron	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U[7]	2.0 U[7]	**0.074 J**	**0.078 J**	0.50 U	0.50 U	0.50 U	**0.073 J**	0.50 U	0.50 U[8]	0.50 U	0.50 U	0.50 U	0.50 U[9]	11
Lead	0.0020 U	0.0020 U	0.002 U	0.0020 U	--			0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.002 U	0.002 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.002 U	0.0020 U	0.015
Manganese	0.010 U	**0.013**	0.010 U	0.010 U	0.010 U			0.010 U	**0.0024 J**	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	**0.0078 J**	0.010 U	0.010 U	0.75
Zinc	0.035 U	0.035 U	0.035 U	0.035 U	–			0.035 U	**0.040**	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	**0.014 J**	**0.0046 J**	0.035 U	0.035 U	4.8
Dissolved Metals[6] by EPA 7470A (µg/L)																				
Mercury	0.20 U	0.12 U	0.20 U	0.20 U	–			0.20 U	0.20 U	0.13 U	0.13 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.13 U	0.20 U	0.20 U	2
General Chemistry Parameters (mg/L), method noted in parentheses																				
Ammonia as Nitrogen (EPA 350.1)	**0.042 J**	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	**0.052 J**	**0.037 J**	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	**0.032 J**	0.10 U	**0.034 J**	**0.029 J**	NE
Alkalinity (SM 2320B)	**210**	**200**	**160**	**190**	**140**	**170**	**150**	**320**	**330**	**340**	**330**	**260**	**290**	**270**	**270**	**150**	**160**	**140**	**110**	NE
Bicarbonate Alkalinity as CaC03 (SM 2320B)	**210**	**200**	**160**	**190**	**140**	**170**	**150**	**320**	**330**	**340**	**330**	**260**	**290**	**270**	**270**	**150**	**160**	**140**	**110**	NE
Total Dissolved Solids (SM 2540C)	**340**	**340**	**270**	**250**	**300**	**250**	**230**	**520**	**530**	**540**	**520**	**410**	**420**	**280 J**	**510 J**	**240**	**230**	**150**	**130**	NE
Cyanide, Weak Acid Dissociable (SM 4500 CN I)	0.010 U	–	–		–			0.010 U	0.010 U	–	–	–	–			0.010 U	–	–		0.005
Total Organic Carbon (SM 5310B)	**4.2**	**3.1**	**4.2**	**4.5**	**3.7**	**3.8**	**2.9**	**2.0**	**2.0**	**2.5**	**2.3**	**2.4**	**2.4**	**2.4**	**2.4**	**4.3**	**0.78 J**	**0.77 J**	**1.2**	NE
Total Magnesium (EPA 6010D)	**16**	**16**	**16**	**17**	**15**	**17**	**13**	**16**	**16**	**11**	**11**	**14**	**14**	**15**	**16**	**10**	**11**	**11**	**11**	NE
Dissolved Magnesium (EPA 6010D)	**17**	**13**	**14**	**15**	**14**	**14**	**12**	**17**	**16**	**10**	**10**	**13**	**13**	**15**	**15**	**10**	**10**	**10**	**9.1**	NE
Total Potassium (EPA 6010D)	**7.8**	**6.8**	**6.8**	**7.2**	**6.5**	**6.4**	**5.9**	**4.9**	**4.8**	**3.8**	**3.8**	**4.9**	**4.9**	**4.8**	**4.9**	**1.7**	**1.6**	**1.5 J**	**1.5 J**	NE
Total Sodium (EPA 6010D)	**42**	**37**	**39**	**38**	**39**	**36**	**34**	**28**	**27**	**27**	**27**	**43**	**43**	**29**	**31**	**5.3**	**4.0**	**4.1**	**3.9**	NE
Dissolved Calcium (EPA 6010D)	**41**	**32**	**34**	**36**	**32**	**34**	**29**	**120**	**110**	**71**	**72**	**86**	**87**	**100**	**100**	**34**	**34**	**34**	**31**	NE
Chloride (EPA 300.0)	**59**	**62**	**59**	**59**	**58**	**60 J**	**47**	**33**	**34**	**54**	**57**	**67**	**67**	**54**	**53**	**0.58 J**	**0.70 J**	**0.62 J**	**0.67 J**	NE
Nitrate as N (EPA 300.0)	0.20 U	**2.4 J**	**0.24**	0.20 UJ	**0.40**	**0.080 J**	**1.1**	**5.7**	**5.6**	**1.4**	**1.9**	**3.1**	**3.1**	**6.9**	**6.9**	0.20 U	0.20 U	0.20 U	0.20 U	26
Nitrite as N (EPA 300.0)	0.20 U	0.20 UJ	0.20 U	0.20 UJ	0.20 U	0.20 UJ	0.20 U	0.20 U	0.20 U	0.20 UJ	**0.43 J**	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	1.6
Sulfate (EPA 300.0)	**14**	**21**	**14**	**9.4**	**16**	**12**	**14**	**46**	**47**	**14**	**14**	**25**	**25**	**70**	**69**	**4.0**	**3.9**	**3.3**	**2.5**	NE

Location ID	MW-8A		MW-8B	MW-9A			MW-11A		MW-12A				MW-15	MW-15A			MW-16	MW-16A		Hose Bib	MTCA Cleanup Level[3]
Sample ID	MW-8A-032524	MW-8A-061824	MW-8B-102824	MW-9A-032524	MW-9A-061824	MW-9A-102924	MW-11A-121423	MW-11A-102824	MW-12A-121423	MW-12A-032524	MW-12A-061924	MW-12A-102524	MW-15-102824	MW-15A-032524	MW-15A-061924	MW-15A-102824	MW-16-102924	MW-16A-032524	MW-16A-062024	HOSE BIB-062124	
Sample Date	3/26/2024	6/18/2024	10/28/2024	3/26/2024	6/18/2024	10/29/2024	12/14/2023	10/28/2024	12/14/2023	3/25/2024	6/19/2024	10/25/2024	10/28/2024	3/25/2024	6/19/2024	10/28/2024	10/29/2024	3/25/2024	6/20/2024	6/21/2024	
Volatile Organic Compounds by EPA 8260D (µg/L)																					
1,1,1,2-Tetrachloroethane	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	240
1,1,1-Trichloroethane	--	--		--	--		1.0 U		1.0 U	1.0 U	1.0 U	1.0 U		--	--			--	--	--	200
1,1,2,2-Tetrachloroethane	--	--		--	--		2.0 U		2.0 U	--	--			--	--			--	--	--	160
1,1,2-Trichloroethane	--	--		--	--		2.0 U		2.0 U	--	--			--	--			--	--	--	32
1,1-Dichloroethane	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	1,600
1,1-Dichloroethene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	400
1,1-Dichloropropene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	240
1,2,3-Trichlorobenzene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	NE
1,2,3-Trichloropropane	--	--		--	--		2.0 U		2.0 U	--	--			--	--			--	--	--	32
1,2,4-Trichlorobenzene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	80
1,2,4-Trimethylbenzene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	80
1,2-Dibromo-3-Chloropropane	--	--		--	--		10.0 U		10.0 U	--	--			--	--			--	--	--	1.6
1,2-Dibromoethane (EDB)	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	0.01
1,2-Dichlorobenzene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	720
1,2-Dichloroethane	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	5
1,2-Dichloropropane	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	32
1,3,5-Trimethylbenzene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	80
1,3-Dichlorobenzene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	NE
1,3-Dichloropropane	--	--		--	--		2.0 U		2.0 U	--	--			--	--			--	--	--	160
1,4-Dichlorobenzene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	560
2,2-Dichloropropane	--	--		--	--		2.0 U		2.0 U	--	--			--	--			--	--	--	NE
2-Chlorotoluene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	160
4-Chlorotoluene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	160
Benzene	--	--		--	--		0.40 U		0.40 U	--	--			--	--			--	--	--	5
Bromobenzene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	64
Bromochloromethane	--	--		--	--		2.0 U		2.0 U	--	--			--	--			--	--	--	NE
Bromodichloromethane	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	160
Bromoform	--	--		--	--		5.0 U		5.0 U	--	--			--	--			--	--	--	160
Bromomethane	--	--		--	--		5.0 U		5.0 U	--	--			--	--			--	--	--	11
Carbon Tetrachloride	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	32
Chlorobenzene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	160
Chloroethane	--	--		--	--		2.0 U		2.0 U	--	--			--	--			--	--	--	NE
Chloroform	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	80
Chloromethane	--	--		--	--		3.0 U		3.0 U	--	--			--	--			--	--	--	NE
cis-1,2-Dichloroethene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	16
cis-1,3-Dichloropropene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	NE
Dibromochloromethane	--	--		--	--		2.0 U		2.0 U	--	--			--	--			--	--	--	160
Dibromomethane	--	--		--	--		2.0 U		2.0 U	--	--			--	--			--	--	--	NE
Dichlorodifluoromethane	--	--		--	--		2.0 U		2.0 U	--	--			--	--			--	--	--	1,600
Ethylbenzene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	700
Hexachlorobutadiene	--	--		--	--		2.0 U		2.0 U	--	--			--	--			--	--	--	8
Isopropylbenzene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	NE
m,p-Xylene	--	--		--	--		2.0 U		2.0 U	--	--			--	--			--	--	--	NE
Methyl tert-butyl ether	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	20
Methylene Chloride	--	--		--	--		5.0 U		5.0 U	--	--			--	--			--	--	--	5
Naphthalene	--	--		--	--		2.0 U		2.0 U	--	--			--	--			--	--	--	160
n-Butylbenzene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	400
N-Propylbenzene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	800
o-Xylene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	NE
p-Isopropyltoluene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	NE
Sec-Butylbenzene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	800
Styrene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	1,600
tert-Butylbenzene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	800
Tetrachloroethene	--	--		--	--		1.0 U		1.0 U	1.0 U	1.0 U	1.0 U		--	--			--	--	--	5
Toluene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	1,000
trans-1,2-Dichloroethene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	160
trans-1,3-Dichloropropene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	NE
Trichloroethene	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	5
Trichlorofluoromethane	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	2,400
Vinyl Chloride	--	--		--	--		1.0 U		1.0 U	--	--			--	--			--	--	--	0.2
Total Xylenes	--	--		--	--		ND		ND	--	--			--	--			--	--	--	1,000

Location ID	MW-8A		MW-8B	MW-9A			MW-11A		MW-12A				MW-15	MW-15A			MW-16	MW-16A		Hose Bib	
Sample ID	MW-8A-032524	MW-8A-061824	MW-8B-102824	MW-9A-032524	MW-9A-061824	MW-9A-102924	MW-11A-121423	MW-11A-102824	MW-12A-121423	MW-12A-032524	MW-12A-061924	MW-12A-102524	MW-15-102824	MW-15A-032524	MW-15A-061924	MW-15A-102824	MW-16-102924	MW-16A-032524	MW-16A-062024	HOSE BIB-062124	MTCA Cleanup Level[3]
Sample Date	3/26/2024	6/18/2024	10/28/2024	3/26/2024	6/18/2024	10/29/2024	12/14/2023	10/28/2024	12/14/2023	3/25/2024	6/19/2024	10/25/2024	10/28/2024	3/25/2024	6/19/2024	10/28/2024	10/29/2024	3/25/2024	6/20/2024	6/21/2024	
Semivolatile Organic Compounds and Polycyclic Aromatic Hydrocarbons by EPA 8270E (µg/L)																					
1,2,4-Trichlorobenzene	--	--		--	--		0.39 U		0.38 U	--	--			--	--			--	--	--	80
1,2-Dichlorobenzene	--	--		--	--		0.39 U		0.38 U	--	--			--	--			--	--	--	720
1,3-Dichlorobenzene	--	--		--	--		0.39 U		0.38 U	--	--			--	--			--	--	--	NE
1,4-Dichlorobenzene	--	--		--	--		0.39 U		0.38 U	--	--			--	--			--	--	--	560
1,4 Dioxane	--	--		--	--		--		--	0.19 UJ	0.19 U	0.19 U		--	--			--	--	--	240
1-Methylnaphthalene	--	--		--	--		0.96 U		0.95 U	--	--			--	--			--	--	--	160
2,4,5-Trichlorophenol	--	--		--	--		0.39 U		0.38 U	--	--			--	--			--	--	--	1,600
2,4,6-Trichlorophenol	--	--		--	--		0.57 U		0.57 U	--	--			--	--			--	--	--	16
2,4-Dichlorophenol	--	--		--	--		0.96 U		0.95 U	--	--			--	--			--	--	--	48
2,4-Dimethylphenol	--	--		--	--		3.9 U		3.8 U	--	--			--	--			--	--	--	48
2,4-Dinitrophenol	--	--		--	--		4.8 U		4.7 U	--	--			--	--			--	--	--	32
2,4-Dinitrotoluene	--	--		--	--		0.96 U		0.95 U	--	--			--	--			--	--	--	14
2,6-Dinitrotoluene	--	--		--	--		0.39 U		0.38 U	--	--			--	--			--	--	--	14
2-Chloronaphthalene	--	--		--	--		0.96 U		0.95 U	--	--			--	--			--	--	--	NE
2-Chlorophenol	--	--		--	--		0.96 U		0.95 U	--	--			--	--			--	--	--	40
2-Methylnaphthalene	--	--		--	--		0.39 U		0.38 U	--	--			--	--			--	--	--	160
2-Methylphenol	--	--		--	--		0.57 U		0.57 U	--	--			--	--			--	--	--	NE
2-Nitroaniline	--	--		--	--		0.96 U		0.95 U	--	--			--	--			--	--	--	160
2-Nitrophenol	--	--		--	--		0.96 U		0.95 U	--	--			--	--			--	--	--	NE
3 & 4 Methylphenol	--	--		--	--		0.57 U		0.57 U	--	--			--	--			--	--	--	NE
3,3'-Dichlorobenzidine	--	--		--	--		0.96 U		0.95 U	--	--			--	--			--	--	--	0.19
3-Nitroaniline	--	--		--	--		2.9 U		2.9 U	--	--			--	--			--	--	--	64
4,6-Dinitro-2-methylphenol	--	--		--	--		1.9 U		1.9 U	--	--			--	--			--	--	--	NE
4-Bromophenyl phenyl ether	--	--		--	--		0.57 U		0.57 U	--	--			--	--			--	--	--	NE
4-Chloro-3-methylphenol	--	--		--	--		0.57 U		0.57 U	--	--			--	--			--	--	--	NE
4-Chloroaniline	--	--		--	--		1.9 U		1.9 U	--	--			--	--			--	--	--	64
4-Chlorophenyl phenyl ether	--	--		--	--		0.57 U		0.57 U	--	--			--	--			--	--	--	NE
4-Nitroaniline	--	--		--	--		1.9 U		1.9 U	--	--			--	--			--	--	--	64
4-Nitrophenol	--	--		--	--		9.6 U		9.5 U	--	--			--	--			--	--	--	NE
Acenaphthene	--	--		--	--		0.39 U		0.38 U	--	--			--	--			--	--	--	480
Acenaphthylene	--	--		--	--		0.96 U		0.95 U	--	--			--	--			--	--	--	NE
Anthracene	--	--		--	--		0.96 U		0.95 U	--	--			--	--			--	--	--	2,400
Benzo[a]anthracene	--	--		--	--		0.24 U		0.24 U	--	--			--	--			--	--	--	NE
Benzo[a]pyrene	--	--		--	--		0.24 U		0.24 U	--	--			--	--			--	--	--	0.1
Benzo[b]fluoranthene	--	--		--	--		0.24 U		0.24 U	--	--			--	--			--	--	--	NE
Benzo[g,h,i]perylene	--	--		--	--		0.24 U		0.24 U	--	--			--	--			--	--	--	NE
Benzo[k]fluoranthene	--	--		--	--		0.24 U		0.24 U	--	--			--	--			--	--	--	NE
Benzoic acid	--	--		--	--		**3.0 J**		9.5 U	--	--			--	--			--	--	--	64,000
Benzyl alcohol	--	--		--	--		4.8 U		4.7 U	--	--			--	--			--	--	--	1,600
Bis(2-chloroethoxy)methane	--	--		--	--		0.57 U		0.57 U	--	--			--	--			--	--	--	48
Bis(2-chloroethyl)ether	--	--		--	--		0.096 U		0.095 U	--	--			--	--			--	--	--	0.04
Bis(2-ethylhexyl) phthalate	--	--		--	--		2.9 U		2.9 U	--	--			--	--			--	--	--	320
bis(chloroisopropyl) ether	--	--		--	--		0.24 U		0.24 U	--	--			--	--			--	--	--	NE
Butyl benzyl phthalate	--	--		--	--		3.9 U		3.8 U	--	--			--	--			--	--	--	3,200
Carbazole	--	--		--	--		0.57 U		0.57 U	--	--			--	--			--	--	--	NE
Chrysene	--	--		--	--		0.24 U		0.24 U	--	--			--	--			--	--	--	NE
Dibenz(a,h)anthracene	--	--		--	--		0.24 U		0.24 U	--	--			--	--			--	--	--	NE
Dibenzofuran	--	--		--	--		0.39 U		0.38 U	--	--			--	--			--	--	--	8
Diethyl phthalate	--	--		--	--		0.96 U		0.95 U	--	--			--	--			--	--	--	13,000
Dimethyl phthalate	--	--		--	--		0.57 U		0.57 U	--	--			--	--			--	--	--	NE
Di-n-butyl phthalate	--	--		--	--		9.6 U		9.5 U	--	--			--	--			--	--	--	NE
Di-n-octyl phthalate	--	--		--	--		0.96 U		0.95 U	--	--			--	--			--	--	--	160
Fluoranthene	--	--		--	--		0.24 U		0.24 U	--	--			--	--			--	--	--	640
Fluorene	--	--		--	--		0.24 U		0.24 U	--	--			--	--			--	--	--	320
Hexachlorobenzene	--	--		--	--		0.57 U		0.57 U	--	--			--	--			--	--	--	6.4
Hexachlorobutadiene	--	--		--	--		0.96 U		0.95 U	--	--			--	--			--	--	--	8
Hexachlorocyclopentadiene	--	--		--	--		0.96 U		0.95 U	--	--			--	--			--	--	--	48
Hexachloroethane	--	--		--	--		0.96 U		0.95 U	--	--			--	--			--	--	--	NE
Indeno[1,2,3-cd]pyrene	--	--		--	--		0.39 U		0.38 U	--	--			--	--			--	--	--	NE
Isophorone	--	--		--	--		0.39 U		0.38 U	--	--			--	--			--	--	--	NE
Naphthalene	--	--		--	--		0.39 U		0.38 U	--	--			--	--			--	--	--	160
Nitrobenzene	--	--		--	--		0.95 U		0.95 U	--	--			--	--			--	--	--	3,200
N-Nitrosodi-n-propylamine	--	--		--	--		0.39 U		0.38 U	--	--			--	--			--	--	--	0.013
N-Nitrosodiphenylamine	--	--		--	--		0.96 U		0.95 U	--	--			--	--			--	--	--	18
Pentachlorophenol	--	--		--	--		4.8 U		4.7 U	--	--			--	--			--	--	--	80
Phenanthrene	--	--		--	--		0.96 U		0.95 U	--	--			--	--			--	--	--	NE
Phenol	--	--		--	--		0.96 U		0.95 U	--	--			--	--			--	--	--	4,800
Pyrene	--	--		--	--		0.96 U		0.95 U	--	--			--	--			--	--	--	240
cPAH TEC[5]	--	--		--	--		ND		ND	--	--			--	--			--	--	--	0.1

Location ID	MW-8A		MW-8B	MW-9A			MW-11A		MW-12A				MW-15	MW-15A			MW-16	MW-16A		Hose Bib	
Sample ID	MW-8A-032524	MW-8A-061824	MW-8B-102824	MW-9A-032524	MW-9A-061824	MW-9A-102924	MW-11A-121423	MW-11A-102824	MW-12A-121423	MW-12A-032524	MW-12A-061924	MW-12A-102524	MW-15-102824	MW-15A-032524	MW-15A-061924	MW-15A-102824	MW-16-102924	MW-16A-032524	MW-16A-062024	HOSE BIB-062124	MTCA Cleanup Level[3]
Sample Date	3/26/2024	6/18/2024	10/28/2024	3/26/2024	6/18/2024	10/29/2024	12/14/2023	10/28/2024	12/14/2023	3/25/2024	6/19/2024	10/25/2024	10/28/2024	3/25/2024	6/19/2024	10/28/2024	10/29/2024	3/25/2024	6/20/2024	6/21/2024	
Herbicides by EPA 8151A (µg/L)																					
2,4,5-T	–	–		–	–		0.48 UJ		0.47 UJ	–	–			–	–			–	–	–	NE
2,4,5-TP (Silvex)	–	–		–	–		0.48 UJ		0.47 UJ	–	–			–	–			–	–	–	130
2,4-D	–	–		–	–		4.8 UJ		4.7 UJ	–	–			–	–			–	–	–	NE
2,4-DB	–	–		–	–		4.8 UJ		4.7 UJ	–	–			–	–			–	–	–	NE
Dalapon	–	–		– c	–		12 UJ		12 UJ	–	–			–	–			–	–	–	480
Dicamba	–	–		–	–		0.48 UJ		0.47 UJ	–	–			–	–			–	–	–	480
Dichlorprop	–	–		–	–		4.8 UJ		4.7 UJ	–	–			–	–			–	–	–	NE
Dinoseb	–	–		–	–		2.4 UJ		2.4 UJ	–	–			–	–			–	–	–	16
MCPA	–	–		–	–		480 UJ		470 UJ	–	–			–	–			–	–	–	NE
MCPP	–	–		–	–		480 UJ		470 UJ	–	–			–	–			–	–	–	NE
Per- and Polyfluoroalkyl Substances by EPA Draft-4 1633 (ng/L)																					
Perfluorobutanoic acid (PFBA)	**14**	**6.1 J**	**9.4**	7.1 U	**20**	**2.0 J**	7.2 U	3.1 U	**4.9 J**	–	–	**4.0**	**0.81 J**	**53**	**21**	**0.74 J**	**22**	**2.6 J**	6.9 U	–	8,000
Perfluoropentanoic acid (PFPeA)	**22**	**10**	**17**	3.6 U	**35**	**1.8**	3.6 U	1.5 U	**1.6 J**	–	–	**1.5**	**0.57 J**	**28**	**12**	**0.42 J**	**4.9**	**2.1 J**	3.4 U	–	NE
Perfluorohexanoic acid (PFHxA)	**7.4**	**4.1**	**14**	1.8 U	**24**	**0.94 J**	1.8 U	1.5 U	**1.1 J**	–	–	**1.4**	**0.35 J**	**8.7**	**4.2**	1.4 U	**2.8**	**1.0 J**	1.7 U	–	8,000
Perfluoroheptanoic acid (PFHpA)	**2.8**	**1.7**	**4.7**	1.8 U	**5.9**	**0.49 J**	1.8 U	1.5 U	**0.82 J**	–	–	**0.65 J**	1.4 U	**5.2**	**2.3**	1.4 U	**0.56 J**	1.8 U	1.7 U	–	NE
Perfluorooctanoic acid (PFOA)	**4.4**	**3.6**	**11**	**0.70 J**	**13**	**3.0**	1.8 U	1.5 U	**0.85 J**	–	–	**1.1 J**	**0.57 J**	**5.8**	**1.7**	1.4 U	**3.5**	**1.5 J**	1.7 U	–	4
Perfluorononanoic acid (PFNA)	1.8 U	1.7 U	1.5 U	1.8 U	**0.56 J**	**0.64 J**	1.8 U	1.5 U	1.8 U	–	–	1.4 U	**0.52 J**	**1.6 J**	1.7 U	1.4 U	**0.53 J**	1.8 U	1.7 U	–	10
Perfluorodecanoic acid (PFDA)	1.8 U	1.7 U	1.5 U	1.8 U	1.7 U	1.6 U	1.8 U	1.5 U	1.8 U	–	–	1.4 U	1.4 U	1.8 U	1.7 U	1.4 U	1.7 U	1.8 U	1.7 U	–	0.032
Perfluoroundecanoic acid (PFUnA)	1.8 U	1.7 U	1.5 U	1.8 U	1.7 U	1.6 U	1.8 U	1.5 U	1.8 U	–	–	1.4 U	1.4 U	1.8 U	1.7 U	1.4 U	1.7 U	1.8 U	1.7 U	–	NE
Perfluorododecanoic acid (PFDoA)	1.8 U	1.7 U	1.5 U	1.8 U	1.7 U	1.6 U	1.8 U	1.5 U	1.8 U	–	–	1.4 U	1.4 U	1.8 U	1.7 U	1.4 U	1.7 U	1.8 U	1.7 U	–	NE
Perfluorotridecanoic acid (PFTrDA)	1.8 U	1.7 U	1.5 U	1.8 U	1.7 U	1.6 U	1.8 U	1.5 U	1.8 U	–	–	1.4 U	1.4 U	1.8 U	1.7 U	1.4 U	1.7 U	1.8 U	1.7 U	–	NE
Perfluorotetradecanoic acid (PFTeDA)	1.8 U	1.7 U	1.5 U	1.8 U	1.7 U	1.6 U	1.8 U	1.5 U	1.8 U	–	–	1.4 U	1.4 U	1.8 U	1.7 U	1.4 U	1.7 U	1.8 U	1.7 U	–	NE
Perfluorobutanesulfonic acid (PFBS)	**1.7 J**	**1.6 J**	**4.7**	**3.3**	**7.1**	**3.0**	**0.50 J**	**0.72 J**	**0.86 J**	–	–	**1.2 J**	**4.8**	**4.0**	**0.91 J**	**1.8**	**18**	1.8 U	**3.1**	–	4,800
Perfluoropentanesulfonic acid (PFPeS)	**0.61 J**	**0.63 J**	**1.8**	1.8 U	**0.74 J**	1.6 U	1.8 U	1.5 U	1.8 U	–	–	1.4 U	1.4 U	0.8 U	1.7 U	1.4 U	**4.4**	1.8 U	1.7 U	–	NE
Perfluorohexanesulfonic acid (PFHxS)	**2.4**	**2.6**	**6.8**	**1.3 J**	**6.7**	**1.0 J**	**0.48 J**	**0.57 J**	1.8 U	–	–	**0.39 J**	**1.3 J**	**2.1**	1.7 U	1.4 U	**26**	1.8 U	1.7 U	–	10
Perfluoroheptanesulfonic acid (PFHpS)	1.8 U	1.7 U	1.5 U	1.8 U	1.7 U	1.6 U	1.8 U	1.5 U	1.8 U	–	–	1.4 U	1.4 U	1.8 U	1.7 U	1.4 U	1.7 U	1.8 U	1.7 U	–	NE
Perfluorooctanesulfonic acid (PFOS)	**3.0**	1.7 U	**3.8**	**1.9**	**13**	**4.5**	1.8 U	1.5 U	1.8 U	–	–	**0.60 J**	**6.0**	**9.9**	**2.5**	**1.8**	**15 J**	**2.6**	1.7 U	–	4
Perfluorononanesulfonic acid (PFNS)	1.8 U	1.7 U	1.5 U	1.8 U	1.7 U	1.6 U	1.8 U	1.5 U	1.8 U	–	–	1.4 U	1.4 U	1.8 U	1.7 U	1.4 U	1.7 U	1.8 U	1.7 U	–	NE
Perfluorodecanesulfonic acid (PFDS)	1.8 U	1.7 U	1.5 U	1.8 U	1.7 U	1.6 U	1.8 U	1.5 U	1.8 U	–	–	1.4 U	1.4 U	1.8 U	1.7 U	1.4 U	1.7 U	1.8 U	1.7 U	–	NE
Perfluorododecanesulfonic acid (PFDoS)	1.8 U	1.7 U	1.5 U	1.8 U	1.7 U	1.6 U	1.8 U	1.5 U	1.8 U	–	–	1.4 U	1.4 U	1.8 U	1.7 U	1.4 U	1.7 U	1.8 U	1.7 U	–	NE
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	7.4 U	6.7 U	3.0 U	7.1 U	6.7 U	3.2 U	7.2 U	3.1 U	7.2 U	–	–	2.8 U	2.8 U	7.3 U	6.7 U	2.9 U	3.4 U	7.3 U	6.9 U	–	3,200
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	7.4 U	6.7 U	3.0 U	7.1 U	6.7 U	3.2 U	7.2 U	3.1 U	7.2 U	–	–	2.8 U	2.8 U	7.3 U	6.7 U	2.9 U	3.4 U	7.3 U	6.9 U	–	NE
Perfluorooctanesulfonamide (PFOSA)	1.8 U	1.7 U	1.5 U	1.8 U	1.7 U	1.6 U	1.8 U	1.5 U	1.8 U	–	–	1.4 U	1.4 U	1.8 U	1.7 U	1.4 U	1.7 U	1.8 U	1.7 U	–	NE
N-methylperfluorooctane sulfonamide (NMeFOSA)	1.8 U	1.7 U	1.5 U	1.8 U	1.7 U	1.6 U	1.8 U	1.5 U	1.8 U	–	–	1.4 U	1.4 U	1.8 U	1.7 U	1.4 U	1.7 U	1.8 U	1.7 U	–	NE
N-ethylperfluorooctane sulfonamide (NEtFOSA)	1.8 U	1.7 U	1.5 U	1.8 U	1.7 U	1.6 U	1.8 U	1.5 U	1.8 U	–	–	1.4 U	1.4 U	1.8 U	1.7 U	1.4 U	1.7 U	1.8 U	1.7 U	–	NE
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	1.8 U	1.7 U	1.5 U	1.8 U	1.7 U	1.6 U	1.8 U	1.5 U	1.8 U	–	–	1.4 U	1.4 U	1.8 U	1.7 U	1.4 U	1.7 U	1.8 U	1.7 U	–	NE
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	1.8 U	1.7 U	1.5 U	1.8 U	1.7 U	1.6 U	1.8 U	1.5 U	1.8 U	–	–	1.4 U	1.4 U	1.8 U	1.7 U	1.4 U	1.7 U	1.8 U	1.7 U	–	NE
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	18 U	1.7 U	7.5 U	18 U	1.7 U	8.0 U	18 U	7.7 U	18 U	–	–	7.1 U	7.1 U	18 U	1.7 U	7.1 U	8.4 U	18 U	1.7 U	–	NE
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	18 U	1.7 U	7.5 U	18 U	1.7 U	8.0 U	18 U	7.7 U	18 U	–	–	7.1 U	7.1 U	18 U	1.7 U	7.1 U	8.4 U	18 U	1.7 U	–	NE
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	7.4 U	6.7 U	1.1 U	7.1 U	6.7 U	1.2 U	7.2 U	1.2 U	7.2 U	–	–	1.1 U	1.1 U	7.3 U	6.7 U	1.1 U	1.3 U	7.3 U	6.9 U	–	10
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	7.4 U	6.7 U	1.5 U	7.1 U	6.7 U	1.6 U	7.2 U	1.5 U	7.2 U	–	–	1.4 U	1.4 U	7.3 U	6.7 U	1.4 U	1.7 U	7.3 U	6.9 U	–	NE
Perfluoro-3-methoxypropanoic acid (PFMPA)	3.7 U	3.4 U	1.5 U	3.6 U	3.3 U	1.6 U	3.6 U	1.5 U	3.6 U	–	–	1.4 U	1.4 U	3.6 U	3.4 U	1.4 U	1.7 U	3.7 U	3.4 U	–	NE
Perfluoro-4-methoxybutanoic acid (PFMBA)	3.7 U	3.4 U	1.5 U	3.6 U	3.3 U	1.6 U	3.6 U	1.5 U	3.6 U	–	–	1.4 U	1.4 U	3.6 U	3.4 U	1.4 U	1.7 U	3.7 U	3.4 U	–	NE
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	3.7 U	3.4 U	1.5 U	3.6 U	3.3 U	1.6 U	3.6 U	1.5 U	3.6 U	–	–	1.4 U	1.4 U	3.6 U	3.4 U	1.4 U	1.7 U	3.7 U	3.4 U	–	NE
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	7.4 U	6.8 U	1.5 U	7.1 U	6.7 U	1.6 U	7.2 U	1.5 U	7.2 U	–	–	1.4 U	1.4 U	7.3 U	6.8 U	1.4 U	1.7 U	7.3 U	6.9 U	–	NE
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	7.4 U	6.7 U	1.5 U	7.1 U	6.7 U	1.6 U	7.2 U	1.5 U	7.2 U	–	–	1.4 U	1.4 U	7.3 U	6.7 U	1.4 U	1.7 U	7.3 U	6.9 U	–	NE
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	3.7 U	3.4 U	1.5 U	3.6 U	3.3 U	1.6 U	3.6 U	1.5 U	3.6 U	–	–	1.4 U	1.4 U	3.6 U	3.4 U	1.4 U	1.7 U	3.7 U	3.4 U	–	NE
3-Perfluoropropylpropanoic acid (3:3 FTCA)	9.2 U	8.4 U	3.0 U	8.9 U	8.4 U	3.2 U	9.0 U	3.1 U	9.1 U	–	–	2.8 U	2.8 U	9.1 U	8.4 U	2.9 U	3.4 U	9.2 U	8.6 U	–	NE
3-Perfluoropentylpropanoic acid (5:3 FTCA)	46 U	42 U	7.5 U	45 U	42 U	8.0 U	45 U	7.7 U	45 U	–	–	7.1 U	7.1 U	46 U	42 U	7.1 U	8.4 U	46 U	43 U	–	NE
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	46 U	42 U	7.5 U	45 U	42 U	8.0 U	45 U	7.7 U	45 U	–	–	7.1 U	7.1 U	46 U	42 U	7.1 U	8.4 U	46 U	43 U	–	NE
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	7.4 U	6.7 U	3.0 U	7.1 U	6.7 U	3.2 U	7.2 U	3.1 U	7.2 U	–	–	2.8 U	2.8 U	7.3 U	6.7 U	2.9 U	3.4 U	7.3 U	6.9 U	–	NE
Hazard Index (HI) Calculation (HFPO-DA+PFBS+PFNA+PFHxS)[6]	0.8	0.8	0.9	0.7	1.0	0.2	0.6	0.3	0.7	–	–	0.2	0.2	0.7	0.7	0.3	**3**	0.7	0.7	–	1 (unitless)
	0.8		NA	0.63			0.45		0.45				NA	0.57			NA	0.7		–	
Artificial Sweeteners by EPA 1694 (µg/L)																					
Acesulfame K	**–**	**0.12**	**–**	**0.45**						–			**–**	**0.58**			**–**	**0.56**	–		NE
Sucralose	–	**0.40**	–	**12**						–			–	**11**			–	**8.9**	–		NE
Total Metals by EPA 6020B (mg/L)																					
Arsenic	–	–		–	–		**0.0021 J**		0.0050 U	0.0050 U	**0.0013 J**	**0.0011 J**		–	–			–	–	–	0.005
Cadmium	–	–		–	–		0.0020 U		0.0020 U	0.0020 U	0.0020 U	0.0020 U		–	–			–	–	–	0.005
Iron	–	–		–	–		**0.13 J**		0.50 U	0.50 U	0.50 U	0.50 U		–	–			–	–	–	11
Lead	–	–		–	–		0.0020 U		0.0020 U	0.0020 U	**0.00054 J**	0.0020 U		–	–			–	–	–	0.015
Manganese	–	–		–	–		**0.0025 J**		0.010 U	0.010 U	0.010 U	**0.0038 J**		–	–			–	–	–	0.75
Zinc	–	–		–	–		0.035 U		**0.0051 J**	0.035 U	0.035 U	**0.0053 J**		–	–			–	–	–	4.8

Location ID	MW-8A		MW-8B	MW-9A			MW-11A		MW-12A				MW-15	MW-15A			MW-16	MW-16A		Hose Bib	
Sample ID	MW-8A-032524	MW-8A-061824	MW-8B-102824	MW-9A-032524	MW-9A-061824	MW-9A-102924	MW-11A-121423	MW-11A-102824	MW-12A-121423	MW-12A-032524	MW-12A-061924	MW-12A-102524	MW-15-102824	MW-15A-032524	MW-15A-061924	MW-15A-102824	MW-16-102924	MW-16A-032524	MW-16A-062024	HOSE BIB-062124	MTCA Cleanup
Sample Date	3/26/2024	6/18/2024	10/28/2024	3/26/2024	6/18/2024	10/29/2024	12/14/2023	10/28/2024	12/14/2023	3/25/2024	6/19/2024	10/25/2024	10/28/2024	3/25/2024	6/19/2024	10/28/2024	10/29/2024	3/25/2024	6/20/2024	6/21/2024	Level[3]
Total Metals by EPA 7470A (µg/L)																					
Mercury	–	–		–	–		0.20 U		0.20 U	0.12 U	0.20 U	**0.14 J**		–	–			–	–	–	2
Dissolved Metals[7] by EPA 6020B (mg/L)																					
Arsenic	–	–		–	–		**0.0020 J**		0.0050 U	0.0050 U	0.0050 U	0.0050 U		–	–			–	–	–	0.005
Cadmium	–	–		–	–		0.0020 U		0.0020 U	0.0020 U	0.0020 U	0.0020 U		–	–			–	–	–	0.005
Iron	–	0.50 U	2.0 U[7]	–	0.50 U	2.0 U[7]	0.50 U	2.0 U[7]	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U[7]	–	0.50 U	2.0 U[7]	2.0 U[7]	–	**0.074 J**	–	11
Lead	–	–		–	–		0.0020 U		0.0020 U	0.0020 U	0.002 U	0.0020 U		–	–			–	–	–	0.015
Manganese	–	0.010 U		–	0.010 U		0.010 U		**0.0060 J**	0.010 U	0.010 U	0.010 U		–	0.010 U			–	**0.0044 J**	–	0.75
Zinc	–	–		–	–		**0.0051 J**		0.035 U	0.035 U	0.035 U	0.035 U		–	–			–	–	–	4.8
Dissolved Metals[7] by EPA 7470A (µg/L)																					
Mercury	–	–		–	–		0.20 U		0.20 U	0.13 U	0.20 U	0.20 U		–	–			–	–	–	2
General Chemistry Parameters (mg/L), method noted in parentheses																					
Ammonia as Nitrogen (EPA 350.1)	–	**0.036 J**	0.10 U	–	**0.068 J**	0.10 U	**0.15**	0.10 U	0.10 U	0.10 U	**0.031 J**	0.10 U	0.10 U	–	0.10 U	0.10 U	0.10 U	–	0.10 U	0.10 U	NE
Alkalinity (SM 2320B)	–	**180**	**280**	–	**180**	**200**	**140**	**180**	**85**	**110**	**100**	**90**	**140**	–	**140**	**160**	**190**	–	**160**	**180**	NE
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	–	**180**	**280**	–	**180**	**200**	**140**	**180**	**85**	**110**	**100**	**90**	**140**	–	**140**	**160**	**190**	–	**160**	**180**	NE
Total Dissolved Solids (SM 2540C)	–	**220**	**360**	–	**280**	**290**	**300**	**200**	**140**	**140**	**190**	**150**	**230**	–	**270**	**290**	**450**	–	**250**	**290**	NE
Cyanide, Weak Acid Dissociable (SM 4500 CN I)	–	–		–	–		0.010 U		0.010 U	–	–			–	–			–	–	–	0.005
Total Organic Carbon (SM 5310B)	–	**0.78 J**	**1.0**	–	**5.3**	**4.0**	**0.84 J**	**0.71 J**	**2.6**	**2.8**	**2.6**	**2.6**	**3.3**	–	**3.5**	**2.7**	**4.3**	–	**3.7**	**2.1**	NE
Total Magnesium (EPA 6010D)	–	**14**	**17**	–	**15**	**19**	**9.5**	**10**	**8.9**	**11**	**11**	**10**	**13**	–	**14**	**17**	**18**	–	**15**	**16**	NE
Dissolved Magnesium (EPA 6010D)	–	**13**	**16**	–	**13**	**16**	**9.4**	**8.4**	**8.8**	**10 J**	**10**	**9.4**	**16**	–	**13**	**15**	**15**	–	**14**	**14**	NE
Total Potassium (EPA 6010D)	–	**2.1**	**3.7**	–	**6.8**	**8.8**	**2.8**	**2.6**	**2.7**	**2.6**	**2.6**	**2.7**	**6.8**	–	**6.6**	**7.0**	**7.4**	–	**6.2**	**5.8**	NE
Total Sodium (EPA 6010D)	–	**9.7**	**15**	–	**41**	**44**	**9.0**	**8.8**	**8.5**	**8.6**	**8.9**	**8.1**	**35**	–	**38**	**38**	**37**	–	**36**	**32**	NE
Dissolved Calcium (EPA 6010D)	–	**40**	**82**	–	**31**	**38**	**41**	**38**	**25**	**29**	**29**	**26**	**39**	–	**31**	**35**	**100**	–	**32**	**42**	NE
Chloride (EPA 300.0)	–	**13**	**22**	–	**57**	**60**	**9.8**	**9.3**	**3.3**	**6.7**	**7.5**	**6.3**	**57**	–	**56**	**36**	**62**	–	**57**	**49**	NE
Nitrate as N (EPA 300.0)	–	**2.1**	**4.2**	–	0.20 U	0.20 U	**3.4**	**3.7**	**6.8**	**8.1 J**	**7.0**	**7.3 J**	**0.41**	–	**0.92**	**3.9**	0.20 U	–	**0.52**	**2.0**	26
Nitrite as N (EPA 300.0)	–	0.20 U	0.20 U	–	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 UJ	0.20 U	0.20 UJ	0.20 U	–	0.20 U	0.20 U	0.20 U	–	0.20 U	0.20 U	1.6
Sulfate (EPA 300.0)	–	**12**	**19**	–	**12**	**11**	**10**	**9.0**	**16**	**16**	**14**	**14**	**16**	–	**17**	**39**	**10**	–	**16**	**18**	NE

Notes:

[1]Samples analyzed by Eurofins Environment Testing located in Spokane Valley, Washington. Monitoring Well Locations are shown on Figure 2.

[2]Duplicate sampling procedures are summarized in the Work Plan for Marshall Landfill Groundwater Monitoring dated November 17, 2023. Other quality assurance/quality control sampling (not shown) included trip blank and field blank sampling and analysis. See associated report discussion and chemical analytical reports for additional detail.

[3]MTCA Method A or B Cleanup Level. Method B Cleanup Level (CUL) for Potable Groundwater used for PFAS compounds where available, except where MTCA CULs exceed the Environmental Protection Agency (EPA) practical quantitation limits (PQLs). For those PFAS (ex. PFHxS), the EPA Maximum Contaminant Level (MCL) was used.

[4]Carcinogenic polycyclic aromatic hydrocarbon (cPAH) total toxic equivalent concentration (TEC) calculated per WAC 173-340-708.

[5]Hazard Index (HI) as defined by PFAS National Primary Drinking Water Regulation (NPDWR) 40 CFR Parts 141 and 142. EPA Final Rule. 89 Fed. Reg. 32532 (April 26, 2024). The Hazard Index is a sum of fractions called Hazard Quotients (HQs) established by the EPA for the following PFAS: HFPO-DA, PFBS, PFHxS, and PFNA. Compliance with the HI is based on a running annual average. HI averages were calculated for wells with more than one quarter of data.

[6]Samples submitted for dissolved metals analysis were lab filtered.

[7]EPA Method 6010D used for dissolved iron analysis.

[8]Dissolved iron concentration using EPA Method 6010D was 0.19 J.

[9]Dissolved iron concentration using EPA Method 6010D was 0.15 J.

J = estimated concentration

UJ = sample was prepped or analyzed beyond hold time. Sample results are qualified as estimated.

U = analyte was not detected above the laboratory reporting limit

mg/L = milligrams per liter

µg/L = micrograms per liter

ng/L = nanograms per liter

MTCA CUL = Model Toxics Control Act Cleanup Level (Method A or B)

NA = not applicable

ND = not detected

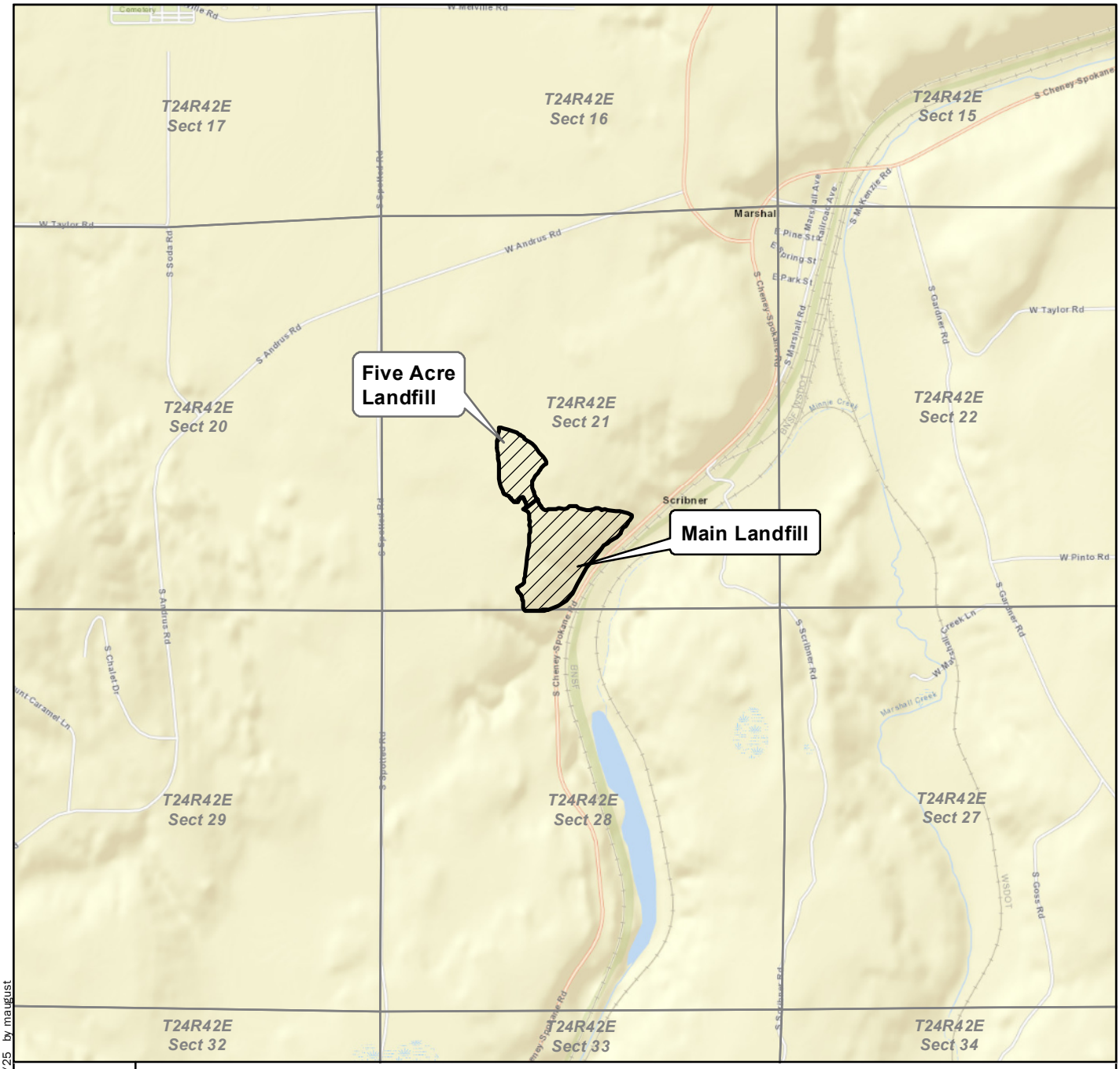
NE = not established

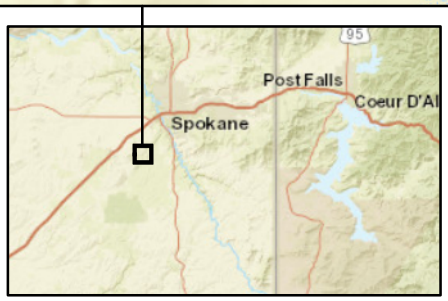
"–" = not analyzed

Bold indicates analyte was detected above the laboratory reporting limit.

Bold with gray shading indicates the analyte was detected at a concentration greater than the screening criteria (MTCA CUL)

Figures





N

2,000 0 2,000

Feet

Vicinity Map

Marshall Landfill
Spokane County, Washington

GeoEngineers

Figure 1

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Mapbox Open Street Map, 2016

Projection: NAD 1983 UTM Zone 11N

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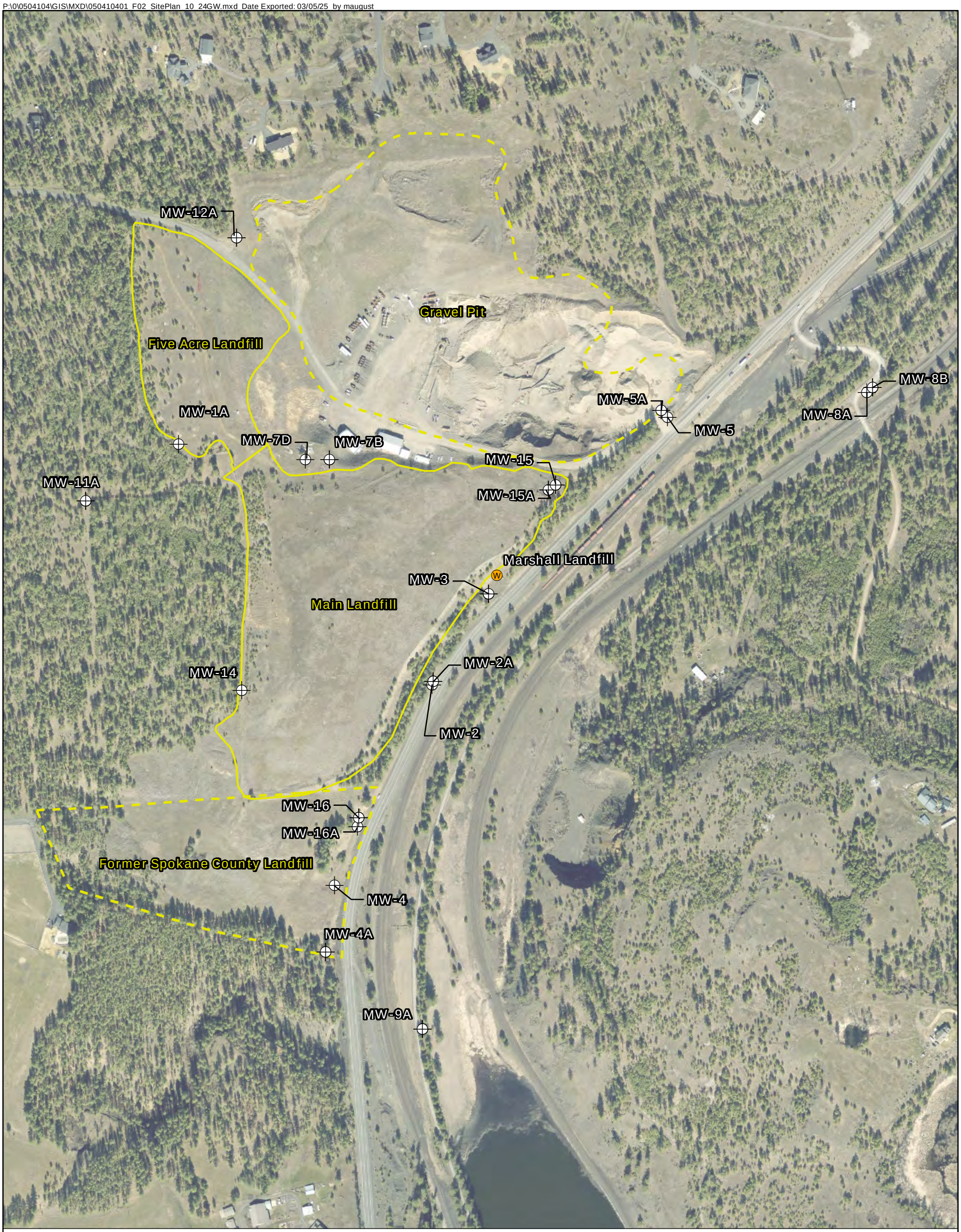

Legend

MW-9A — Monitoring Well Location and Well Number

Marshall Landfill (W) — Marshall Landfill Groundwater Supply Well

Approximate Landfill Boundaries[3]

Approximate Limits of Adjacent Landfill or Mining Land Use[3]

N

400 0 400

Feet

Data Source: Aerial from ESRI Data Online. Water features from PNW Hydrography.

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. Boundaries of landfill and mining land use were adapted from Fetrow Engineering (1991) based on Remedial Investigation explorations, aerial photography and test pit investigation data collected in November 2022. The Former Spokane County landfill boundaries have not been modified from Fetrow Engineering (1991).

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Site Plan

Marshall Landfill
Spokane County, Washington

GeoEngineers

Figure 2

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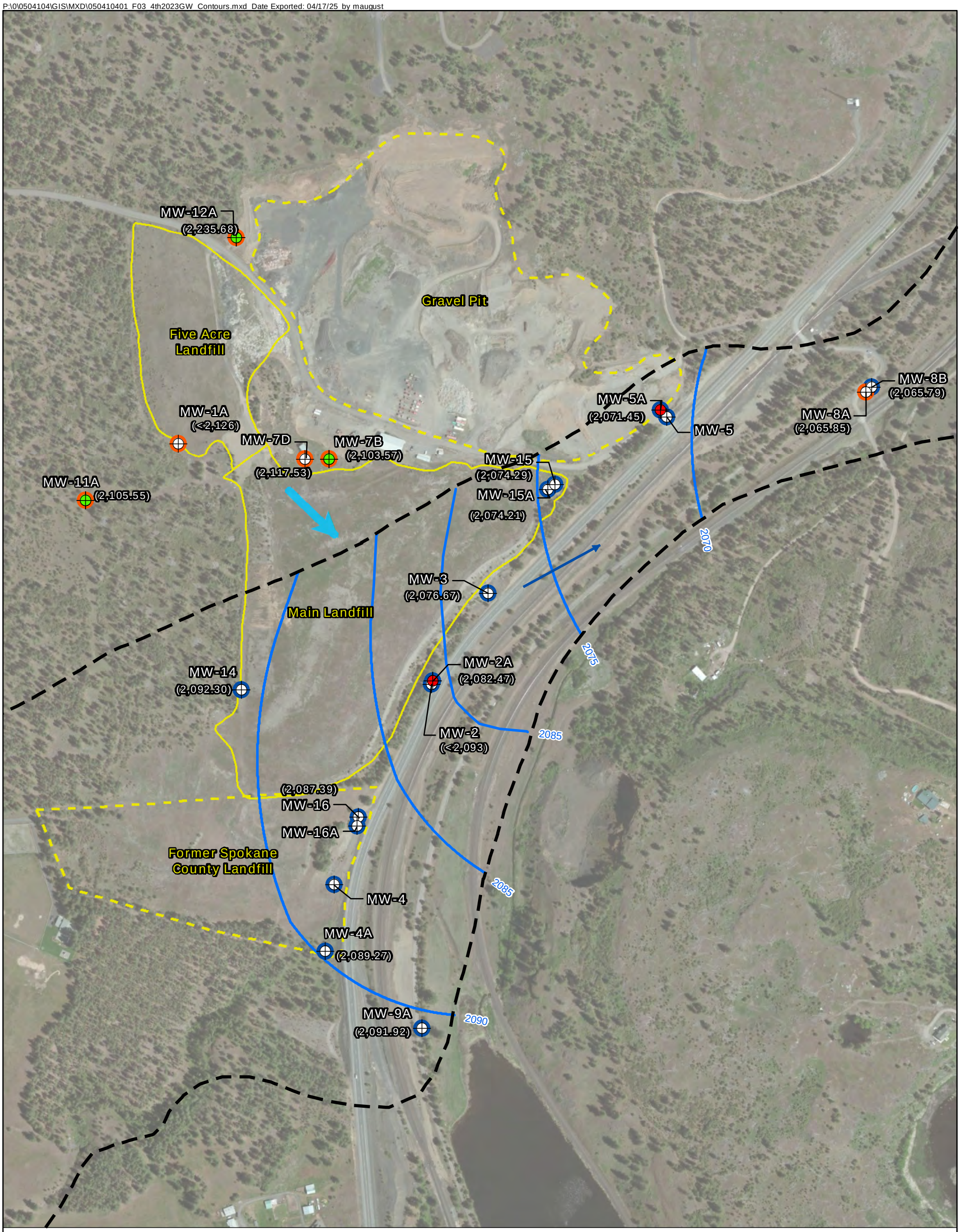

Legend

MW-2A — Monitoring Well Location, Well Number and Groundwater Elevation (feet), if Measured.

PFAS Were Detected at Concentrations Less than Screening Criteria in December 2023

PFAS Were Detected at Concentrations Above Screening Criteria in December 2023

Glaciofluvial Unit Boundary (see Note 4)

Estimated groundwater contour for Glaciofluvial Aquifer (feet, NAVD88)

Inferred Groundwater Flow Direction for Glaciofluvial Aquifer

Approximate Landfill Boundaries[3]

Approximate Limits of Adjacent Landfill or Mining Land Use[3]

Well Screened in Basement or Columbia River Basalt Group Aquifer

Well Screened in Glaciofluvial Aquifer

Inferred Average Groundwater Flow Direction for Basement Aquifer

N

400 0 400

Feet

COC = contaminant of concern
PFAS = Per- and Polyfluoroalkyl Substances
MTCA CUL = Model Toxics Control Act Cleanup Level
PFAS Screening Criteria = MTCA Method B
Potable Groundwater CULs

Data Source: Aerial from ESRI Data Online. Water features from PNW Hydrography.

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. Boundaries of landfill and mining land use were adapted from Fetrow Engineering (1991) based on Remedial Investigation explorations and aerial photography. The Former Spokane County landfill boundaries have not been modified from Fetrow Engineering (1991).
4. Glaciofluvial unit boundary as estimated as part of the Remedial Investigation Report dated May 22, 2018.
5. Depth to groundwater measurements were collected on December 14, 2023.
Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Groundwater Contours (December 2023)

Marshall Landfill
Spokane County, Washington

GeoEngineers

Figure 3

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MW-12A
(2,251.61)
Gravel Pit
Five Acre Landfill
MW-1A
(2,129.97)
MW-7D
(2,113.35)
MW-7B
(2,109.18)
MW-11A
(2,116.41)
MW-5A
(2,088.36)
MW-5
MW-8B
(2,080.45)
MW-8A
(2,079.90)
2080
MW-15
(2,094.38)
MW-15A
(2,091.96)
2090
Marshall Landfill
MW-3
(2,097.55)
Main Landfill
2100
MW-14
(2,110.53)
MW-2A
(2,107.31)
(2,107.75)
MW-2
2110
MW-16
MW-16A
(2,120.69)
Former Spokane County Landfill
MW-4
MW-4A
(2,123.24)
2120
MW-9A
(2,128.08)

Legend

- Monitoring Well Location, Well Number and Groundwater Elevation (feet), if Measured.
- PFAS Were Detected at Concentrations Less than Screening Criteria in March 2024
- PFAS Were Detected at Concentrations Above Screening Criteria in March 2024
- Marshall Landfill Groundwater Supply Well
- Glaciofluvial Unit Boundary (see Note 4)
- Estimated groundwater contour for Glaciofluvial Aquifer (feet, NAVD88)
- Inferred Groundwater Flow Direction for Glaciofluvial Aquifer
- Approximate Landfill Boundaries[3]
- Approximate Limits of Adjacent Landfill or Mining Land Use[3]
- Well Screened in Basement or Columbia River Basalt Group Aquifer
- Well Screened in Glaciofluvial Aquifer
- Inferred Average Groundwater Flow Direction for Basement Aquifer

N

400 0 400
Feet

COC = contaminant of concern
PFAS = Per- and Polyfluoroalkyl Substances
MTCA CUL = Model Toxics Control Act Cleanup Level
PFAS Screening Criteria = MTCA Method B Potable Groundwater CULs

Data Source: Aerial from ESRI Data Online. Water features from PNW Hydrography.
Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. Boundaries of landfill and mining land use were adapted from Fetrow Engineering (1991) based on Remedial Investigation explorations, aerial photography and test pit investigation data collected in November 2022. The Former Spokane County landfill boundaries have not been modified from Fetrow Engineering (1991).
4. Glaciofluvial unit boundary as estimated as part of the Remedial Investigation Report dated May 22, 2018.
Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

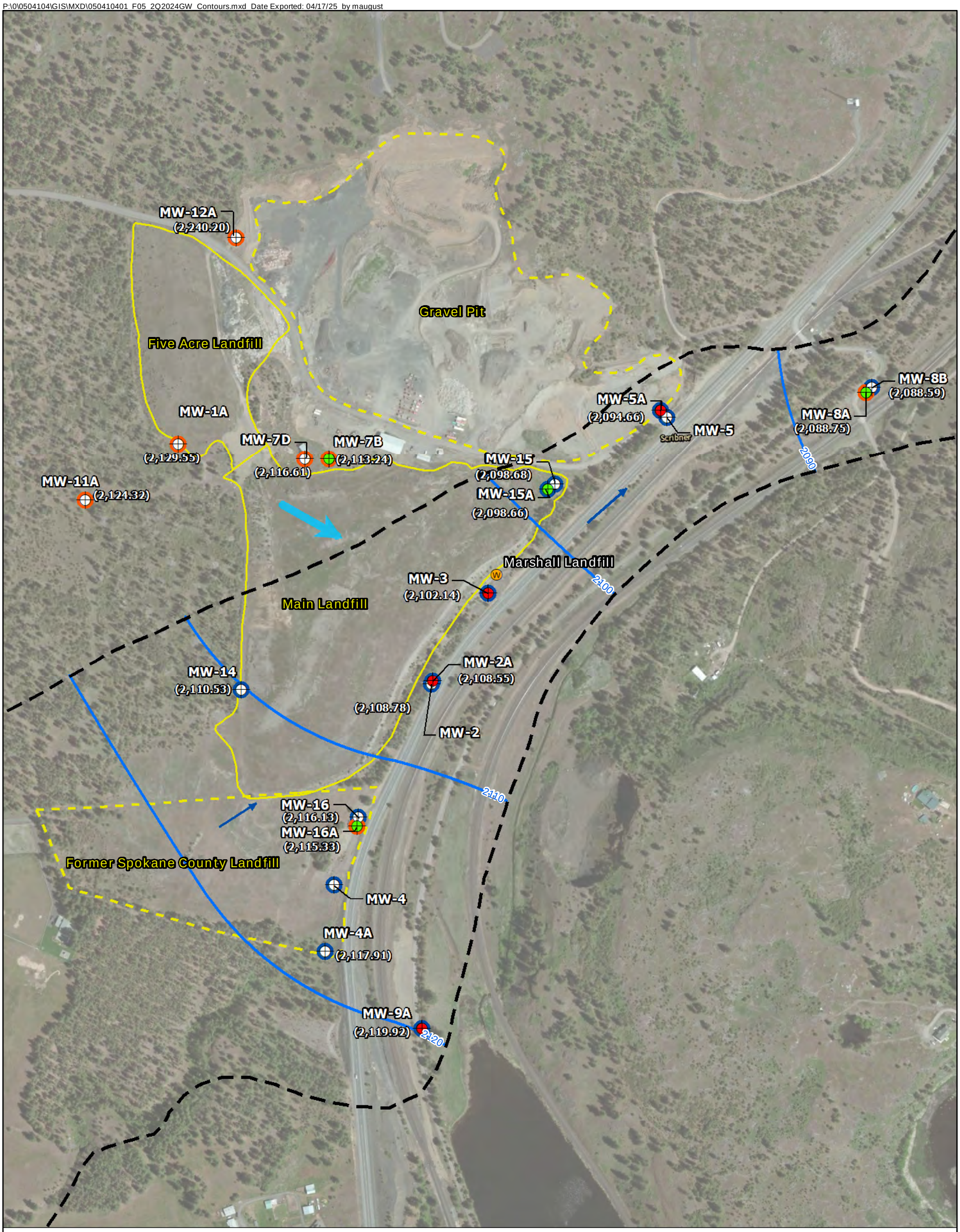
Groundwater Contours (March 2024)

Marshall Landfill
Spokane County, Washington

GeoEngineers

Figure 4

P:\0\0504104\GIS\MXD\050410401_F05_2Q2024GW_Contours.mxd Date Exported: 04/17/25 by maugust



Legend

- MW-2A — Monitoring Well Location, Well Number and Groundwater Elevation (feet), if Measured.
- PFAS Were Detected at Concentrations Less than Screening Criteria in June 2024
- PFAS Were Detected at Concentrations Above Screening Criteria in June 2024
- Marshall Landfill Groundwater Supply Well
- Glaciofluvial Unit Boundary (see Note 4)
- Estimated groundwater contour for Glaciofluvial Aquifer (feet, NAVD88)
- Inferred Groundwater Flow Direction for Glaciofluvial Aquifer
- Approximate Landfill Boundaries[3]
- Approximate Limits of Adjacent Landfill or Mining Land Use[3]
- Well Screened in Basement or Columbia River Basalt Group Aquifer
- Well Screened in Glaciofluvial Aquifer
- Inferred Average Groundwater Flow Direction for Basement Aquifer

N

400 0 400
Feet

COC = contaminant of concern
PFAS = Per- and Polyfluoroalkyl Substances
MTCA CUL = Model Toxics Control Act Cleanup Level
PFAS Screening Criteria = MTCA Method B
Potable Groundwater CULs

Data Source: Aerial from ESRI Data Online. Water features from PNW Hydrography.
Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. Boundaries of landfill and mining land use were adapted from Fetrow Engineering (1991) based on Remedial Investigation explorations, aerial photography and test pit investigation data collected in November 2022. The Former Spokane County landfill boundaries have not been modified from Fetrow Engineering (1991).
4. Glaciofluvial unit boundary as estimated as part of the Remedial Investigation Report dated May 22, 2018.
Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

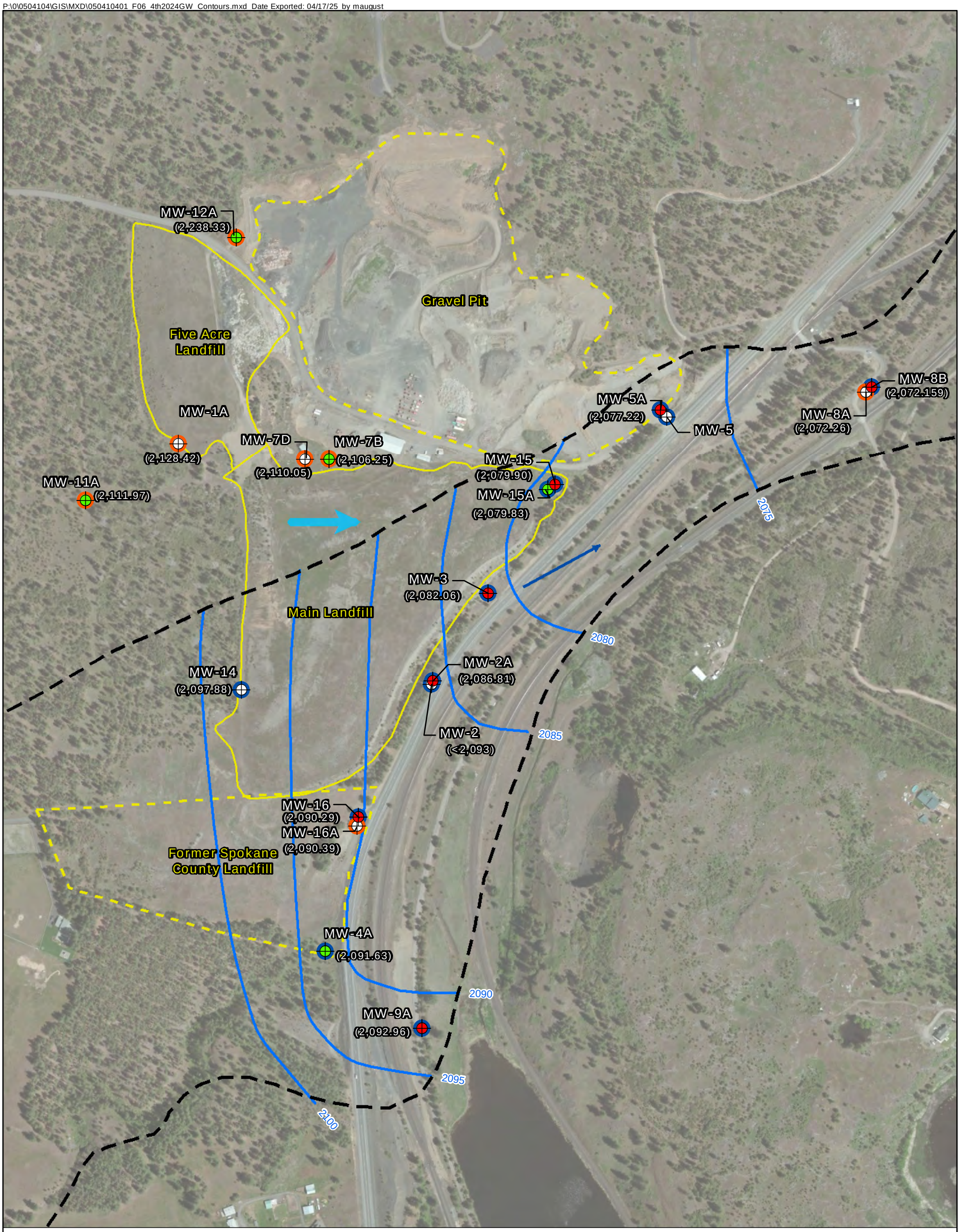
Groundwater Contours (June 2024)

Marshall Landfill
Spokane County, Washington

GeoEngineers

Figure 5

P:\0\0504104\GIS\MXD\050410401_F06_4th2024GW_Contours.mxd Date Exported: 04/17/25 by maugust



Legend

MW-2A — Monitoring Well Location, Well Number and Groundwater Elevation (feet), if Measured.

PFAS Were Detected at Concentrations Less than Screening Criteria in October 2024

PFAS Were Detected at Concentrations Above Screening Criteria in October 2024

Glaciofluvial Unit Boundary (see Note 4)

Estimated groundwater contour for Glaciofluvial Aquifer (feet, NAVD88)

Inferred Groundwater Flow Direction for Glaciofluvial Aquifer

Approximate Landfill Boundaries[3]

Approximate Limits of Adjacent Landfill or Mining Land Use[3]

Well Screened in Basement or Columbia River Basalt Group Aquifer

Well Screened in Glaciofluvial Aquifer

Inferred Average Groundwater Flow Direction for Basement Aquifer

N

400 0 400

Feet

COC = contaminant of concern
PFAS = Per- and Polyfluoroalkyl Substances
MTCA CUL = Model Toxics Control Act Cleanup Level
PFAS Screening Criteria = MTCA Method B
Potable Groundwater CULs

Data Source: Aerial from ESRI Data Online. Water features from PNW Hydrography.

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. Boundaries of landfill and mining land use were adapted from Fetrow Engineering (1991) based on Remedial Investigation explorations and aerial photography. The Former Spokane County landfill boundaries have not been modified from Fetrow Engineering (1991).
4. Glaciofluvial unit boundary as estimated as part of the Remedial Investigation Report dated May 22, 2018.
5. Depth to groundwater measurements were collected on October 24th, 2024.
Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Groundwater Contours (October 2024)

Marshall Landfill
Spokane County, Washington

GeoEngineers

Figure 6

Appendices

Appendix A

Waste Disposal Documentation

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
WAD980511794	1	800-424-8802	016345498 FLE

GENERATOR

5. Generator's Name and Mailing Address
Washington State Department of Ecology
4601 N. Monroe St
Spokane, WA 99205
Generator's Phone: 509-251-5239-1

Generator's Site Address (if different than mailing address)
10710 CHENEY SPOKANE RD
CHENEY, WA 99004 USA

6. Transporter 1 Company Name
Able Clean-up Technologies

U.S. EPA ID Number
WAH000018838

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address
Chemical Waste Management
17629 Cedar Springs Lane
Arlington, OR 97812
Facility's Phone: 541-454-2643

U.S. EPA ID Number
ORD089452353

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	~~NON HAZARDOUS, NON D.O.T. REGULATED, (PURGE WATER), PFAS CONTAMINATED WATER~~	~~1~~	~~DM~~		~~P~~	~~X004~~
	2. NON HAZARDOUS, NON D.O.T. REGULATED, (PURGE WATER), PFAS CONTAMINATED WATER	1	TP	2000	P	X004
	3.					
	4.					

14. Special Handling Instructions and Additional Information
~~9b1) OR3545556~~
9b2) ~~OR3545556~~
OR358556

JOB # 24032

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Jarrod Judd — Signature — Month: 2 — Day: 26 — Year: 24

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Jarrod Judd — Signature — Month: 2 — Day: 26 — Year: 24

Transporter 2 Printed/Typed Name: Jarrod Judd — Signature — Month: 3 — Day: 4 — Year: 24

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month — Day — Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name — Signature — Month — Day — Year

LT161

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	WAD980511794	1	800-424-8802	016345506 FLE

GENERATOR

5. Generator's Name and Mailing Address
Washington State Department of Ecology
4601 N. Monroe St.
Spokane, WA 99205
Generator's Phone: 509-251-6239-1

Generator's Site Address (if different than mailing address)
10710 CHENEY SPOKANE RD
CHENEY, WA 99004 USA

6. Transporter 1 Company Name
Able Clean-up Technologies
U.S. EPA ID Number: WAH000018838

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
Chemical Waste Management
17629 Cedar Springs Lane
Arlington, OR 97812
Facility's Phone: 541-454-2643
U.S. EPA ID Number: ORD089452353

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NON HAZARDOUS, NON D.O.T. REGULATED, (PURGE WATER), PFAS CONTAMINATED WATER	8	DM	4500		
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
9b. 1) OR355556 Nine Eight 55gallon drums
WO # 170185

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Chester Lollemans for Dept. of Ecology
Signature
Month: 06 Day: 12 Year: 24

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Allen Phillips
Signature
Month: 06 Day: 12 Year: 24

Transporter 2 Printed/Typed Name: Josh King
Signature
Month: 06 Day: 17 Year: 24

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name
Signature
Month: 06 Day: 17 Year: 24

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete.

TRANSPORTER COPY

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
WAD980611794	1	800-424-8802	016345477 FLE

GENERATOR

5. Generator's Name and Mailing Address
Washington State Department of Ecology
4601 N. Monroe St.
Spokane, WA 99205
Generator's Phone: 509-251-5239-1

Generator's Site Address (if different than mailing address)
10710 CHENEY SPOKANE RD
CHENEY, WA 99004 USA

6. Transporter 1 Company Name
NWESTCO LLC
U.S. EPA ID Number
WAH000018836

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
Chemical Waste Management
17629 Cedar Springs Lane
Arlington, OR 97812
Facility's Phone: 541-454-2643
U.S. EPA ID Number
ORD069452353

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. NON HAZARDOUS, NON D.O.T REGULATED, (PURGE WATER) PFAS CONTAMINATED WATER	6	DM	2505	P	X004
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
961) OR358856 WO# 187380

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name | Signature | Month | Day | Year
CHRISTER LOFTENIUS | 12 | 04 | 24

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name | Signature | Month | Day | Year
12 | 25 | 25

Transporter 2 Printed/Typed Name | Signature | Month | Day | Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) | Month | Day | Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name | Signature | Month | Day | Year
1 | 25 | 25

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete.

TRANSPORTER COPY

II. Instructions for International Shipment Block

Item 16. International Shipments

For export shipments, the primary exporter must check the export box, and enter the point of exit (city and state) from the United States. For import shipments, the importer must check the import box and enter the point of entry (city and state) into the United States. For exports, the transporter must sign and date the manifest to indicate the day the shipment left the United States.

III. Instructions for Transporters

Item 17. Transporters' Acknowledgments of Receipt

Enter the name of the person accepting the waste on behalf of the first transporter. That person must acknowledge acceptance of the waste described on the manifest by signing and entering the date of receipt. Only one signature per transportation company is required. Signatures are not required to track the movement of wastes in and out of transfer facilities, unless there is a change of custody between transporters.

If applicable, enter the name of the person accepting the waste on behalf of the second transporter. That person must acknowledge acceptance of the waste described on the manifest by signing and entering the date of receipt.

Note: Transporters carrying imports, who are acting as importers, may have responsibilities to enter information in the International Shipments Block. Transporters carrying exports may also have responsibilities to enter information in the International Shipments Block. See above instructions for Item 16.

This manifest reflects formatting changes made by U.S. EPA in December 2017. Beginning on June 30, 2018, this manifest (Revision 12-17) must be used and all previous editions are prohibited. Go to www.epa.gov/e-manifest for additional information.

Appendix B

Chemical Analytical Laboratory Reports

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Justin Orr
GeoEngineers Inc
523 East Second Ave
Spokane, Washington 99202

Generated 1/31/2024 3:43:04 PM

JOB DESCRIPTION

Marshall Landfill

JOB NUMBER

590-22504-1

Eurofins Spokane
11922 East 1st Ave
Spokane WA 99206

See page two for job notes and contact information.

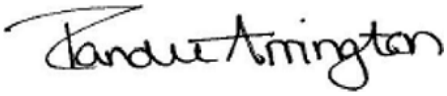
my EOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northwest, LLC Project Manager.

Authorization



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1/31/2024 3:43:04 PM

Authorized for release by
Randee Arrington, Business Unit Manager
Randee.Arrington@et.eurofinsus.com
(509)924-9200

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Job Narrative
590-22504-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 12/15/2023 8:45 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.9°C and 5.5°C

Receipt Exceptions
The following samples was received at the laboratory outside the required temperature criteria: MW-7B-121423 (590-22504-1), MW-11A-121423 (590-22504-2) and MW-12A-121423 (590-22504-3). This does not meet regulatory requirements.

GC/MS VOA
Method 8260D: The continuing calibration verification (CCV) associated with batch 590-45100 recovered above the upper control limit for 2,2-Dichloropropane and Chloromethane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 8260D: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for analytical batch 590-45100 recovered outside control limits for the following analytes: Chloromethane. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8260D: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for analytical batch 590-45100 recovered outside control limits for the following analytes: Chloromethane.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS Semi VOA
Method 8270E: The continuing calibration verification (CCV) associated with batch 580-446659 recovered above the upper control limit for 4-Nitroaniline and Benzoic acid. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: MW-7B-121423 (590-22504-1), MW-11A-121423 (590-22504-2), MW-12A-121423 (590-22504-3) and (CCVIS 580-446659/3).

Method 8270E: Surrogate recovery for the following sample was outside control limits: MW-7B-121423 (590-22504-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8270E: The continuing calibration verification (CCV) associated with batch 580-446659 recovered outside acceptance criteria, low biased, for Carbazole and Pentachlorophenol. A reporting limit (RL) standard was analyzed, and the target analytes are detected. Since the associated samples were non-detect for the analyte(s), the data are reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Herbicides
Method 8151A: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 570-394080 and analytical batch 570-394962 recovered outside control limits for the following analytes: 2,4,5-T, 2,4,5-TP (Silvex), 2,4-D, 2,4-DB, Dalapon, Dicamba, Dichlorprop, Dinoseb and MCPA.

Method 8151A: The continuing calibration verification (CCV) associated with 570-394962 recovered high and outside the control limits for Dalapon and Dichlorprop on one column. Results are confirmed on both columns and reported from the passing column. The associated samples are: MW-7B-121423 (590-22504-1), MW-11A-121423 (590-22504-2) and MW-12A-121423

(590-22504-3).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

PFAS
Method 1633: The following samples in preparation batch 320-732663 were observed to be yellow in color and contain floating particulates prior to extraction: MW-7B-121423 (590-22504-1)

Method 1633: During the solid phase extraction process, the following samples contained a large amount of particulates which clogged the solid phase extraction column: MW-7B-121423 (590-22504-1).preparation batch 320-732663

Method 1633: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-733811.

Method 1633: The following samples were re-prepared outside of preparation holding time due to suspected mis spike of low level laboratory control sample, MW-11A-121423 (590-22504-2), MW-12A-121423 (590-22504-3), EB-121423 (590-22504-4) and FB-121423 (590-22504-5).

Method 1633: The low level laboratory control sample (LLCS) for preparation batch 320-732663 and analytical batch 320-733287 recovered outside control limits for the following analytes: several analytes. The associated samples were re-prepared and/or re-analyzed outside holding time.

Method 1633: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 320-732663 and analytical batch 320-733287 recovered outside control limits for the following analytes: Perfluorooctanesulfonic acid (PFOS) and 4,8-Dioxa-3H-perfluorononanoic acid (ADONA).

Method 1633: The following sample in preparation batch 320-734764 was observed to have floating particulates present in the sample bottle. MW-7B-121423 (590-22504-1)

Method 1633: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-734764.

Method 1633: The following sample was re-prepared outside of preparation holding time due to the low-level laboratory control sample being mis-spiked: MW-7B-121423 (590-22504-1).

Method 1633: The laboratory control sample (LCS) for preparation batch 320-732663 and analytical batch 320-735085 recovered outside control limits for several analytes. The associated samples were re-prepared and/or re-analyzed outside holding time. Both sets of data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
Method 6010D: The low level initial calibration verification (ICVL) associated with batch 590-45149 recovered above the upper control limit for Sodium. The samples associated with this ICV were either 10x the spike amount, have hits below the RL, or non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
Method 2320B: The method blank for analytical batch 590-45219 contained Alkalinity and Bicarbonate Alkalinity as CaCO3 above the method detection limit (MDL). Associated samples were not re-analyzed because the method blank results were less than the reporting limit (RL)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Sample Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22504-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-22504-1	MW-7B-121423	Water	12/14/23 13:00	12/15/23 08:45
590-22504-2	MW-11A-121423	Water	12/14/23 11:05	12/15/23 08:45
590-22504-3	MW-12A-121423	Water	12/14/23 14:25	12/15/23 08:45
590-22504-4	EB-121423	Water	12/14/23 08:20	12/15/23 08:45
590-22504-5	FB-121423	Water	12/14/23 08:30	12/15/23 08:45

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.

GC Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

LCMS

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
^1+	Initial Calibration Verification (ICV) is outside acceptance limits, high biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22504-1

Client Sample ID: MW-7B-121423
Date Collected: 12/14/23 13:00
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-1
Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.48	ug/L			12/15/23 15:51	1
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			12/15/23 15:51	1
1,1,2,2-Tetrachloroethane	ND		2.0	0.32	ug/L			12/15/23 15:51	1
1,1,2-Trichloroethane	ND		2.0	0.43	ug/L			12/15/23 15:51	1
1,1-Dichloroethane	ND		1.0	0.29	ug/L			12/15/23 15:51	1
1,1-Dichloroethene	ND		1.0	0.20	ug/L			12/15/23 15:51	1
1,1-Dichloropropene	ND		1.0	0.50	ug/L			12/15/23 15:51	1
1,2,3-Trichlorobenzene	ND		1.0	0.33	ug/L			12/15/23 15:51	1
1,2,3-Trichloropropane	ND		2.0	0.50	ug/L			12/15/23 15:51	1
1,2,4-Trichlorobenzene	ND		1.0	0.50	ug/L			12/15/23 15:51	1
1,2,4-Trimethylbenzene	ND		1.0	0.31	ug/L			12/15/23 15:51	1
1,2-Dibromo-3-Chloropropane	ND		10	1.5	ug/L			12/15/23 15:51	1
1,2-Dibromoethane (EDB)	ND		1.0	0.20	ug/L			12/15/23 15:51	1
1,2-Dichlorobenzene	ND		1.0	0.23	ug/L			12/15/23 15:51	1
1,2-Dichloroethane	ND		1.0	0.31	ug/L			12/15/23 15:51	1
1,2-Dichloropropane	ND		1.0	0.23	ug/L			12/15/23 15:51	1
1,3,5-Trimethylbenzene	ND		1.0	0.32	ug/L			12/15/23 15:51	1
1,3-Dichlorobenzene	ND		1.0	0.14	ug/L			12/15/23 15:51	1
1,3-Dichloropropane	ND		2.0	0.21	ug/L			12/15/23 15:51	1
1,4-Dichlorobenzene	ND		1.0	0.28	ug/L			12/15/23 15:51	1
2,2-Dichloropropane	ND		2.0	0.66	ug/L			12/15/23 15:51	1
2-Chlorotoluene	ND		1.0	0.36	ug/L			12/15/23 15:51	1
4-Chlorotoluene	ND		1.0	0.26	ug/L			12/15/23 15:51	1
Benzene	ND		0.40	0.093	ug/L			12/15/23 15:51	1
Bromobenzene	ND		1.0	0.28	ug/L			12/15/23 15:51	1
Bromochloromethane	ND		2.0	0.44	ug/L			12/15/23 15:51	1
Bromodichloromethane	ND		1.0	0.29	ug/L			12/15/23 15:51	1
Bromoform	ND		5.0	0.66	ug/L			12/15/23 15:51	1
Bromomethane	ND		5.0	0.76	ug/L			12/15/23 15:51	1
Carbon tetrachloride	ND		1.0	0.40	ug/L			12/15/23 15:51	1
Chlorobenzene	ND		1.0	0.32	ug/L			12/15/23 15:51	1
Chloroethane	ND		2.0	0.40	ug/L			12/15/23 15:51	1
Chloroform	ND		1.0	0.24	ug/L			12/15/23 15:51	1
Chloromethane	ND	*+ *1	3.0	0.50	ug/L			12/15/23 15:51	1
cis-1,2-Dichloroethene	ND		1.0	0.23	ug/L			12/15/23 15:51	1
cis-1,3-Dichloropropene	ND		1.0	0.25	ug/L			12/15/23 15:51	1
Dibromochloromethane	ND		2.0	0.33	ug/L			12/15/23 15:51	1
Dibromomethane	ND		2.0	0.50	ug/L			12/15/23 15:51	1
Dichlorodifluoromethane	ND		2.0	0.64	ug/L			12/15/23 15:51	1
Ethylbenzene	ND		1.0	0.20	ug/L			12/15/23 15:51	1
Hexachlorobutadiene	ND		2.0	0.21	ug/L			12/15/23 15:51	1
Isopropylbenzene	ND		1.0	0.24	ug/L			12/15/23 15:51	1
m,p-Xylene	ND		2.0	0.28	ug/L			12/15/23 15:51	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			12/15/23 15:51	1
Methylene Chloride	ND		5.0	2.2	ug/L			12/15/23 15:51	1
Naphthalene	ND		2.0	0.63	ug/L			12/15/23 15:51	1
n-Butylbenzene	ND		1.0	0.20	ug/L			12/15/23 15:51	1
N-Propylbenzene	ND		1.0	0.25	ug/L			12/15/23 15:51	1
o-Xylene	ND		1.0	0.16	ug/L			12/15/23 15:51	1

Client Sample ID: MW-7B-121423
Date Collected: 12/14/23 13:00
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-1
Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
p-Isopropyltoluene	ND		1.0	0.27	ug/L			12/15/23 15:51	1
sec-Butylbenzene	ND		1.0	0.22	ug/L			12/15/23 15:51	1
Styrene	ND		1.0	0.24	ug/L			12/15/23 15:51	1
tert-Butylbenzene	ND		1.0	0.12	ug/L			12/15/23 15:51	1
Tetrachloroethene	ND		1.0	0.22	ug/L			12/15/23 15:51	1
Toluene	ND		1.0	0.31	ug/L			12/15/23 15:51	1
trans-1,2-Dichloroethene	ND		1.0	0.20	ug/L			12/15/23 15:51	1
trans-1,3-Dichloropropene	ND		1.0	0.45	ug/L			12/15/23 15:51	1
Trichloroethene	ND		1.0	0.20	ug/L			12/15/23 15:51	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/15/23 15:51	1
Vinyl chloride	ND		0.40	0.13	ug/L			12/15/23 15:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*80 - 120*		*12/15/23 15:51*	*1*
4-Bromofluorobenzene (Surr)	*91*		*76 - 120*		*12/15/23 15:51*	*1*
Dibromofluoromethane (Surr)	*111*		*80 - 123*		*12/15/23 15:51*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*12/15/23 15:51*	*1*

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		0.38	0.085	ug/L		12/19/23 08:40	12/19/23 22:31	1
1,2-Dichlorobenzene	ND		0.38	0.047	ug/L		12/19/23 08:40	12/19/23 22:31	1
1,3-Dichlorobenzene	ND		0.38	0.038	ug/L		12/19/23 08:40	12/19/23 22:31	1
1,4-Dichlorobenzene	ND		0.38	0.038	ug/L		12/19/23 08:40	12/19/23 22:31	1
1-Methylnaphthalene	ND		0.95	0.047	ug/L		12/19/23 08:40	12/19/23 22:31	1
2,4,5-Trichlorophenol	ND		0.38	0.095	ug/L		12/19/23 08:40	12/19/23 22:31	1
2,4,6-Trichlorophenol	ND		0.57	0.095	ug/L		12/19/23 08:40	12/19/23 22:31	1
2,4-Dichlorophenol	ND		0.95	0.19	ug/L		12/19/23 08:40	12/19/23 22:31	1
2,4-Dimethylphenol	ND		3.8	0.15	ug/L		12/19/23 08:40	12/19/23 22:31	1
2,4-Dinitrophenol	ND		4.7	0.43	ug/L		12/19/23 08:40	12/19/23 22:31	1
2,4-Dinitrotoluene	ND		0.95	0.095	ug/L		12/19/23 08:40	12/19/23 22:31	1
2,6-Dinitrotoluene	ND		0.38	0.095	ug/L		12/19/23 08:40	12/19/23 22:31	1
2-Chloronaphthalene	ND		0.95	0.066	ug/L		12/19/23 08:40	12/19/23 22:31	1
2-Chlorophenol	ND		0.95	0.047	ug/L		12/19/23 08:40	12/19/23 22:31	1
2-Methylnaphthalene	ND		0.38	0.057	ug/L		12/19/23 08:40	12/19/23 22:31	1
2-Methylphenol	ND		0.57	0.047	ug/L		12/19/23 08:40	12/19/23 22:31	1
2-Nitroaniline	ND		0.95	0.095	ug/L		12/19/23 08:40	12/19/23 22:31	1
2-Nitrophenol	ND		0.95	0.066	ug/L		12/19/23 08:40	12/19/23 22:31	1
3 & 4 Methylphenol	ND		0.57	0.095	ug/L		12/19/23 08:40	12/19/23 22:31	1
3,3'-Dichlorobenzidine	ND		0.95	0.11	ug/L		12/19/23 08:40	12/19/23 22:31	1
3-Nitroaniline	ND		2.8	0.15	ug/L		12/19/23 08:40	12/19/23 22:31	1
4,6-Dinitro-2-methylphenol	ND		1.9	0.52	ug/L		12/19/23 08:40	12/19/23 22:31	1
4-Bromophenyl phenyl ether	ND		0.57	0.057	ug/L		12/19/23 08:40	12/19/23 22:31	1
4-Chloro-3-methylphenol	ND		0.57	0.12	ug/L		12/19/23 08:40	12/19/23 22:31	1
4-Chloroaniline	ND		1.9	0.14	ug/L		12/19/23 08:40	12/19/23 22:31	1
4-Chlorophenyl phenyl ether	ND		0.57	0.047	ug/L		12/19/23 08:40	12/19/23 22:31	1
4-Nitroaniline	ND		1.9	0.20	ug/L		12/19/23 08:40	12/19/23 22:31	1
4-Nitrophenol	ND		9.5	1.6	ug/L		12/19/23 08:40	12/19/23 22:31	1
Acenaphthene	ND		0.38	0.047	ug/L		12/19/23 08:40	12/19/23 22:31	1
Acenaphthylene	ND		0.95	0.057	ug/L		12/19/23 08:40	12/19/23 22:31	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22504-1

Client Sample ID: MW-7B-121423

Date Collected: 12/14/23 13:00
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-1

Matrix: Water

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	ND		0.95	0.047	ug/L		12/19/23 08:40	12/19/23 22:31	1
Benzo[a]anthracene	ND		0.24	0.047	ug/L		12/19/23 08:40	12/19/23 22:31	1
Benzo[a]pyrene	ND		0.24	0.038	ug/L		12/19/23 08:40	12/19/23 22:31	1
Benzo[b]fluoranthene	ND		0.24	0.038	ug/L		12/19/23 08:40	12/19/23 22:31	1
Benzo[g,h,i]perylene	ND		0.24	0.038	ug/L		12/19/23 08:40	12/19/23 22:31	1
Benzo[k]fluoranthene	ND		0.24	0.047	ug/L		12/19/23 08:40	12/19/23 22:31	1
Benzoic acid	**3.0**	**J**	9.5	1.3	ug/L		12/19/23 08:40	12/19/23 22:31	1
Benzyl alcohol	ND		4.7	0.17	ug/L		12/19/23 08:40	12/19/23 22:31	1
Bis(2-chloroethoxy)methane	ND		0.57	0.047	ug/L		12/19/23 08:40	12/19/23 22:31	1
Bis(2-chloroethyl)ether	ND		0.095	0.028	ug/L		12/19/23 08:40	12/19/23 22:31	1
Bis(2-ethylhexyl) phthalate	ND		2.8	0.70	ug/L		12/19/23 08:40	12/19/23 22:31	1
bis(chloroisopropyl) ether	ND		0.24	0.057	ug/L		12/19/23 08:40	12/19/23 22:31	1
Butyl benzyl phthalate	ND		3.8	0.26	ug/L		12/19/23 08:40	12/19/23 22:31	1
Carbazole	ND		0.57	0.095	ug/L		12/19/23 08:40	12/19/23 22:31	1
Chrysene	ND		0.24	0.085	ug/L		12/19/23 08:40	12/19/23 22:31	1
Dibenz(a,h)anthracene	ND		0.24	0.066	ug/L		12/19/23 08:40	12/19/23 22:31	1
Dibenzofuran	ND		0.38	0.095	ug/L		12/19/23 08:40	12/19/23 22:31	1
Diethyl phthalate	ND		0.95	0.14	ug/L		12/19/23 08:40	12/19/23 22:31	1
Dimethyl phthalate	ND		0.57	0.057	ug/L		12/19/23 08:40	12/19/23 22:31	1
Di-n-butyl phthalate	ND		9.5	2.8	ug/L		12/19/23 08:40	12/19/23 22:31	1
Di-n-octyl phthalate	ND		0.95	0.12	ug/L		12/19/23 08:40	12/19/23 22:31	1
Fluoranthene	ND		0.24	0.057	ug/L		12/19/23 08:40	12/19/23 22:31	1
Fluorene	ND		0.24	0.047	ug/L		12/19/23 08:40	12/19/23 22:31	1
Hexachlorobenzene	ND		0.57	0.076	ug/L		12/19/23 08:40	12/19/23 22:31	1
Hexachlorobutadiene	ND		0.95	0.076	ug/L		12/19/23 08:40	12/19/23 22:31	1
Hexachlorocyclopentadiene	ND		0.95	0.13	ug/L		12/19/23 08:40	12/19/23 22:31	1
Hexachloroethane	ND		0.95	0.047	ug/L		12/19/23 08:40	12/19/23 22:31	1
Indeno[1,2,3-cd]pyrene	ND		0.38	0.12	ug/L		12/19/23 08:40	12/19/23 22:31	1
Isophorone	ND		0.38	0.095	ug/L		12/19/23 08:40	12/19/23 22:31	1
Naphthalene	ND		0.38	0.15	ug/L		12/19/23 08:40	12/19/23 22:31	1
Nitrobenzene	ND		0.95	0.038	ug/L		12/19/23 08:40	12/19/23 22:31	1
N-Nitrosodi-n-propylamine	ND		0.38	0.057	ug/L		12/19/23 08:40	12/19/23 22:31	1
N-Nitrosodiphenylamine	ND		0.95	0.066	ug/L		12/19/23 08:40	12/19/23 22:31	1
Pentachlorophenol	ND		4.7	0.48	ug/L		12/19/23 08:40	12/19/23 22:31	1
Phenanthrene	ND		0.95	0.11	ug/L		12/19/23 08:40	12/19/23 22:31	1
Phenol	ND		0.95	0.15	ug/L		12/19/23 08:40	12/19/23 22:31	1
Pyrene	ND		0.95	0.038	ug/L		12/19/23 08:40	12/19/23 22:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*87*		*50 - 130*	*12/19/23 08:40*	*12/19/23 22:31*	*1*
2-Fluorobiphenyl	*53*		*35 - 120*	*12/19/23 08:40*	*12/19/23 22:31*	*1*
2-Fluorophenol (Surr)	*38*		*21 - 120*	*12/19/23 08:40*	*12/19/23 22:31*	*1*
Nitrobenzene-d5 (Surr)	*58*		*39 - 120*	*12/19/23 08:40*	*12/19/23 22:31*	*1*
Phenol-d5 (Surr)	*26*		*10 - 120*	*12/19/23 08:40*	*12/19/23 22:31*	*1*
Terphenyl-d14 (Surr)	*56*	*S1-*	*63 - 137*	*12/19/23 08:40*	*12/19/23 22:31*	*1*

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-T	ND	*1	0.48	0.20	ug/L		12/18/23 21:35	12/20/23 23:10	1
2,4,5-TP (Silvex)	ND		0.48	0.13	ug/L		12/18/23 21:35	12/20/23 23:10	1

Client Sample ID: MW-7B-121423

Date Collected: 12/14/23 13:00
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-1

Matrix: Water

Method: SW846 8151A - Herbicides (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	ND	*1	4.8	1.9	ug/L		12/18/23 21:35	12/20/23 23:10	1
2,4-DB	ND		4.8	3.3	ug/L		12/18/23 21:35	12/20/23 23:10	1
Dalapon	ND	*1	12	4.5	ug/L		12/18/23 21:35	12/20/23 23:10	1
Dicamba	ND	*1	0.48	0.27	ug/L		12/18/23 21:35	12/20/23 23:10	1
Dichlorprop	ND	*1	4.8	1.9	ug/L		12/18/23 21:35	12/20/23 23:10	1
Dinoseb	ND	*1	2.4	2.1	ug/L		12/18/23 21:35	12/20/23 23:10	1
MCPA	ND	*1	480	330	ug/L		12/18/23 21:35	12/20/23 23:10	1
MCPP	ND		480	290	ug/L		12/18/23 21:35	12/20/23 23:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*102*		*20 - 161*	*12/18/23 21:35*	*12/20/23 23:10*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**0.58**	**J**	0.80	0.42	mg/L			12/15/23 14:15	1
Nitrate as N	ND		0.20	0.057	mg/L			12/15/23 14:15	1
Nitrite as N	ND		0.20	0.069	mg/L			12/15/23 14:15	1
Sulfate	**4.0**		0.50	0.13	mg/L			12/15/23 14:15	1

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**11**	***+**	7.2	1.8	ng/L		01/11/24 05:03	01/13/24 12:56	1
Perfluoropentanoic acid (PFPeA)	**9.1**	***+**	3.6	0.90	ng/L		01/11/24 05:03	01/13/24 12:56	1
Perfluorohexanoic acid (PFHxA)	**3.9**	***+**	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 12:56	1
Perfluoroheptanoic acid (PFHpA)	**1.8**	***+**	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 12:56	1
Perfluorooctanoic acid (PFOA)	**0.57**	**J *+**	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 12:56	1
Perfluorononanoic acid (PFNA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 12:56	1
Perfluorodecanoic acid (PFDA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 12:56	1
Perfluoroundecanoic acid (PFUnA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 12:56	1
Perfluorododecanoic acid (PFDoA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 12:56	1
Perfluorotridecanoic acid (PFTrDA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 12:56	1
Perfluorotetradecanoic acid (PFTeDA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 12:56	1
Perfluorobutanesulfonic acid (PFBS)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 12:56	1
Perfluoropentanesulfonic acid (PFPeS)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 12:56	1
Perfluorohexanesulfonic acid (PFHxS)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 12:56	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 12:56	1
Perfluorooctanesulfonic acid (PFOS)	**0.58**	**J *+ *1**	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 12:56	1
Perfluorononanesulfonic acid (PFNS)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 12:56	1
Perfluorodecanesulfonic acid (PFDS)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 12:56	1
Perfluorododecanesulfonic acid (PFDoS)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 12:56	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	*+	7.2	1.8	ng/L		01/11/24 05:03	01/13/24 12:56	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	*+	7.2	1.8	ng/L		01/11/24 05:03	01/13/24 12:56	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 12:56	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 12:56	1

Client Sample ID: MW-7B-121423
Date Collected: 12/14/23 13:00
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-1
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 12:56	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 12:56	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	*+	18	4.5	ng/L		01/11/24 05:03	01/13/24 12:56	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	*+	18	4.5	ng/L		01/11/24 05:03	01/13/24 12:56	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	*+	7.2	1.8	ng/L		01/11/24 05:03	01/13/24 12:56	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	*+ *1	7.2	1.8	ng/L		01/11/24 05:03	01/13/24 12:56	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	*+	3.6	0.90	ng/L		01/11/24 05:03	01/13/24 12:56	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	*+	3.6	0.90	ng/L		01/11/24 05:03	01/13/24 12:56	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	*+	3.6	0.90	ng/L		01/11/24 05:03	01/13/24 12:56	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND	*+	7.2	1.8	ng/L		01/11/24 05:03	01/13/24 12:56	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		7.2	1.8	ng/L		01/11/24 05:03	01/13/24 12:56	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND	*+	3.6	0.90	ng/L		01/11/24 05:03	01/13/24 12:56	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	*+	9.0	2.2	ng/L		01/11/24 05:03	01/13/24 12:56	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND	*+	45	11	ng/L		01/11/24 05:03	01/13/24 12:56	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	*+	45	11	ng/L		01/11/24 05:03	01/13/24 12:56	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*63.6*		*5 - 130*	*01/11/24 05:03*	*01/13/24 12:56*	*1*
13C5 PFPeA	*70.3*		*40 - 130*	*01/11/24 05:03*	*01/13/24 12:56*	*1*
13C5 PFHxA	*66.1*		*40 - 130*	*01/11/24 05:03*	*01/13/24 12:56*	*1*
13C4 PFHpA	*71.0*		*40 - 130*	*01/11/24 05:03*	*01/13/24 12:56*	*1*
13C8 PFOA	*69.1*		*40 - 130*	*01/11/24 05:03*	*01/13/24 12:56*	*1*
13C9 PFNA	*74.5*		*40 - 130*	*01/11/24 05:03*	*01/13/24 12:56*	*1*
13C6 PFDA	*62.2*		*40 - 130*	*01/11/24 05:03*	*01/13/24 12:56*	*1*
13C7 PFUnA	*59.9*		*30 - 130*	*01/11/24 05:03*	*01/13/24 12:56*	*1*
13C2 PFDoA	*55.4*		*10 - 130*	*01/11/24 05:03*	*01/13/24 12:56*	*1*
13C2 PFTeDA	*34.3*		*10 - 130*	*01/11/24 05:03*	*01/13/24 12:56*	*1*
13C3 PFBS	*58.0*		*40 - 135*	*01/11/24 05:03*	*01/13/24 12:56*	*1*
13C3 PFHxS	*65.5*		*40 - 130*	*01/11/24 05:03*	*01/13/24 12:56*	*1*
13C8 PFOS	*69.9*		*40 - 130*	*01/11/24 05:03*	*01/13/24 12:56*	*1*
13C8 PFOSA	*57.6*		*40 - 130*	*01/11/24 05:03*	*01/13/24 12:56*	*1*
d3-NMeFOSAA	*80.5*		*40 - 170*	*01/11/24 05:03*	*01/13/24 12:56*	*1*
d5-NEtFOSAA	*81.4*		*25 - 135*	*01/11/24 05:03*	*01/13/24 12:56*	*1*
13C2 4:2 FTS	*114*		*40 - 200*	*01/11/24 05:03*	*01/13/24 12:56*	*1*
13C2 6:2 FTS	*116*		*40 - 200*	*01/11/24 05:03*	*01/13/24 12:56*	*1*
13C3 HFPO-DA	*69.2*		*40 - 130*	*01/11/24 05:03*	*01/13/24 12:56*	*1*
d7-N-MeFOSE-M	*55.2*		*10 - 130*	*01/11/24 05:03*	*01/13/24 12:56*	*1*
d9-N-EtFOSE-M	*49.7*		*10 - 130*	*01/11/24 05:03*	*01/13/24 12:56*	*1*
d5-NEtPFOSA	*43.9*		*10 - 130*	*01/11/24 05:03*	*01/13/24 12:56*	*1*

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22504-1

Client Sample ID: MW-7B-121423

Date Collected: 12/14/23 13:00
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-1

Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
d3-NMePFOSA	*53.0*		*10 - 130*	*01/11/24 05:03*	*01/13/24 12:56*	*1*

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	*+	7.2	1.8	ng/L		01/11/24 05:03	01/19/24 21:06	1
Perfluorooctanesulfonamide (PFOSA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/19/24 21:06	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOSA	*66.9*		*40 - 130*	*01/11/24 05:03*	*01/19/24 21:06*	*1*
13C2 8:2 FTS	*111*		*40 - 300*	*01/11/24 05:03*	*01/19/24 21:06*	*1*

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**11**	**H**	6.8	1.7	ng/L		01/19/24 11:50	01/23/24 06:20	1
Perfluoropentanoic acid (PFPeA)	**8.5**	**H**	3.4	0.85	ng/L		01/19/24 11:50	01/23/24 06:20	1
Perfluorohexanoic acid (PFHxA)	**3.3**	**H**	1.7	0.43	ng/L		01/19/24 11:50	01/23/24 06:20	1
Perfluoroheptanoic acid (PFHpA)	**2.1**	**H**	1.7	0.43	ng/L		01/19/24 11:50	01/23/24 06:20	1
Perfluorooctanoic acid (PFOA)	**0.62**	**J H**	1.7	0.43	ng/L		01/19/24 11:50	01/23/24 06:20	1
Perfluorononanoic acid (PFNA)	ND	H	1.7	0.43	ng/L		01/19/24 11:50	01/23/24 06:20	1
Perfluorodecanoic acid (PFDA)	ND	H	1.7	0.43	ng/L		01/19/24 11:50	01/23/24 06:20	1
Perfluoroundecanoic acid (PFUnA)	ND	H	1.7	0.43	ng/L		01/19/24 11:50	01/23/24 06:20	1
Perfluorododecanoic acid (PFDoA)	ND	H	1.7	0.43	ng/L		01/19/24 11:50	01/23/24 06:20	1
Perfluorotridecanoic acid (PFTrDA)	ND	H	1.7	0.43	ng/L		01/19/24 11:50	01/23/24 06:20	1
Perfluorotetradecanoic acid (PFTeDA)	ND	H	1.7	0.43	ng/L		01/19/24 11:50	01/23/24 06:20	1
Perfluorobutanesulfonic acid (PFBS)	ND	H	1.7	0.43	ng/L		01/19/24 11:50	01/23/24 06:20	1
Perfluoropentanesulfonic acid (PFPeS)	ND	H	1.7	0.43	ng/L		01/19/24 11:50	01/23/24 06:20	1
Perfluorohexanesulfonic acid (PFHxS)	ND	H	1.7	0.43	ng/L		01/19/24 11:50	01/23/24 06:20	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	H	1.7	0.43	ng/L		01/19/24 11:50	01/23/24 06:20	1
Perfluorooctanesulfonic acid (PFOS)	**0.62**	**J H**	1.7	0.43	ng/L		01/19/24 11:50	01/23/24 06:20	1
Perfluorononanesulfonic acid (PFNS)	ND	H	1.7	0.43	ng/L		01/19/24 11:50	01/23/24 06:20	1
Perfluorodecanesulfonic acid (PFDS)	ND	H	1.7	0.43	ng/L		01/19/24 11:50	01/23/24 06:20	1
Perfluorododecanesulfonic acid (PFDoS)	ND	H	1.7	0.43	ng/L		01/19/24 11:50	01/23/24 06:20	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	H	6.8	1.7	ng/L		01/19/24 11:50	01/23/24 06:20	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	H	6.8	1.7	ng/L		01/19/24 11:50	01/23/24 06:20	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	H	6.8	1.7	ng/L		01/19/24 11:50	01/23/24 06:20	1
Perfluorooctanesulfonamide (PFOSA)	ND	H	1.7	0.43	ng/L		01/19/24 11:50	01/23/24 06:20	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	H	1.7	0.43	ng/L		01/19/24 11:50	01/23/24 06:20	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	H	1.7	0.43	ng/L		01/19/24 11:50	01/23/24 06:20	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	H	1.7	0.43	ng/L		01/19/24 11:50	01/23/24 06:20	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	H	1.7	0.43	ng/L		01/19/24 11:50	01/23/24 06:20	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	H	17	4.3	ng/L		01/19/24 11:50	01/23/24 06:20	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22504-1

Client Sample ID: MW-7B-121423
Date Collected: 12/14/23 13:00
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-1
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RE (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	H	17	4.3	ng/L		01/19/24 11:50	01/23/24 06:20	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	H	6.8	1.7	ng/L		01/19/24 11:50	01/23/24 06:20	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H	6.8	1.7	ng/L		01/19/24 11:50	01/23/24 06:20	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	H	3.4	0.85	ng/L		01/19/24 11:50	01/23/24 06:20	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	H	3.4	0.85	ng/L		01/19/24 11:50	01/23/24 06:20	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	H	3.4	0.85	ng/L		01/19/24 11:50	01/23/24 06:20	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND	H	6.8	1.7	ng/L		01/19/24 11:50	01/23/24 06:20	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND	H	6.8	1.7	ng/L		01/19/24 11:50	01/23/24 06:20	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND	H	3.4	0.85	ng/L		01/19/24 11:50	01/23/24 06:20	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	H	8.5	2.1	ng/L		01/19/24 11:50	01/23/24 06:20	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND	H	43	11	ng/L		01/19/24 11:50	01/23/24 06:20	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	H	43	11	ng/L		01/19/24 11:50	01/23/24 06:20	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*81.6*		*5 - 130*	*01/19/24 11:50*	*01/23/24 06:20*	*1*
13C5 PFPeA	*89.1*		*40 - 130*	*01/19/24 11:50*	*01/23/24 06:20*	*1*
13C5 PFHxA	*82.4*		*40 - 130*	*01/19/24 11:50*	*01/23/24 06:20*	*1*
13C4 PFHpA	*78.7*		*40 - 130*	*01/19/24 11:50*	*01/23/24 06:20*	*1*
13C8 PFOA	*86.0*		*40 - 130*	*01/19/24 11:50*	*01/23/24 06:20*	*1*
13C9 PFNA	*77.4*		*40 - 130*	*01/19/24 11:50*	*01/23/24 06:20*	*1*
13C6 PFDA	*79.6*		*40 - 130*	*01/19/24 11:50*	*01/23/24 06:20*	*1*
13C7 PFUnA	*67.6*		*30 - 130*	*01/19/24 11:50*	*01/23/24 06:20*	*1*
13C2 PFDoA	*52.0*		*10 - 130*	*01/19/24 11:50*	*01/23/24 06:20*	*1*
13C2 PFTeDA	*42.7*		*10 - 130*	*01/19/24 11:50*	*01/23/24 06:20*	*1*
13C3 PFBS	*78.3*		*40 - 135*	*01/19/24 11:50*	*01/23/24 06:20*	*1*
13C3 PFHxS	*77.0*		*40 - 130*	*01/19/24 11:50*	*01/23/24 06:20*	*1*
13C8 PFOS	*80.1*		*40 - 130*	*01/19/24 11:50*	*01/23/24 06:20*	*1*
13C8 PFOSA	*76.4*		*40 - 130*	*01/19/24 11:50*	*01/23/24 06:20*	*1*
d3-NMeFOSAA	*92.3*		*40 - 170*	*01/19/24 11:50*	*01/23/24 06:20*	*1*
d5-NEtFOSAA	*94.9*		*25 - 135*	*01/19/24 11:50*	*01/23/24 06:20*	*1*
13C2 4:2 FTS	*149*		*40 - 200*	*01/19/24 11:50*	*01/23/24 06:20*	*1*
13C2 6:2 FTS	*137*		*40 - 200*	*01/19/24 11:50*	*01/23/24 06:20*	*1*
13C2 8:2 FTS	*121*		*40 - 300*	*01/19/24 11:50*	*01/23/24 06:20*	*1*
13C3 HFPO-DA	*82.9*		*40 - 130*	*01/19/24 11:50*	*01/23/24 06:20*	*1*
d7-N-MeFOSE-M	*53.1*		*10 - 130*	*01/19/24 11:50*	*01/23/24 06:20*	*1*
d9-N-EtFOSE-M	*40.9*		*10 - 130*	*01/19/24 11:50*	*01/23/24 06:20*	*1*
d5-NEtPFOSA	*51.1*		*10 - 130*	*01/19/24 11:50*	*01/23/24 06:20*	*1*
d3-NMePFOSA	*58.0*		*10 - 130*	*01/19/24 11:50*	*01/23/24 06:20*	*1*

Client Sample Results

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22504-1

Client Sample ID: MW-7B-121423

Date Collected: 12/14/23 13:00
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-1

Matrix: Water

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**10**		1.0	0.13	mg/L		12/18/23 10:30	12/18/23 15:23	1
Potassium	**1.7**		0.50	0.29	mg/L		12/18/23 10:30	12/18/23 15:23	1
Sodium	**5.3**	**^1+**	0.50	0.20	mg/L		12/18/23 10:30	12/18/23 15:23	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**34**		2.0	0.20	mg/L		12/18/23 17:27	12/19/23 13:27	1
Magnesium	**10**		1.0	0.13	mg/L		12/18/23 17:27	12/19/23 13:27	1

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.0010	mg/L		12/18/23 15:58	12/20/23 17:57	5
Cadmium	ND		0.0020	0.00019	mg/L		12/18/23 15:58	12/20/23 17:57	5
Iron	**0.21**	**J**	0.50	0.067	mg/L		12/18/23 15:58	12/20/23 17:57	5
Lead	**0.0015**	**J**	0.0020	0.00020	mg/L		12/18/23 15:58	12/20/23 17:57	5
Manganese	**0.0068**	**J**	0.010	0.0023	mg/L		12/18/23 15:58	12/20/23 17:57	5
Zinc	**0.018**	**J**	0.035	0.0046	mg/L		12/18/23 15:58	12/20/23 17:57	5

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.0010	mg/L		12/20/23 15:52	12/22/23 11:51	5
Cadmium	ND		0.0020	0.00019	mg/L		12/20/23 15:52	12/22/23 11:51	5
Iron	ND		0.50	0.067	mg/L		12/20/23 15:52	12/22/23 11:51	5
Lead	ND		0.0020	0.00020	mg/L		12/20/23 15:52	12/22/23 11:51	5
Manganese	ND		0.010	0.0023	mg/L		12/20/23 15:52	12/22/23 11:51	5
Zinc	**0.014**	**J**	0.035	0.0046	mg/L		12/20/23 15:52	12/22/23 11:51	5

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		12/18/23 10:28	12/18/23 15:24	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		12/27/23 10:16	12/28/23 13:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	**0.032**	**J**	0.10	0.029	mg/L			01/09/24 11:35	1
Alkalinity (SM 2320B)	**150**	**B**	20	5.0	mg/L			12/27/23 10:12	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**150**	**B**	20	5.0	mg/L			12/27/23 10:12	1
Total Dissolved Solids (SM 2540C)	**240**		25	13	mg/L			12/18/23 16:57	1
Cyanide, Weak Acid Dissociable (SM 4500 CN I)	ND		0.010	0.0050	mg/L			12/22/23 12:53	1
Total Organic Carbon - Duplicates (SM 5310B)	**4.3**		1.0	0.35	mg/L			12/28/23 09:03	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22504-1

Client Sample ID: MW-11A-121423
Date Collected: 12/14/23 11:05
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-2
Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.48	ug/L			12/15/23 16:34	1
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			12/15/23 16:34	1
1,1,2,2-Tetrachloroethane	ND		2.0	0.32	ug/L			12/15/23 16:34	1
1,1,2-Trichloroethane	ND		2.0	0.43	ug/L			12/15/23 16:34	1
1,1-Dichloroethane	ND		1.0	0.29	ug/L			12/15/23 16:34	1
1,1-Dichloroethene	ND		1.0	0.20	ug/L			12/15/23 16:34	1
1,1-Dichloropropene	ND		1.0	0.50	ug/L			12/15/23 16:34	1
1,2,3-Trichlorobenzene	ND		1.0	0.33	ug/L			12/15/23 16:34	1
1,2,3-Trichloropropane	ND		2.0	0.50	ug/L			12/15/23 16:34	1
1,2,4-Trichlorobenzene	ND		1.0	0.50	ug/L			12/15/23 16:34	1
1,2,4-Trimethylbenzene	ND		1.0	0.31	ug/L			12/15/23 16:34	1
1,2-Dibromo-3-Chloropropane	ND		10	1.5	ug/L			12/15/23 16:34	1
1,2-Dibromoethane (EDB)	ND		1.0	0.20	ug/L			12/15/23 16:34	1
1,2-Dichlorobenzene	ND		1.0	0.23	ug/L			12/15/23 16:34	1
1,2-Dichloroethane	ND		1.0	0.31	ug/L			12/15/23 16:34	1
1,2-Dichloropropane	ND		1.0	0.23	ug/L			12/15/23 16:34	1
1,3,5-Trimethylbenzene	ND		1.0	0.32	ug/L			12/15/23 16:34	1
1,3-Dichlorobenzene	ND		1.0	0.14	ug/L			12/15/23 16:34	1
1,3-Dichloropropane	ND		2.0	0.21	ug/L			12/15/23 16:34	1
1,4-Dichlorobenzene	ND		1.0	0.28	ug/L			12/15/23 16:34	1
2,2-Dichloropropane	ND		2.0	0.66	ug/L			12/15/23 16:34	1
2-Chlorotoluene	ND		1.0	0.36	ug/L			12/15/23 16:34	1
4-Chlorotoluene	ND		1.0	0.26	ug/L			12/15/23 16:34	1
Benzene	ND		0.40	0.093	ug/L			12/15/23 16:34	1
Bromobenzene	ND		1.0	0.28	ug/L			12/15/23 16:34	1
Bromochloromethane	ND		2.0	0.44	ug/L			12/15/23 16:34	1
Bromodichloromethane	ND		1.0	0.29	ug/L			12/15/23 16:34	1
Bromoform	ND		5.0	0.66	ug/L			12/15/23 16:34	1
Bromomethane	ND		5.0	0.76	ug/L			12/15/23 16:34	1
Carbon tetrachloride	ND		1.0	0.40	ug/L			12/15/23 16:34	1
Chlorobenzene	ND		1.0	0.32	ug/L			12/15/23 16:34	1
Chloroethane	ND		2.0	0.40	ug/L			12/15/23 16:34	1
Chloroform	ND		1.0	0.24	ug/L			12/15/23 16:34	1
Chloromethane	ND	*+ *1	3.0	0.50	ug/L			12/15/23 16:34	1
cis-1,2-Dichloroethene	ND		1.0	0.23	ug/L			12/15/23 16:34	1
cis-1,3-Dichloropropene	ND		1.0	0.25	ug/L			12/15/23 16:34	1
Dibromochloromethane	ND		2.0	0.33	ug/L			12/15/23 16:34	1
Dibromomethane	ND		2.0	0.50	ug/L			12/15/23 16:34	1
Dichlorodifluoromethane	ND		2.0	0.64	ug/L			12/15/23 16:34	1
Ethylbenzene	ND		1.0	0.20	ug/L			12/15/23 16:34	1
Hexachlorobutadiene	ND		2.0	0.21	ug/L			12/15/23 16:34	1
Isopropylbenzene	ND		1.0	0.24	ug/L			12/15/23 16:34	1
m,p-Xylene	ND		2.0	0.28	ug/L			12/15/23 16:34	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			12/15/23 16:34	1
Methylene Chloride	ND		5.0	2.2	ug/L			12/15/23 16:34	1
Naphthalene	ND		2.0	0.63	ug/L			12/15/23 16:34	1
n-Butylbenzene	ND		1.0	0.20	ug/L			12/15/23 16:34	1
N-Propylbenzene	ND		1.0	0.25	ug/L			12/15/23 16:34	1
o-Xylene	ND		1.0	0.16	ug/L			12/15/23 16:34	1

Client Sample ID: MW-11A-121423

Date Collected: 12/14/23 11:05
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-2

Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
p-Isopropyltoluene	ND		1.0	0.27	ug/L			12/15/23 16:34	1
sec-Butylbenzene	ND		1.0	0.22	ug/L			12/15/23 16:34	1
Styrene	ND		1.0	0.24	ug/L			12/15/23 16:34	1
tert-Butylbenzene	ND		1.0	0.12	ug/L			12/15/23 16:34	1
Tetrachloroethene	ND		1.0	0.22	ug/L			12/15/23 16:34	1
Toluene	ND		1.0	0.31	ug/L			12/15/23 16:34	1
trans-1,2-Dichloroethene	ND		1.0	0.20	ug/L			12/15/23 16:34	1
trans-1,3-Dichloropropene	ND		1.0	0.45	ug/L			12/15/23 16:34	1
Trichloroethene	ND		1.0	0.20	ug/L			12/15/23 16:34	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/15/23 16:34	1
Vinyl chloride	ND		0.40	0.13	ug/L			12/15/23 16:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*		*12/15/23 16:34*	*1*
4-Bromofluorobenzene (Surr)	*96*		*76 - 120*		*12/15/23 16:34*	*1*
Dibromofluoromethane (Surr)	*108*		*80 - 123*		*12/15/23 16:34*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*12/15/23 16:34*	*1*

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		0.39	0.087	ug/L		12/19/23 08:40	12/19/23 22:56	1
1,2-Dichlorobenzene	ND		0.39	0.048	ug/L		12/19/23 08:40	12/19/23 22:56	1
1,3-Dichlorobenzene	ND		0.39	0.039	ug/L		12/19/23 08:40	12/19/23 22:56	1
1,4-Dichlorobenzene	ND		0.39	0.039	ug/L		12/19/23 08:40	12/19/23 22:56	1
1-Methylnaphthalene	ND		0.96	0.048	ug/L		12/19/23 08:40	12/19/23 22:56	1
2,4,5-Trichlorophenol	ND		0.39	0.096	ug/L		12/19/23 08:40	12/19/23 22:56	1
2,4,6-Trichlorophenol	ND		0.58	0.096	ug/L		12/19/23 08:40	12/19/23 22:56	1
2,4-Dichlorophenol	ND		0.96	0.19	ug/L		12/19/23 08:40	12/19/23 22:56	1
2,4-Dimethylphenol	ND		3.9	0.15	ug/L		12/19/23 08:40	12/19/23 22:56	1
2,4-Dinitrophenol	ND		4.8	0.43	ug/L		12/19/23 08:40	12/19/23 22:56	1
2,4-Dinitrotoluene	ND		0.96	0.096	ug/L		12/19/23 08:40	12/19/23 22:56	1
2,6-Dinitrotoluene	ND		0.39	0.096	ug/L		12/19/23 08:40	12/19/23 22:56	1
2-Chloronaphthalene	ND		0.96	0.067	ug/L		12/19/23 08:40	12/19/23 22:56	1
2-Chlorophenol	ND		0.96	0.048	ug/L		12/19/23 08:40	12/19/23 22:56	1
2-Methylnaphthalene	ND		0.39	0.058	ug/L		12/19/23 08:40	12/19/23 22:56	1
2-Methylphenol	ND		0.58	0.048	ug/L		12/19/23 08:40	12/19/23 22:56	1
2-Nitroaniline	ND		0.96	0.096	ug/L		12/19/23 08:40	12/19/23 22:56	1
2-Nitrophenol	ND		0.96	0.067	ug/L		12/19/23 08:40	12/19/23 22:56	1
3 & 4 Methylphenol	ND		0.58	0.096	ug/L		12/19/23 08:40	12/19/23 22:56	1
3,3'-Dichlorobenzidine	ND		0.96	0.12	ug/L		12/19/23 08:40	12/19/23 22:56	1
3-Nitroaniline	ND		2.9	0.15	ug/L		12/19/23 08:40	12/19/23 22:56	1
4,6-Dinitro-2-methylphenol	ND		1.9	0.53	ug/L		12/19/23 08:40	12/19/23 22:56	1
4-Bromophenyl phenyl ether	ND		0.58	0.058	ug/L		12/19/23 08:40	12/19/23 22:56	1
4-Chloro-3-methylphenol	ND		0.58	0.13	ug/L		12/19/23 08:40	12/19/23 22:56	1
4-Chloroaniline	ND		1.9	0.14	ug/L		12/19/23 08:40	12/19/23 22:56	1
4-Chlorophenyl phenyl ether	ND		0.58	0.048	ug/L		12/19/23 08:40	12/19/23 22:56	1
4-Nitroaniline	ND		1.9	0.20	ug/L		12/19/23 08:40	12/19/23 22:56	1
4-Nitrophenol	ND		9.6	1.6	ug/L		12/19/23 08:40	12/19/23 22:56	1
Acenaphthene	ND		0.39	0.048	ug/L		12/19/23 08:40	12/19/23 22:56	1
Acenaphthylene	ND		0.96	0.058	ug/L		12/19/23 08:40	12/19/23 22:56	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22504-1

Client Sample ID: MW-11A-121423

Date Collected: 12/14/23 11:05
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-2

Matrix: Water

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	ND		0.96	0.048	ug/L		12/19/23 08:40	12/19/23 22:56	1
Benzo[a]anthracene	ND		0.24	0.048	ug/L		12/19/23 08:40	12/19/23 22:56	1
Benzo[a]pyrene	ND		0.24	0.039	ug/L		12/19/23 08:40	12/19/23 22:56	1
Benzo[b]fluoranthene	ND		0.24	0.039	ug/L		12/19/23 08:40	12/19/23 22:56	1
Benzo[g,h,i]perylene	ND		0.24	0.039	ug/L		12/19/23 08:40	12/19/23 22:56	1
Benzo[k]fluoranthene	ND		0.24	0.048	ug/L		12/19/23 08:40	12/19/23 22:56	1
Benzoic acid	**3.0**	**J**	9.6	1.3	ug/L		12/19/23 08:40	12/19/23 22:56	1
Benzyl alcohol	ND		4.8	0.17	ug/L		12/19/23 08:40	12/19/23 22:56	1
Bis(2-chloroethoxy)methane	ND		0.58	0.048	ug/L		12/19/23 08:40	12/19/23 22:56	1
Bis(2-chloroethyl)ether	ND		0.096	0.029	ug/L		12/19/23 08:40	12/19/23 22:56	1
Bis(2-ethylhexyl) phthalate	ND		2.9	0.71	ug/L		12/19/23 08:40	12/19/23 22:56	1
bis(chloroisopropyl) ether	ND		0.24	0.058	ug/L		12/19/23 08:40	12/19/23 22:56	1
Butyl benzyl phthalate	ND		3.9	0.26	ug/L		12/19/23 08:40	12/19/23 22:56	1
Carbazole	ND		0.58	0.096	ug/L		12/19/23 08:40	12/19/23 22:56	1
Chrysene	ND		0.24	0.087	ug/L		12/19/23 08:40	12/19/23 22:56	1
Dibenz(a,h)anthracene	ND		0.24	0.067	ug/L		12/19/23 08:40	12/19/23 22:56	1
Dibenzofuran	ND		0.39	0.096	ug/L		12/19/23 08:40	12/19/23 22:56	1
Diethyl phthalate	ND		0.96	0.14	ug/L		12/19/23 08:40	12/19/23 22:56	1
Dimethyl phthalate	ND		0.58	0.058	ug/L		12/19/23 08:40	12/19/23 22:56	1
Di-n-butyl phthalate	ND		9.6	2.9	ug/L		12/19/23 08:40	12/19/23 22:56	1
Di-n-octyl phthalate	ND		0.96	0.13	ug/L		12/19/23 08:40	12/19/23 22:56	1
Fluoranthene	ND		0.24	0.058	ug/L		12/19/23 08:40	12/19/23 22:56	1
Fluorene	ND		0.24	0.048	ug/L		12/19/23 08:40	12/19/23 22:56	1
Hexachlorobenzene	ND		0.58	0.077	ug/L		12/19/23 08:40	12/19/23 22:56	1
Hexachlorobutadiene	ND		0.96	0.077	ug/L		12/19/23 08:40	12/19/23 22:56	1
Hexachlorocyclopentadiene	ND		0.96	0.13	ug/L		12/19/23 08:40	12/19/23 22:56	1
Hexachloroethane	ND		0.96	0.048	ug/L		12/19/23 08:40	12/19/23 22:56	1
Indeno[1,2,3-cd]pyrene	ND		0.39	0.13	ug/L		12/19/23 08:40	12/19/23 22:56	1
Isophorone	ND		0.39	0.096	ug/L		12/19/23 08:40	12/19/23 22:56	1
Naphthalene	ND		0.39	0.15	ug/L		12/19/23 08:40	12/19/23 22:56	1
Nitrobenzene	ND		0.96	0.039	ug/L		12/19/23 08:40	12/19/23 22:56	1
N-Nitrosodi-n-propylamine	ND		0.39	0.058	ug/L		12/19/23 08:40	12/19/23 22:56	1
N-Nitrosodiphenylamine	ND		0.96	0.067	ug/L		12/19/23 08:40	12/19/23 22:56	1
Pentachlorophenol	ND		4.8	0.49	ug/L		12/19/23 08:40	12/19/23 22:56	1
Phenanthrene	ND		0.96	0.12	ug/L		12/19/23 08:40	12/19/23 22:56	1
Phenol	ND		0.96	0.15	ug/L		12/19/23 08:40	12/19/23 22:56	1
Pyrene	ND		0.96	0.039	ug/L		12/19/23 08:40	12/19/23 22:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*76*		*50 - 130*	*12/19/23 08:40*	*12/19/23 22:56*	*1*
2-Fluorobiphenyl	*50*		*35 - 120*	*12/19/23 08:40*	*12/19/23 22:56*	*1*
2-Fluorophenol (Surr)	*42*		*21 - 120*	*12/19/23 08:40*	*12/19/23 22:56*	*1*
Nitrobenzene-d5 (Surr)	*61*		*39 - 120*	*12/19/23 08:40*	*12/19/23 22:56*	*1*
Phenol-d5 (Surr)	*25*		*10 - 120*	*12/19/23 08:40*	*12/19/23 22:56*	*1*
Terphenyl-d14 (Surr)	*73*		*63 - 137*	*12/19/23 08:40*	*12/19/23 22:56*	*1*

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-T	ND	*1	0.48	0.20	ug/L		12/18/23 21:35	12/20/23 23:32	1
2,4,5-TP (Silvex)	ND		0.48	0.13	ug/L		12/18/23 21:35	12/20/23 23:32	1

Client Sample ID: MW-11A-121423

Date Collected: 12/14/23 11:05
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-2

Matrix: Water

Method: SW846 8151A - Herbicides (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	ND	*1	4.8	1.9	ug/L		12/18/23 21:35	12/20/23 23:32	1
2,4-DB	ND		4.8	3.3	ug/L		12/18/23 21:35	12/20/23 23:32	1
Dalapon	ND	*1	12	4.5	ug/L		12/18/23 21:35	12/20/23 23:32	1
Dicamba	ND	*1	0.48	0.27	ug/L		12/18/23 21:35	12/20/23 23:32	1
Dichlorprop	ND	*1	4.8	1.9	ug/L		12/18/23 21:35	12/20/23 23:32	1
Dinoseb	ND	*1	2.4	2.1	ug/L		12/18/23 21:35	12/20/23 23:32	1
MCPA	ND	*1	480	330	ug/L		12/18/23 21:35	12/20/23 23:32	1
MCPP	ND		480	290	ug/L		12/18/23 21:35	12/20/23 23:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*73*		*20 - 161*	*12/18/23 21:35*	*12/20/23 23:32*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**9.8**		0.80	0.42	mg/L			12/15/23 14:55	1
Nitrate as N	**3.4**		0.20	0.057	mg/L			12/15/23 14:55	1
Nitrite as N	ND		0.20	0.069	mg/L			12/15/23 14:55	1
Sulfate	**10**		0.50	0.13	mg/L			12/15/23 14:55	1

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	*+	7.2	1.8	ng/L		01/11/24 05:03	01/13/24 13:46	1
Perfluoropentanoic acid (PFPeA)	ND	*+	3.6	0.90	ng/L		01/11/24 05:03	01/13/24 13:46	1
Perfluorohexanoic acid (PFHxA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 13:46	1
Perfluoroheptanoic acid (PFHpA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 13:46	1
Perfluorooctanoic acid (PFOA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 13:46	1
Perfluorononanoic acid (PFNA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 13:46	1
Perfluorodecanoic acid (PFDA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 13:46	1
Perfluoroundecanoic acid (PFUnA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 13:46	1
Perfluorododecanoic acid (PFDoA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 13:46	1
Perfluorotridecanoic acid (PFTrDA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 13:46	1
Perfluorotetradecanoic acid (PFTeDA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 13:46	1
Perfluorobutanesulfonic acid (PFBS)	**0.50**	**J *+**	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 13:46	1
Perfluoropentanesulfonic acid (PFPeS)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 13:46	1
Perfluorohexanesulfonic acid (PFHxS)	**0.48**	**J *+**	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 13:46	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 13:46	1
Perfluorooctanesulfonic acid (PFOS)	ND	*+ *1	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 13:46	1
Perfluorononanesulfonic acid (PFNS)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 13:46	1
Perfluorodecanesulfonic acid (PFDS)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 13:46	1
Perfluorododecanesulfonic acid (PFDoS)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 13:46	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	*+	7.2	1.8	ng/L		01/11/24 05:03	01/13/24 13:46	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	*+	7.2	1.8	ng/L		01/11/24 05:03	01/13/24 13:46	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 13:46	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22504-1

Client Sample ID: MW-11A-121423
Date Collected: 12/14/23 11:05
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-2
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 13:46	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 13:46	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 13:46	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	*+	18	4.5	ng/L		01/11/24 05:03	01/13/24 13:46	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	*+	18	4.5	ng/L		01/11/24 05:03	01/13/24 13:46	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	*+	7.2	1.8	ng/L		01/11/24 05:03	01/13/24 13:46	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	*+ *1	7.2	1.8	ng/L		01/11/24 05:03	01/13/24 13:46	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	*+	3.6	0.90	ng/L		01/11/24 05:03	01/13/24 13:46	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	*+	3.6	0.90	ng/L		01/11/24 05:03	01/13/24 13:46	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	*+	3.6	0.90	ng/L		01/11/24 05:03	01/13/24 13:46	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND	*+	7.2	1.8	ng/L		01/11/24 05:03	01/13/24 13:46	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		7.2	1.8	ng/L		01/11/24 05:03	01/13/24 13:46	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND	*+	3.6	0.90	ng/L		01/11/24 05:03	01/13/24 13:46	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	*+	9.0	2.3	ng/L		01/11/24 05:03	01/13/24 13:46	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND	*+	45	11	ng/L		01/11/24 05:03	01/13/24 13:46	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	*+	45	11	ng/L		01/11/24 05:03	01/13/24 13:46	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*69.9*		*5 - 130*	*01/11/24 05:03*	*01/13/24 13:46*	*1*
13C5 PFPeA	*75.3*		*40 - 130*	*01/11/24 05:03*	*01/13/24 13:46*	*1*
13C5 PFHxA	*72.7*		*40 - 130*	*01/11/24 05:03*	*01/13/24 13:46*	*1*
13C4 PFHpA	*79.7*		*40 - 130*	*01/11/24 05:03*	*01/13/24 13:46*	*1*
13C8 PFOA	*68.3*		*40 - 130*	*01/11/24 05:03*	*01/13/24 13:46*	*1*
13C9 PFNA	*68.1*		*40 - 130*	*01/11/24 05:03*	*01/13/24 13:46*	*1*
13C6 PFDA	*66.4*		*40 - 130*	*01/11/24 05:03*	*01/13/24 13:46*	*1*
13C7 PFUnA	*67.0*		*30 - 130*	*01/11/24 05:03*	*01/13/24 13:46*	*1*
13C2 PFDoA	*56.7*		*10 - 130*	*01/11/24 05:03*	*01/13/24 13:46*	*1*
13C2 PFTeDA	*54.1*		*10 - 130*	*01/11/24 05:03*	*01/13/24 13:46*	*1*
13C3 PFBS	*63.7*		*40 - 135*	*01/11/24 05:03*	*01/13/24 13:46*	*1*
13C3 PFHxS	*70.4*		*40 - 130*	*01/11/24 05:03*	*01/13/24 13:46*	*1*
13C8 PFOS	*66.0*		*40 - 130*	*01/11/24 05:03*	*01/13/24 13:46*	*1*
d3-NMeFOSAA	*63.8*		*40 - 170*	*01/11/24 05:03*	*01/13/24 13:46*	*1*
d5-NEtFOSAA	*68.2*		*25 - 135*	*01/11/24 05:03*	*01/13/24 13:46*	*1*
13C2 4:2 FTS	*60.8*		*40 - 200*	*01/11/24 05:03*	*01/13/24 13:46*	*1*
13C2 6:2 FTS	*63.7*		*40 - 200*	*01/11/24 05:03*	*01/13/24 13:46*	*1*
13C3 HFPO-DA	*71.2*		*40 - 130*	*01/11/24 05:03*	*01/13/24 13:46*	*1*
d7-N-MeFOSE-M	*56.7*		*10 - 130*	*01/11/24 05:03*	*01/13/24 13:46*	*1*
d9-N-EtFOSE-M	*48.4*		*10 - 130*	*01/11/24 05:03*	*01/13/24 13:46*	*1*

Client Sample ID: MW-11A-121423

Date Collected: 12/14/23 11:05
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-2
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtPFOSA	*53.9*		*10 - 130*	*01/11/24 05:03*	*01/13/24 13:46*	*1*
d3-NMePFOSA	*53.3*		*10 - 130*	*01/11/24 05:03*	*01/13/24 13:46*	*1*

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	*+	7.2	1.8	ng/L		01/11/24 05:03	01/19/24 21:24	1
Perfluorooctanesulfonamide (PFOSA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/19/24 21:24	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOSA	*66.6*		*40 - 130*	*01/11/24 05:03*	*01/19/24 21:24*	*1*
13C2 8:2 FTS	*92.7*		*40 - 300*	*01/11/24 05:03*	*01/19/24 21:24*	*1*

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	H	7.4	1.8	ng/L		01/16/24 03:55	01/18/24 16:31	1
Perfluoropentanoic acid (PFPeA)	ND	H	3.7	0.92	ng/L		01/16/24 03:55	01/18/24 16:31	1
Perfluorohexanoic acid (PFHxA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 16:31	1
Perfluoroheptanoic acid (PFHpA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 16:31	1
Perfluorooctanoic acid (PFOA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 16:31	1
Perfluorononanoic acid (PFNA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 16:31	1
Perfluorodecanoic acid (PFDA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 16:31	1
Perfluoroundecanoic acid (PFUnA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 16:31	1
Perfluorododecanoic acid (PFDoA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 16:31	1
Perfluorotridecanoic acid (PFTrDA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 16:31	1
Perfluorotetradecanoic acid (PFTeDA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 16:31	1
Perfluorobutanesulfonic acid (PFBS)	**0.50**	**J H**	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 16:31	1
Perfluoropentanesulfonic acid (PFPeS)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 16:31	1
Perfluorohexanesulfonic acid (PFHxS)	**0.63**	**J H**	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 16:31	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 16:31	1
Perfluorooctanesulfonic acid (PFOS)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 16:31	1
Perfluorononanesulfonic acid (PFNS)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 16:31	1
Perfluorodecanesulfonic acid (PFDS)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 16:31	1
Perfluorododecanesulfonic acid (PFDoS)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 16:31	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	H	7.4	1.8	ng/L		01/16/24 03:55	01/18/24 16:31	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	H	7.4	1.8	ng/L		01/16/24 03:55	01/18/24 16:31	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	H	7.4	1.8	ng/L		01/16/24 03:55	01/18/24 16:31	1
Perfluorooctanesulfonamide (PFOSA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 16:31	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 16:31	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 16:31	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 16:31	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 16:31	1

Client Sample ID: MW-11A-121423
Date Collected: 12/14/23 11:05
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-2
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RE (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	H	18	4.6	ng/L		01/16/24 03:55	01/18/24 16:31	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	H	18	4.6	ng/L		01/16/24 03:55	01/18/24 16:31	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	H	7.4	1.8	ng/L		01/16/24 03:55	01/18/24 16:31	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H	7.4	1.8	ng/L		01/16/24 03:55	01/18/24 16:31	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	H	3.7	0.92	ng/L		01/16/24 03:55	01/18/24 16:31	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	H	3.7	0.92	ng/L		01/16/24 03:55	01/18/24 16:31	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	H	3.7	0.92	ng/L		01/16/24 03:55	01/18/24 16:31	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND	H	7.4	1.8	ng/L		01/16/24 03:55	01/18/24 16:31	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND	H	7.4	1.8	ng/L		01/16/24 03:55	01/18/24 16:31	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND	H	3.7	0.92	ng/L		01/16/24 03:55	01/18/24 16:31	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	H	9.2	2.3	ng/L		01/16/24 03:55	01/18/24 16:31	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND	H	46	12	ng/L		01/16/24 03:55	01/18/24 16:31	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	H	46	12	ng/L		01/16/24 03:55	01/18/24 16:31	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*77.7*		*5 - 130*	*01/16/24 03:55*	*01/18/24 16:31*	*1*
13C5 PFPeA	*87.4*		*40 - 130*	*01/16/24 03:55*	*01/18/24 16:31*	*1*
13C5 PFHxA	*82.6*		*40 - 130*	*01/16/24 03:55*	*01/18/24 16:31*	*1*
13C4 PFHpA	*107*		*40 - 130*	*01/16/24 03:55*	*01/18/24 16:31*	*1*
13C8 PFOA	*73.6*		*40 - 130*	*01/16/24 03:55*	*01/18/24 16:31*	*1*
13C9 PFNA	*80.4*		*40 - 130*	*01/16/24 03:55*	*01/18/24 16:31*	*1*
13C6 PFDA	*71.9*		*40 - 130*	*01/16/24 03:55*	*01/18/24 16:31*	*1*
13C7 PFUnA	*62.6*		*30 - 130*	*01/16/24 03:55*	*01/18/24 16:31*	*1*
13C2 PFDoA	*64.7*		*10 - 130*	*01/16/24 03:55*	*01/18/24 16:31*	*1*
13C2 PFTeDA	*56.3*		*10 - 130*	*01/16/24 03:55*	*01/18/24 16:31*	*1*
13C3 PFBS	*82.7*		*40 - 135*	*01/16/24 03:55*	*01/18/24 16:31*	*1*
13C3 PFHxS	*81.4*		*40 - 130*	*01/16/24 03:55*	*01/18/24 16:31*	*1*
13C8 PFOS	*82.9*		*40 - 130*	*01/16/24 03:55*	*01/18/24 16:31*	*1*
13C8 PFOSA	*82.6*		*40 - 130*	*01/16/24 03:55*	*01/18/24 16:31*	*1*
d3-NMeFOSAA	*79.4*		*40 - 170*	*01/16/24 03:55*	*01/18/24 16:31*	*1*
d5-NEtFOSAA	*84.2*		*25 - 135*	*01/16/24 03:55*	*01/18/24 16:31*	*1*
13C2 4:2 FTS	*105*		*40 - 200*	*01/16/24 03:55*	*01/18/24 16:31*	*1*
13C2 6:2 FTS	*118*		*40 - 200*	*01/16/24 03:55*	*01/18/24 16:31*	*1*
13C2 8:2 FTS	*91.0*		*40 - 300*	*01/16/24 03:55*	*01/18/24 16:31*	*1*
13C3 HFPO-DA	*99.0*		*40 - 130*	*01/16/24 03:55*	*01/18/24 16:31*	*1*
d7-N-MeFOSE-M	*68.0*		*10 - 130*	*01/16/24 03:55*	*01/18/24 16:31*	*1*
d9-N-EtFOSE-M	*68.7*		*10 - 130*	*01/16/24 03:55*	*01/18/24 16:31*	*1*
d5-NEtPFOSA	*58.1*		*10 - 130*	*01/16/24 03:55*	*01/18/24 16:31*	*1*
d3-NMePFOSA	*66.1*		*10 - 130*	*01/16/24 03:55*	*01/18/24 16:31*	*1*

Client Sample Results

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22504-1

Client Sample ID: MW-11A-121423

Date Collected: 12/14/23 11:05
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-2

Matrix: Water

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**9.5**		1.0	0.13	mg/L		12/18/23 10:30	12/18/23 15:27	1
Potassium	**2.8**		0.50	0.29	mg/L		12/18/23 10:30	12/18/23 15:27	1
Sodium	**9.0**	**^1+**	0.50	0.20	mg/L		12/18/23 10:30	12/18/23 15:27	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**41**		2.0	0.20	mg/L		12/18/23 17:27	12/19/23 13:32	1
Magnesium	**9.4**		1.0	0.13	mg/L		12/18/23 17:27	12/19/23 13:32	1

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0021**	**J**	0.0050	0.0010	mg/L		12/18/23 15:58	12/20/23 18:00	5
Cadmium	ND		0.0020	0.00019	mg/L		12/18/23 15:58	12/20/23 18:00	5
Iron	**0.13**	**J**	0.50	0.067	mg/L		12/18/23 15:58	12/20/23 18:00	5
Lead	ND		0.0020	0.00020	mg/L		12/18/23 15:58	12/20/23 18:00	5
Manganese	**0.0025**	**J**	0.010	0.0023	mg/L		12/18/23 15:58	12/20/23 18:00	5
Zinc	ND		0.035	0.0046	mg/L		12/18/23 15:58	12/20/23 18:00	5

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0020**	**J**	0.0050	0.0010	mg/L		12/20/23 15:52	12/22/23 09:55	5
Cadmium	ND		0.0020	0.00019	mg/L		12/20/23 15:52	12/22/23 09:55	5
Iron	ND		0.50	0.067	mg/L		12/20/23 15:52	12/22/23 09:55	5
Lead	ND		0.0020	0.00020	mg/L		12/20/23 15:52	12/22/23 09:55	5
Manganese	ND		0.010	0.0023	mg/L		12/20/23 15:52	12/22/23 09:55	5
Zinc	**0.0051**	**J**	0.035	0.0046	mg/L		12/20/23 15:52	12/22/23 09:55	5

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		12/18/23 10:28	12/18/23 15:26	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		12/27/23 10:16	12/28/23 13:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	**0.15**		0.10	0.029	mg/L			01/09/24 11:37	1
Alkalinity (SM 2320B)	**140**	**B**	20	5.0	mg/L			12/27/23 10:12	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**140**	**B**	20	5.0	mg/L			12/27/23 10:12	1
Total Dissolved Solids (SM 2540C)	**300**		25	13	mg/L			12/18/23 16:57	1
Cyanide, Weak Acid Dissociable (SM 4500 CN I)	ND		0.010	0.0050	mg/L			12/22/23 13:01	1
Total Organic Carbon - Duplicates (SM 5310B)	**0.84**	**J**	1.0	0.35	mg/L			12/28/23 09:19	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22504-1

Client Sample ID: MW-12A-121423
Date Collected: 12/14/23 14:25
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-3
Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.48	ug/L			12/15/23 16:56	1
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			12/15/23 16:56	1
1,1,2,2-Tetrachloroethane	ND		2.0	0.32	ug/L			12/15/23 16:56	1
1,1,2-Trichloroethane	ND		2.0	0.43	ug/L			12/15/23 16:56	1
1,1-Dichloroethane	ND		1.0	0.29	ug/L			12/15/23 16:56	1
1,1-Dichloroethene	ND		1.0	0.20	ug/L			12/15/23 16:56	1
1,1-Dichloropropene	ND		1.0	0.50	ug/L			12/15/23 16:56	1
1,2,3-Trichlorobenzene	ND		1.0	0.33	ug/L			12/15/23 16:56	1
1,2,3-Trichloropropane	ND		2.0	0.50	ug/L			12/15/23 16:56	1
1,2,4-Trichlorobenzene	ND		1.0	0.50	ug/L			12/15/23 16:56	1
1,2,4-Trimethylbenzene	ND		1.0	0.31	ug/L			12/15/23 16:56	1
1,2-Dibromo-3-Chloropropane	ND		10	1.5	ug/L			12/15/23 16:56	1
1,2-Dibromoethane (EDB)	ND		1.0	0.20	ug/L			12/15/23 16:56	1
1,2-Dichlorobenzene	ND		1.0	0.23	ug/L			12/15/23 16:56	1
1,2-Dichloroethane	ND		1.0	0.31	ug/L			12/15/23 16:56	1
1,2-Dichloropropane	ND		1.0	0.23	ug/L			12/15/23 16:56	1
1,3,5-Trimethylbenzene	ND		1.0	0.32	ug/L			12/15/23 16:56	1
1,3-Dichlorobenzene	ND		1.0	0.14	ug/L			12/15/23 16:56	1
1,3-Dichloropropane	ND		2.0	0.21	ug/L			12/15/23 16:56	1
1,4-Dichlorobenzene	ND		1.0	0.28	ug/L			12/15/23 16:56	1
2,2-Dichloropropane	ND		2.0	0.66	ug/L			12/15/23 16:56	1
2-Chlorotoluene	ND		1.0	0.36	ug/L			12/15/23 16:56	1
4-Chlorotoluene	ND		1.0	0.26	ug/L			12/15/23 16:56	1
Benzene	ND		0.40	0.093	ug/L			12/15/23 16:56	1
Bromobenzene	ND		1.0	0.28	ug/L			12/15/23 16:56	1
Bromochloromethane	ND		2.0	0.44	ug/L			12/15/23 16:56	1
Bromodichloromethane	ND		1.0	0.29	ug/L			12/15/23 16:56	1
Bromoform	ND		5.0	0.66	ug/L			12/15/23 16:56	1
Bromomethane	ND		5.0	0.76	ug/L			12/15/23 16:56	1
Carbon tetrachloride	ND		1.0	0.40	ug/L			12/15/23 16:56	1
Chlorobenzene	ND		1.0	0.32	ug/L			12/15/23 16:56	1
Chloroethane	ND		2.0	0.40	ug/L			12/15/23 16:56	1
Chloroform	ND		1.0	0.24	ug/L			12/15/23 16:56	1
Chloromethane	ND	*+ *1	3.0	0.50	ug/L			12/15/23 16:56	1
cis-1,2-Dichloroethene	ND		1.0	0.23	ug/L			12/15/23 16:56	1
cis-1,3-Dichloropropene	ND		1.0	0.25	ug/L			12/15/23 16:56	1
Dibromochloromethane	ND		2.0	0.33	ug/L			12/15/23 16:56	1
Dibromomethane	ND		2.0	0.50	ug/L			12/15/23 16:56	1
Dichlorodifluoromethane	ND		2.0	0.64	ug/L			12/15/23 16:56	1
Ethylbenzene	ND		1.0	0.20	ug/L			12/15/23 16:56	1
Hexachlorobutadiene	ND		2.0	0.21	ug/L			12/15/23 16:56	1
Isopropylbenzene	ND		1.0	0.24	ug/L			12/15/23 16:56	1
m,p-Xylene	ND		2.0	0.28	ug/L			12/15/23 16:56	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			12/15/23 16:56	1
Methylene Chloride	ND		5.0	2.2	ug/L			12/15/23 16:56	1
Naphthalene	ND		2.0	0.63	ug/L			12/15/23 16:56	1
n-Butylbenzene	ND		1.0	0.20	ug/L			12/15/23 16:56	1
N-Propylbenzene	ND		1.0	0.25	ug/L			12/15/23 16:56	1
o-Xylene	ND		1.0	0.16	ug/L			12/15/23 16:56	1

Client Sample ID: MW-12A-121423
Date Collected: 12/14/23 14:25
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-3
Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
p-Isopropyltoluene	ND		1.0	0.27	ug/L			12/15/23 16:56	1
sec-Butylbenzene	ND		1.0	0.22	ug/L			12/15/23 16:56	1
Styrene	ND		1.0	0.24	ug/L			12/15/23 16:56	1
tert-Butylbenzene	ND		1.0	0.12	ug/L			12/15/23 16:56	1
Tetrachloroethene	ND		1.0	0.22	ug/L			12/15/23 16:56	1
Toluene	ND		1.0	0.31	ug/L			12/15/23 16:56	1
trans-1,2-Dichloroethene	ND		1.0	0.20	ug/L			12/15/23 16:56	1
trans-1,3-Dichloropropene	ND		1.0	0.45	ug/L			12/15/23 16:56	1
Trichloroethene	ND		1.0	0.20	ug/L			12/15/23 16:56	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/15/23 16:56	1
Vinyl chloride	ND		0.40	0.13	ug/L			12/15/23 16:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*80 - 120*		*12/15/23 16:56*	*1*
4-Bromofluorobenzene (Surr)	*97*		*76 - 120*		*12/15/23 16:56*	*1*
Dibromofluoromethane (Surr)	*110*		*80 - 123*		*12/15/23 16:56*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*12/15/23 16:56*	*1*

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		0.38	0.086	ug/L		12/19/23 08:40	12/19/23 23:20	1
1,2-Dichlorobenzene	ND		0.38	0.048	ug/L		12/19/23 08:40	12/19/23 23:20	1
1,3-Dichlorobenzene	ND		0.38	0.038	ug/L		12/19/23 08:40	12/19/23 23:20	1
1,4-Dichlorobenzene	ND		0.38	0.038	ug/L		12/19/23 08:40	12/19/23 23:20	1
1-Methylnaphthalene	ND		0.95	0.048	ug/L		12/19/23 08:40	12/19/23 23:20	1
2,4,5-Trichlorophenol	ND		0.38	0.095	ug/L		12/19/23 08:40	12/19/23 23:20	1
2,4,6-Trichlorophenol	ND		0.57	0.095	ug/L		12/19/23 08:40	12/19/23 23:20	1
2,4-Dichlorophenol	ND		0.95	0.19	ug/L		12/19/23 08:40	12/19/23 23:20	1
2,4-Dimethylphenol	ND		3.8	0.15	ug/L		12/19/23 08:40	12/19/23 23:20	1
2,4-Dinitrophenol	ND		4.8	0.43	ug/L		12/19/23 08:40	12/19/23 23:20	1
2,4-Dinitrotoluene	ND		0.95	0.095	ug/L		12/19/23 08:40	12/19/23 23:20	1
2,6-Dinitrotoluene	ND		0.38	0.095	ug/L		12/19/23 08:40	12/19/23 23:20	1
2-Chloronaphthalene	ND		0.95	0.067	ug/L		12/19/23 08:40	12/19/23 23:20	1
2-Chlorophenol	ND		0.95	0.048	ug/L		12/19/23 08:40	12/19/23 23:20	1
2-Methylnaphthalene	ND		0.38	0.057	ug/L		12/19/23 08:40	12/19/23 23:20	1
2-Methylphenol	ND		0.57	0.048	ug/L		12/19/23 08:40	12/19/23 23:20	1
2-Nitroaniline	ND		0.95	0.095	ug/L		12/19/23 08:40	12/19/23 23:20	1
2-Nitrophenol	ND		0.95	0.067	ug/L		12/19/23 08:40	12/19/23 23:20	1
3 & 4 Methylphenol	ND		0.57	0.095	ug/L		12/19/23 08:40	12/19/23 23:20	1
3,3'-Dichlorobenzidine	ND		0.95	0.11	ug/L		12/19/23 08:40	12/19/23 23:20	1
3-Nitroaniline	ND		2.9	0.15	ug/L		12/19/23 08:40	12/19/23 23:20	1
4,6-Dinitro-2-methylphenol	ND		1.9	0.52	ug/L		12/19/23 08:40	12/19/23 23:20	1
4-Bromophenyl phenyl ether	ND		0.57	0.057	ug/L		12/19/23 08:40	12/19/23 23:20	1
4-Chloro-3-methylphenol	ND		0.57	0.12	ug/L		12/19/23 08:40	12/19/23 23:20	1
4-Chloroaniline	ND		1.9	0.14	ug/L		12/19/23 08:40	12/19/23 23:20	1
4-Chlorophenyl phenyl ether	ND		0.57	0.048	ug/L		12/19/23 08:40	12/19/23 23:20	1
4-Nitroaniline	ND		1.9	0.20	ug/L		12/19/23 08:40	12/19/23 23:20	1
4-Nitrophenol	ND		9.5	1.6	ug/L		12/19/23 08:40	12/19/23 23:20	1
Acenaphthene	ND		0.38	0.048	ug/L		12/19/23 08:40	12/19/23 23:20	1
Acenaphthylene	ND		0.95	0.057	ug/L		12/19/23 08:40	12/19/23 23:20	1

Client Sample ID: MW-12A-121423

Date Collected: 12/14/23 14:25
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-3

Matrix: Water

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	ND		0.95	0.048	ug/L		12/19/23 08:40	12/19/23 23:20	1
Benzo[a]anthracene	ND		0.24	0.048	ug/L		12/19/23 08:40	12/19/23 23:20	1
Benzo[a]pyrene	ND		0.24	0.038	ug/L		12/19/23 08:40	12/19/23 23:20	1
Benzo[b]fluoranthene	ND		0.24	0.038	ug/L		12/19/23 08:40	12/19/23 23:20	1
Benzo[g,h,i]perylene	ND		0.24	0.038	ug/L		12/19/23 08:40	12/19/23 23:20	1
Benzo[k]fluoranthene	ND		0.24	0.048	ug/L		12/19/23 08:40	12/19/23 23:20	1
Benzoic acid	ND		9.5	1.3	ug/L		12/19/23 08:40	12/19/23 23:20	1
Benzyl alcohol	ND		4.8	0.17	ug/L		12/19/23 08:40	12/19/23 23:20	1
Bis(2-chloroethoxy)methane	ND		0.57	0.048	ug/L		12/19/23 08:40	12/19/23 23:20	1
Bis(2-chloroethyl)ether	ND		0.095	0.029	ug/L		12/19/23 08:40	12/19/23 23:20	1
Bis(2-ethylhexyl) phthalate	ND		2.9	0.71	ug/L		12/19/23 08:40	12/19/23 23:20	1
bis(chloroisopropyl) ether	ND		0.24	0.057	ug/L		12/19/23 08:40	12/19/23 23:20	1
Butyl benzyl phthalate	ND		3.8	0.26	ug/L		12/19/23 08:40	12/19/23 23:20	1
Carbazole	ND		0.57	0.095	ug/L		12/19/23 08:40	12/19/23 23:20	1
Chrysene	ND		0.24	0.086	ug/L		12/19/23 08:40	12/19/23 23:20	1
Dibenz(a,h)anthracene	ND		0.24	0.067	ug/L		12/19/23 08:40	12/19/23 23:20	1
Dibenzofuran	ND		0.38	0.095	ug/L		12/19/23 08:40	12/19/23 23:20	1
Diethyl phthalate	ND		0.95	0.14	ug/L		12/19/23 08:40	12/19/23 23:20	1
Dimethyl phthalate	ND		0.57	0.057	ug/L		12/19/23 08:40	12/19/23 23:20	1
Di-n-butyl phthalate	ND		9.5	2.8	ug/L		12/19/23 08:40	12/19/23 23:20	1
Di-n-octyl phthalate	ND		0.95	0.12	ug/L		12/19/23 08:40	12/19/23 23:20	1
Fluoranthene	ND		0.24	0.057	ug/L		12/19/23 08:40	12/19/23 23:20	1
Fluorene	ND		0.24	0.048	ug/L		12/19/23 08:40	12/19/23 23:20	1
Hexachlorobenzene	ND		0.57	0.076	ug/L		12/19/23 08:40	12/19/23 23:20	1
Hexachlorobutadiene	ND		0.95	0.076	ug/L		12/19/23 08:40	12/19/23 23:20	1
Hexachlorocyclopentadiene	ND		0.95	0.13	ug/L		12/19/23 08:40	12/19/23 23:20	1
Hexachloroethane	ND		0.95	0.048	ug/L		12/19/23 08:40	12/19/23 23:20	1
Indeno[1,2,3-cd]pyrene	ND		0.38	0.12	ug/L		12/19/23 08:40	12/19/23 23:20	1
Isophorone	ND		0.38	0.095	ug/L		12/19/23 08:40	12/19/23 23:20	1
Naphthalene	ND		0.38	0.15	ug/L		12/19/23 08:40	12/19/23 23:20	1
Nitrobenzene	ND		0.95	0.038	ug/L		12/19/23 08:40	12/19/23 23:20	1
N-Nitrosodi-n-propylamine	ND		0.38	0.057	ug/L		12/19/23 08:40	12/19/23 23:20	1
N-Nitrosodiphenylamine	ND		0.95	0.067	ug/L		12/19/23 08:40	12/19/23 23:20	1
Pentachlorophenol	ND		4.8	0.49	ug/L		12/19/23 08:40	12/19/23 23:20	1
Phenanthrene	ND		0.95	0.11	ug/L		12/19/23 08:40	12/19/23 23:20	1
Phenol	ND		0.95	0.15	ug/L		12/19/23 08:40	12/19/23 23:20	1
Pyrene	ND		0.95	0.038	ug/L		12/19/23 08:40	12/19/23 23:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*72*		*50 - 130*	*12/19/23 08:40*	*12/19/23 23:20*	*1*
2-Fluorobiphenyl	*60*		*35 - 120*	*12/19/23 08:40*	*12/19/23 23:20*	*1*
2-Fluorophenol (Surr)	*45*		*21 - 120*	*12/19/23 08:40*	*12/19/23 23:20*	*1*
Nitrobenzene-d5 (Surr)	*71*		*39 - 120*	*12/19/23 08:40*	*12/19/23 23:20*	*1*
Phenol-d5 (Surr)	*28*		*10 - 120*	*12/19/23 08:40*	*12/19/23 23:20*	*1*
Terphenyl-d14 (Surr)	*72*		*63 - 137*	*12/19/23 08:40*	*12/19/23 23:20*	*1*

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-T	ND	*1	0.47	0.20	ug/L		12/18/23 21:35	12/20/23 23:55	1
2,4,5-TP (Silvex)	ND		0.47	0.13	ug/L		12/18/23 21:35	12/20/23 23:55	1

Client Sample ID: MW-12A-121423

Date Collected: 12/14/23 14:25
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-3

Matrix: Water

Method: SW846 8151A - Herbicides (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	ND	*1	4.7	1.9	ug/L		12/18/23 21:35	12/20/23 23:55	1
2,4-DB	ND		4.7	3.3	ug/L		12/18/23 21:35	12/20/23 23:55	1
Dalapon	ND	*1	12	4.5	ug/L		12/18/23 21:35	12/20/23 23:55	1
Dicamba	ND	*1	0.47	0.27	ug/L		12/18/23 21:35	12/20/23 23:55	1
Dichlorprop	ND	*1	4.7	1.9	ug/L		12/18/23 21:35	12/20/23 23:55	1
Dinoseb	ND	*1	2.4	2.1	ug/L		12/18/23 21:35	12/20/23 23:55	1
MCPA	ND	*1	470	330	ug/L		12/18/23 21:35	12/20/23 23:55	1
MCPP	ND		470	290	ug/L		12/18/23 21:35	12/20/23 23:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*93*		*20 - 161*	*12/18/23 21:35*	*12/20/23 23:55*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**3.3**		0.80	0.42	mg/L			12/15/23 15:05	1
Nitrate as N	**6.8**		0.20	0.057	mg/L			12/15/23 15:05	1
Nitrite as N	ND		0.20	0.069	mg/L			12/15/23 15:05	1
Sulfate	**16**		0.50	0.13	mg/L			12/15/23 15:05	1

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**4.9**	**J *+**	7.2	1.8	ng/L		01/11/24 05:03	01/13/24 14:03	1
Perfluoropentanoic acid (PFPeA)	**1.6**	**J *+**	3.6	0.91	ng/L		01/11/24 05:03	01/13/24 14:03	1
Perfluorohexanoic acid (PFHxA)	**1.1**	**J *+**	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:03	1
Perfluoroheptanoic acid (PFHpA)	**0.82**	**J *+**	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:03	1
Perfluorooctanoic acid (PFOA)	**0.85**	**J *+**	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:03	1
Perfluorononanoic acid (PFNA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:03	1
Perfluorodecanoic acid (PFDA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:03	1
Perfluoroundecanoic acid (PFUnA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:03	1
Perfluorododecanoic acid (PFDoA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:03	1
Perfluorotridecanoic acid (PFTrDA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:03	1
Perfluorotetradecanoic acid (PFTeDA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:03	1
Perfluorobutanesulfonic acid (PFBS)	**0.86**	**J *+**	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:03	1
Perfluoropentanesulfonic acid (PFPeS)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:03	1
Perfluorohexanesulfonic acid (PFHxS)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:03	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:03	1
Perfluorooctanesulfonic acid (PFOS)	ND	*+ *1	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:03	1
Perfluorononanesulfonic acid (PFNS)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:03	1
Perfluorodecanesulfonic acid (PFDS)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:03	1
Perfluorododecanesulfonic acid (PFDoS)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:03	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	*+	7.2	1.8	ng/L		01/11/24 05:03	01/13/24 14:03	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	*+	7.2	1.8	ng/L		01/11/24 05:03	01/13/24 14:03	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:03	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:03	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22504-1

Client Sample ID: MW-12A-121423
Date Collected: 12/14/23 14:25
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-3
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:03	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:03	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	*+	18	4.5	ng/L		01/11/24 05:03	01/13/24 14:03	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	*+	18	4.5	ng/L		01/11/24 05:03	01/13/24 14:03	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	*+	7.2	1.8	ng/L		01/11/24 05:03	01/13/24 14:03	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	*+ *1	7.2	1.8	ng/L		01/11/24 05:03	01/13/24 14:03	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	*+	3.6	0.91	ng/L		01/11/24 05:03	01/13/24 14:03	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	*+	3.6	0.91	ng/L		01/11/24 05:03	01/13/24 14:03	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	*+	3.6	0.91	ng/L		01/11/24 05:03	01/13/24 14:03	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND	*+	7.2	1.8	ng/L		01/11/24 05:03	01/13/24 14:03	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		7.2	1.8	ng/L		01/11/24 05:03	01/13/24 14:03	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND	*+	3.6	0.91	ng/L		01/11/24 05:03	01/13/24 14:03	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	*+	9.1	2.3	ng/L		01/11/24 05:03	01/13/24 14:03	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND	*+	45	11	ng/L		01/11/24 05:03	01/13/24 14:03	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	*+	45	11	ng/L		01/11/24 05:03	01/13/24 14:03	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*74.1*		*5 - 130*	*01/11/24 05:03*	*01/13/24 14:03*	*1*
13C5 PFPeA	*82.6*		*40 - 130*	*01/11/24 05:03*	*01/13/24 14:03*	*1*
13C5 PFHxA	*79.8*		*40 - 130*	*01/11/24 05:03*	*01/13/24 14:03*	*1*
13C4 PFHpA	*87.4*		*40 - 130*	*01/11/24 05:03*	*01/13/24 14:03*	*1*
13C8 PFOA	*77.9*		*40 - 130*	*01/11/24 05:03*	*01/13/24 14:03*	*1*
13C9 PFNA	*80.7*		*40 - 130*	*01/11/24 05:03*	*01/13/24 14:03*	*1*
13C6 PFDA	*79.9*		*40 - 130*	*01/11/24 05:03*	*01/13/24 14:03*	*1*
13C7 PFUnA	*69.8*		*30 - 130*	*01/11/24 05:03*	*01/13/24 14:03*	*1*
13C2 PFDoA	*69.3*		*10 - 130*	*01/11/24 05:03*	*01/13/24 14:03*	*1*
13C2 PFTeDA	*62.7*		*10 - 130*	*01/11/24 05:03*	*01/13/24 14:03*	*1*
13C3 PFBS	*75.7*		*40 - 135*	*01/11/24 05:03*	*01/13/24 14:03*	*1*
13C3 PFHxS	*80.8*		*40 - 130*	*01/11/24 05:03*	*01/13/24 14:03*	*1*
13C8 PFOS	*86.3*		*40 - 130*	*01/11/24 05:03*	*01/13/24 14:03*	*1*
d3-NMeFOSAA	*85.7*		*40 - 170*	*01/11/24 05:03*	*01/13/24 14:03*	*1*
d5-NEtFOSAA	*86.0*		*25 - 135*	*01/11/24 05:03*	*01/13/24 14:03*	*1*
13C2 4:2 FTS	*85.7*		*40 - 200*	*01/11/24 05:03*	*01/13/24 14:03*	*1*
13C2 6:2 FTS	*77.4*		*40 - 200*	*01/11/24 05:03*	*01/13/24 14:03*	*1*
13C3 HFPO-DA	*77.0*		*40 - 130*	*01/11/24 05:03*	*01/13/24 14:03*	*1*
d7-N-MeFOSE-M	*70.4*		*10 - 130*	*01/11/24 05:03*	*01/13/24 14:03*	*1*
d9-N-EtFOSE-M	*66.0*		*10 - 130*	*01/11/24 05:03*	*01/13/24 14:03*	*1*
d5-NEtPFOSA	*69.9*		*10 - 130*	*01/11/24 05:03*	*01/13/24 14:03*	*1*
d3-NMePFOSA	*71.6*		*10 - 130*	*01/11/24 05:03*	*01/13/24 14:03*	*1*

Client Sample ID: MW-12A-121423
Date Collected: 12/14/23 14:25
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-3
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	*+	7.2	1.8	ng/L		01/11/24 05:03	01/19/24 21:42	1
Perfluorooctanesulfonamide (PFOSA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/19/24 21:42	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOSA	*79.7*		*40 - 130*	*01/11/24 05:03*	*01/19/24 21:42*	*1*
13C2 8:2 FTS	*96.2*		*40 - 300*	*01/11/24 05:03*	*01/19/24 21:42*	*1*

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**4.6**	**J H**	7.8	1.9	ng/L		01/16/24 03:55	01/18/24 16:48	1
Perfluoropentanoic acid (PFPeA)	ND	H	3.9	0.97	ng/L		01/16/24 03:55	01/18/24 16:48	1
Perfluorohexanoic acid (PFHxA)	**1.0**	**J H**	1.9	0.49	ng/L		01/16/24 03:55	01/18/24 16:48	1
Perfluoroheptanoic acid (PFHpA)	**0.82**	**J H**	1.9	0.49	ng/L		01/16/24 03:55	01/18/24 16:48	1
Perfluorooctanoic acid (PFOA)	**1.2**	**J H**	1.9	0.49	ng/L		01/16/24 03:55	01/18/24 16:48	1
Perfluorononanoic acid (PFNA)	ND	H	1.9	0.49	ng/L		01/16/24 03:55	01/18/24 16:48	1
Perfluorodecanoic acid (PFDA)	ND	H	1.9	0.49	ng/L		01/16/24 03:55	01/18/24 16:48	1
Perfluoroundecanoic acid (PFUnA)	ND	H	1.9	0.49	ng/L		01/16/24 03:55	01/18/24 16:48	1
Perfluorododecanoic acid (PFDoA)	ND	H	1.9	0.49	ng/L		01/16/24 03:55	01/18/24 16:48	1
Perfluorotridecanoic acid (PFTrDA)	ND	H	1.9	0.49	ng/L		01/16/24 03:55	01/18/24 16:48	1
Perfluorotetradecanoic acid (PFTeDA)	ND	H	1.9	0.49	ng/L		01/16/24 03:55	01/18/24 16:48	1
Perfluorobutanesulfonic acid (PFBS)	**0.83**	**J H**	1.9	0.49	ng/L		01/16/24 03:55	01/18/24 16:48	1
Perfluoropentanesulfonic acid (PFPeS)	ND	H	1.9	0.49	ng/L		01/16/24 03:55	01/18/24 16:48	1
Perfluorohexanesulfonic acid (PFHxS)	ND	H	1.9	0.49	ng/L		01/16/24 03:55	01/18/24 16:48	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	H	1.9	0.49	ng/L		01/16/24 03:55	01/18/24 16:48	1
Perfluorooctanesulfonic acid (PFOS)	ND	H	1.9	0.49	ng/L		01/16/24 03:55	01/18/24 16:48	1
Perfluorononanesulfonic acid (PFNS)	ND	H	1.9	0.49	ng/L		01/16/24 03:55	01/18/24 16:48	1
Perfluorodecanesulfonic acid (PFDS)	ND	H	1.9	0.49	ng/L		01/16/24 03:55	01/18/24 16:48	1
Perfluorododecanesulfonic acid (PFDoS)	ND	H	1.9	0.49	ng/L		01/16/24 03:55	01/18/24 16:48	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	H	7.8	1.9	ng/L		01/16/24 03:55	01/18/24 16:48	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	H	7.8	1.9	ng/L		01/16/24 03:55	01/18/24 16:48	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	H	7.8	1.9	ng/L		01/16/24 03:55	01/18/24 16:48	1
Perfluorooctanesulfonamide (PFOSA)	ND	H	1.9	0.49	ng/L		01/16/24 03:55	01/18/24 16:48	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	H	1.9	0.49	ng/L		01/16/24 03:55	01/18/24 16:48	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	H	1.9	0.49	ng/L		01/16/24 03:55	01/18/24 16:48	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	H	1.9	0.49	ng/L		01/16/24 03:55	01/18/24 16:48	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	H	1.9	0.49	ng/L		01/16/24 03:55	01/18/24 16:48	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	H	19	4.9	ng/L		01/16/24 03:55	01/18/24 16:48	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	H	19	4.9	ng/L		01/16/24 03:55	01/18/24 16:48	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	H	7.8	1.9	ng/L		01/16/24 03:55	01/18/24 16:48	1

Client Sample ID: MW-12A-121423
Date Collected: 12/14/23 14:25
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-3
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RE (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H	7.8	1.9	ng/L		01/16/24 03:55	01/18/24 16:48	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	H	3.9	0.97	ng/L		01/16/24 03:55	01/18/24 16:48	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	H	3.9	0.97	ng/L		01/16/24 03:55	01/18/24 16:48	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	H	3.9	0.97	ng/L		01/16/24 03:55	01/18/24 16:48	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND	H	7.8	1.9	ng/L		01/16/24 03:55	01/18/24 16:48	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND	H	7.8	1.9	ng/L		01/16/24 03:55	01/18/24 16:48	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND	H	3.9	0.97	ng/L		01/16/24 03:55	01/18/24 16:48	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	H	9.7	2.4	ng/L		01/16/24 03:55	01/18/24 16:48	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND	H	49	12	ng/L		01/16/24 03:55	01/18/24 16:48	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	H	49	12	ng/L		01/16/24 03:55	01/18/24 16:48	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*77.3*		*5 - 130*	*01/16/24 03:55*	*01/18/24 16:48*	*1*
13C5 PFPeA	*79.5*		*40 - 130*	*01/16/24 03:55*	*01/18/24 16:48*	*1*
13C5 PFHxA	*78.1*		*40 - 130*	*01/16/24 03:55*	*01/18/24 16:48*	*1*
13C4 PFHpA	*79.8*		*40 - 130*	*01/16/24 03:55*	*01/18/24 16:48*	*1*
13C8 PFOA	*73.1*		*40 - 130*	*01/16/24 03:55*	*01/18/24 16:48*	*1*
13C9 PFNA	*75.7*		*40 - 130*	*01/16/24 03:55*	*01/18/24 16:48*	*1*
13C6 PFDA	*73.4*		*40 - 130*	*01/16/24 03:55*	*01/18/24 16:48*	*1*
13C7 PFUnA	*71.4*		*30 - 130*	*01/16/24 03:55*	*01/18/24 16:48*	*1*
13C2 PFDoA	*57.4*		*10 - 130*	*01/16/24 03:55*	*01/18/24 16:48*	*1*
13C2 PFTeDA	*52.2*		*10 - 130*	*01/16/24 03:55*	*01/18/24 16:48*	*1*
13C3 PFBS	*82.5*		*40 - 135*	*01/16/24 03:55*	*01/18/24 16:48*	*1*
13C3 PFHxS	*79.9*		*40 - 130*	*01/16/24 03:55*	*01/18/24 16:48*	*1*
13C8 PFOS	*80.5*		*40 - 130*	*01/16/24 03:55*	*01/18/24 16:48*	*1*
13C8 PFOSA	*76.4*		*40 - 130*	*01/16/24 03:55*	*01/18/24 16:48*	*1*
d3-NMeFOSAA	*77.2*		*40 - 170*	*01/16/24 03:55*	*01/18/24 16:48*	*1*
d5-NEtFOSAA	*72.1*		*25 - 135*	*01/16/24 03:55*	*01/18/24 16:48*	*1*
13C2 4:2 FTS	*116*		*40 - 200*	*01/16/24 03:55*	*01/18/24 16:48*	*1*
13C2 6:2 FTS	*104*		*40 - 200*	*01/16/24 03:55*	*01/18/24 16:48*	*1*
13C2 8:2 FTS	*91.7*		*40 - 300*	*01/16/24 03:55*	*01/18/24 16:48*	*1*
13C3 HFPO-DA	*79.6*		*40 - 130*	*01/16/24 03:55*	*01/18/24 16:48*	*1*
d7-N-MeFOSE-M	*58.7*		*10 - 130*	*01/16/24 03:55*	*01/18/24 16:48*	*1*
d9-N-EtFOSE-M	*55.4*		*10 - 130*	*01/16/24 03:55*	*01/18/24 16:48*	*1*
d5-NEtPFOSA	*60.7*		*10 - 130*	*01/16/24 03:55*	*01/18/24 16:48*	*1*
d3-NMePFOSA	*66.1*		*10 - 130*	*01/16/24 03:55*	*01/18/24 16:48*	*1*

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**8.9**		1.0	0.13	mg/L		12/18/23 10:30	12/18/23 15:31	1
Potassium	**2.7**		0.50	0.29	mg/L		12/18/23 10:30	12/18/23 15:31	1
Sodium	**8.5**	**^1+**	0.50	0.20	mg/L		12/18/23 10:30	12/18/23 15:31	1

Client Sample ID: MW-12A-121423

Lab Sample ID: 590-22504-3

Date Collected: 12/14/23 14:25

Matrix: Water

Date Received: 12/15/23 08:45

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**25**		2.0	0.20	mg/L		12/18/23 17:27	12/19/23 13:36	1
Magnesium	**8.8**		1.0	0.13	mg/L		12/18/23 17:27	12/19/23 13:36	1

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.0010	mg/L		12/18/23 15:58	12/20/23 18:03	5
Cadmium	ND		0.0020	0.00019	mg/L		12/18/23 15:58	12/20/23 18:03	5
Iron	ND		0.50	0.067	mg/L		12/18/23 15:58	12/20/23 18:03	5
Lead	ND		0.0020	0.00020	mg/L		12/18/23 15:58	12/20/23 18:03	5
Manganese	ND		0.010	0.0023	mg/L		12/18/23 15:58	12/20/23 18:03	5
Zinc	**0.0051**	**J**	0.035	0.0046	mg/L		12/18/23 15:58	12/20/23 18:03	5

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.0010	mg/L		12/20/23 15:52	12/22/23 11:29	5
Cadmium	ND		0.0020	0.00019	mg/L		12/20/23 15:52	12/22/23 11:29	5
Iron	ND		0.50	0.067	mg/L		12/20/23 15:52	12/22/23 11:29	5
Lead	ND		0.0020	0.00020	mg/L		12/20/23 15:52	12/22/23 11:29	5
Manganese	**0.0060**	**J**	0.010	0.0023	mg/L		12/20/23 15:52	12/22/23 11:29	5
Zinc	ND		0.035	0.0046	mg/L		12/20/23 15:52	12/22/23 11:29	5

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		12/18/23 10:28	12/18/23 15:34	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		12/27/23 10:16	12/28/23 13:33	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	ND		0.10	0.029	mg/L			01/09/24 11:40	1
Alkalinity (SM 2320B)	**85**	**B**	20	5.0	mg/L			12/27/23 10:12	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**85**	**B**	20	5.0	mg/L			12/27/23 10:12	1
Total Dissolved Solids (SM 2540C)	**140**		25	13	mg/L			12/18/23 16:57	1
Cyanide, Weak Acid Dissociable (SM 4500 CN I)	ND		0.010	0.0050	mg/L			12/22/23 13:04	1
Total Organic Carbon - Duplicates (SM 5310B)	**2.6**		1.0	0.35	mg/L			12/28/23 09:34	1

Client Sample ID: EB-121423

Lab Sample ID: 590-22504-4

Date Collected: 12/14/23 08:20

Matrix: Water

Date Received: 12/15/23 08:45

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	*+	7.3	1.8	ng/L		01/11/24 05:03	01/13/24 14:19	1
Perfluoropentanoic acid (PFPeA)	ND	*+	3.6	0.91	ng/L		01/11/24 05:03	01/13/24 14:19	1
Perfluorohexanoic acid (PFHxA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:19	1
Perfluoroheptanoic acid (PFHpA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:19	1
Perfluorooctanoic acid (PFOA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:19	1

Client Sample ID: EB-121423
Date Collected: 12/14/23 08:20
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-4
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:19	1
Perfluorodecanoic acid (PFDA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:19	1
Perfluoroundecanoic acid (PFUnA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:19	1
Perfluorododecanoic acid (PFDoA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:19	1
Perfluorotridecanoic acid (PFTrDA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:19	1
Perfluorotetradecanoic acid (PFTeDA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:19	1
Perfluorobutanesulfonic acid (PFBS)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:19	1
Perfluoropentanesulfonic acid (PFPeS)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:19	1
Perfluorohexanesulfonic acid (PFHxS)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:19	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:19	1
Perfluorooctanesulfonic acid (PFOS)	ND	*+ *1	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:19	1
Perfluorononanesulfonic acid (PFNS)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:19	1
Perfluorodecanesulfonic acid (PFDS)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:19	1
Perfluorododecanesulfonic acid (PFDoS)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:19	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	*+	7.3	1.8	ng/L		01/11/24 05:03	01/13/24 14:19	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	*+	7.3	1.8	ng/L		01/11/24 05:03	01/13/24 14:19	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:19	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:19	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:19	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/13/24 14:19	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	*+	18	4.5	ng/L		01/11/24 05:03	01/13/24 14:19	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	*+	18	4.5	ng/L		01/11/24 05:03	01/13/24 14:19	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	*+	7.3	1.8	ng/L		01/11/24 05:03	01/13/24 14:19	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	*+ *1	7.3	1.8	ng/L		01/11/24 05:03	01/13/24 14:19	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	*+	3.6	0.91	ng/L		01/11/24 05:03	01/13/24 14:19	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	*+	3.6	0.91	ng/L		01/11/24 05:03	01/13/24 14:19	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	*+	3.6	0.91	ng/L		01/11/24 05:03	01/13/24 14:19	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND	*+	7.3	1.8	ng/L		01/11/24 05:03	01/13/24 14:19	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		7.3	1.8	ng/L		01/11/24 05:03	01/13/24 14:19	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND	*+	3.6	0.91	ng/L		01/11/24 05:03	01/13/24 14:19	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	*+	9.1	2.3	ng/L		01/11/24 05:03	01/13/24 14:19	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND	*+	45	11	ng/L		01/11/24 05:03	01/13/24 14:19	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	*+	45	11	ng/L		01/11/24 05:03	01/13/24 14:19	1

Client Sample ID: EB-121423

Date Collected: 12/14/23 08:20
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-4

Matrix: Water

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	77.8		5 - 130	01/11/24 05:03	01/13/24 14:19	1
13C5 PFPeA	80.3		40 - 130	01/11/24 05:03	01/13/24 14:19	1
13C5 PFHxA	81.9		40 - 130	01/11/24 05:03	01/13/24 14:19	1
13C4 PFHpA	82.8		40 - 130	01/11/24 05:03	01/13/24 14:19	1
13C8 PFOA	76.6		40 - 130	01/11/24 05:03	01/13/24 14:19	1
13C9 PFNA	83.9		40 - 130	01/11/24 05:03	01/13/24 14:19	1
13C6 PFDA	80.6		40 - 130	01/11/24 05:03	01/13/24 14:19	1
13C7 PFUnA	82.0		30 - 130	01/11/24 05:03	01/13/24 14:19	1
13C2 PFDoA	80.4		10 - 130	01/11/24 05:03	01/13/24 14:19	1
13C2 PFTeDA	58.8		10 - 130	01/11/24 05:03	01/13/24 14:19	1
13C3 PFBS	71.4		40 - 135	01/11/24 05:03	01/13/24 14:19	1
13C3 PFHxS	78.5		40 - 130	01/11/24 05:03	01/13/24 14:19	1
13C8 PFOS	88.3		40 - 130	01/11/24 05:03	01/13/24 14:19	1
d3-NMeFOSAA	80.4		40 - 170	01/11/24 05:03	01/13/24 14:19	1
d5-NEtFOSAA	86.7		25 - 135	01/11/24 05:03	01/13/24 14:19	1
13C2 4:2 FTS	65.8		40 - 200	01/11/24 05:03	01/13/24 14:19	1
13C2 6:2 FTS	63.3		40 - 200	01/11/24 05:03	01/13/24 14:19	1
13C3 HFPO-DA	76.3		40 - 130	01/11/24 05:03	01/13/24 14:19	1
d7-N-MeFOSE-M	75.3		10 - 130	01/11/24 05:03	01/13/24 14:19	1
d9-N-EtFOSE-M	69.0		10 - 130	01/11/24 05:03	01/13/24 14:19	1
d5-NEtPFOSA	66.1		10 - 130	01/11/24 05:03	01/13/24 14:19	1
d3-NMePFOSA	66.0		10 - 130	01/11/24 05:03	01/13/24 14:19	1

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	*+	7.3	1.8	ng/L		01/11/24 05:03	01/19/24 21:59	1
Perfluorooctanesulfonamide (PFOSA)	ND	*+	1.8	0.45	ng/L		01/11/24 05:03	01/19/24 21:59	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOSA	74.6		40 - 130	01/11/24 05:03	01/19/24 21:59	1
13C2 8:2 FTS	109		40 - 300	01/11/24 05:03	01/19/24 21:59	1

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	H	7.1	1.8	ng/L		01/16/24 03:55	01/18/24 17:05	1
Perfluoropentanoic acid (PFPeA)	ND	H	3.6	0.89	ng/L		01/16/24 03:55	01/18/24 17:05	1
Perfluorohexanoic acid (PFHxA)	ND	H	1.8	0.45	ng/L		01/16/24 03:55	01/18/24 17:05	1
Perfluoroheptanoic acid (PFHpA)	ND	H	1.8	0.45	ng/L		01/16/24 03:55	01/18/24 17:05	1
Perfluorooctanoic acid (PFOA)	ND	H	1.8	0.45	ng/L		01/16/24 03:55	01/18/24 17:05	1
Perfluorononanoic acid (PFNA)	ND	H	1.8	0.45	ng/L		01/16/24 03:55	01/18/24 17:05	1
Perfluorodecanoic acid (PFDA)	ND	H	1.8	0.45	ng/L		01/16/24 03:55	01/18/24 17:05	1
Perfluoroundecanoic acid (PFUnA)	ND	H	1.8	0.45	ng/L		01/16/24 03:55	01/18/24 17:05	1
Perfluorododecanoic acid (PFDoA)	ND	H	1.8	0.45	ng/L		01/16/24 03:55	01/18/24 17:05	1
Perfluorotridecanoic acid (PFTrDA)	ND	H	1.8	0.45	ng/L		01/16/24 03:55	01/18/24 17:05	1
Perfluorotetradecanoic acid (PFTeDA)	ND	H	1.8	0.45	ng/L		01/16/24 03:55	01/18/24 17:05	1
Perfluorobutanesulfonic acid (PFBS)	ND	H	1.8	0.45	ng/L		01/16/24 03:55	01/18/24 17:05	1
Perfluoropentanesulfonic acid (PFPeS)	ND	H	1.8	0.45	ng/L		01/16/24 03:55	01/18/24 17:05	1
Perfluorohexanesulfonic acid (PFHxS)	ND	H	1.8	0.45	ng/L		01/16/24 03:55	01/18/24 17:05	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	H	1.8	0.45	ng/L		01/16/24 03:55	01/18/24 17:05	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22504-1

Client Sample ID: EB-121423
Date Collected: 12/14/23 08:20
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-4
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RE (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	ND	H	1.8	0.45	ng/L		01/16/24 03:55	01/18/24 17:05	1
Perfluorononanesulfonic acid (PFNS)	ND	H	1.8	0.45	ng/L		01/16/24 03:55	01/18/24 17:05	1
Perfluorodecanesulfonic acid (PFDS)	ND	H	1.8	0.45	ng/L		01/16/24 03:55	01/18/24 17:05	1
Perfluorododecanesulfonic acid (PFDoS)	ND	H	1.8	0.45	ng/L		01/16/24 03:55	01/18/24 17:05	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	H	7.1	1.8	ng/L		01/16/24 03:55	01/18/24 17:05	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	H	7.1	1.8	ng/L		01/16/24 03:55	01/18/24 17:05	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	H	7.1	1.8	ng/L		01/16/24 03:55	01/18/24 17:05	1
Perfluorooctanesulfonamide (PFOSA)	ND	H	1.8	0.45	ng/L		01/16/24 03:55	01/18/24 17:05	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	H	1.8	0.45	ng/L		01/16/24 03:55	01/18/24 17:05	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	H	1.8	0.45	ng/L		01/16/24 03:55	01/18/24 17:05	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	H	1.8	0.45	ng/L		01/16/24 03:55	01/18/24 17:05	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	H	1.8	0.45	ng/L		01/16/24 03:55	01/18/24 17:05	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	H	18	4.5	ng/L		01/16/24 03:55	01/18/24 17:05	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	H	18	4.5	ng/L		01/16/24 03:55	01/18/24 17:05	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	H	7.1	1.8	ng/L		01/16/24 03:55	01/18/24 17:05	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H	7.1	1.8	ng/L		01/16/24 03:55	01/18/24 17:05	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	H	3.6	0.89	ng/L		01/16/24 03:55	01/18/24 17:05	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	H	3.6	0.89	ng/L		01/16/24 03:55	01/18/24 17:05	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	H	3.6	0.89	ng/L		01/16/24 03:55	01/18/24 17:05	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND	H	7.1	1.8	ng/L		01/16/24 03:55	01/18/24 17:05	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND	H	7.1	1.8	ng/L		01/16/24 03:55	01/18/24 17:05	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND	H	3.6	0.89	ng/L		01/16/24 03:55	01/18/24 17:05	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	H	8.9	2.2	ng/L		01/16/24 03:55	01/18/24 17:05	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND	H	45	11	ng/L		01/16/24 03:55	01/18/24 17:05	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	H	45	11	ng/L		01/16/24 03:55	01/18/24 17:05	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*78.2*		*5 - 130*	*01/16/24 03:55*	*01/18/24 17:05*	*1*
13C5 PFPeA	*78.8*		*40 - 130*	*01/16/24 03:55*	*01/18/24 17:05*	*1*
13C5 PFHxA	*74.5*		*40 - 130*	*01/16/24 03:55*	*01/18/24 17:05*	*1*
13C4 PFHpA	*80.6*		*40 - 130*	*01/16/24 03:55*	*01/18/24 17:05*	*1*
13C8 PFOA	*74.0*		*40 - 130*	*01/16/24 03:55*	*01/18/24 17:05*	*1*
13C9 PFNA	*80.5*		*40 - 130*	*01/16/24 03:55*	*01/18/24 17:05*	*1*
13C6 PFDA	*72.5*		*40 - 130*	*01/16/24 03:55*	*01/18/24 17:05*	*1*

Client Sample ID: EB-121423

Date Collected: 12/14/23 08:20
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-4
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RE (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C7 PFUnA	77.0		30 - 130	01/16/24 03:55	01/18/24 17:05	1
13C2 PFDoA	70.8		10 - 130	01/16/24 03:55	01/18/24 17:05	1
13C2 PFTeDA	59.7		10 - 130	01/16/24 03:55	01/18/24 17:05	1
13C3 PFBS	75.2		40 - 135	01/16/24 03:55	01/18/24 17:05	1
13C3 PFHxS	79.5		40 - 130	01/16/24 03:55	01/18/24 17:05	1
13C8 PFOS	76.4		40 - 130	01/16/24 03:55	01/18/24 17:05	1
13C8 PFOSA	75.9		40 - 130	01/16/24 03:55	01/18/24 17:05	1
d3-NMeFOSAA	74.0		40 - 170	01/16/24 03:55	01/18/24 17:05	1
d5-NEtFOSAA	75.1		25 - 135	01/16/24 03:55	01/18/24 17:05	1
13C2 4:2 FTS	111		40 - 200	01/16/24 03:55	01/18/24 17:05	1
13C2 6:2 FTS	91.5		40 - 200	01/16/24 03:55	01/18/24 17:05	1
13C2 8:2 FTS	93.3		40 - 300	01/16/24 03:55	01/18/24 17:05	1
13C3 HFPO-DA	81.4		40 - 130	01/16/24 03:55	01/18/24 17:05	1
d7-N-MeFOSE-M	63.3		10 - 130	01/16/24 03:55	01/18/24 17:05	1
d9-N-EtFOSE-M	60.7		10 - 130	01/16/24 03:55	01/18/24 17:05	1
d5-NEtPFOSA	60.4		10 - 130	01/16/24 03:55	01/18/24 17:05	1
d3-NMePFOSA	65.0		10 - 130	01/16/24 03:55	01/18/24 17:05	1

Client Sample ID: FB-121423

Date Collected: 12/14/23 08:30
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-5
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	*+	7.0	1.8	ng/L		01/11/24 05:03	01/13/24 14:36	1
Perfluoropentanoic acid (PFPeA)	ND	*+	3.5	0.88	ng/L		01/11/24 05:03	01/13/24 14:36	1
Perfluorohexanoic acid (PFHxA)	ND	*+	1.8	0.44	ng/L		01/11/24 05:03	01/13/24 14:36	1
Perfluoroheptanoic acid (PFHpA)	ND	*+	1.8	0.44	ng/L		01/11/24 05:03	01/13/24 14:36	1
Perfluorooctanoic acid (PFOA)	ND	*+	1.8	0.44	ng/L		01/11/24 05:03	01/13/24 14:36	1
Perfluorononanoic acid (PFNA)	ND	*+	1.8	0.44	ng/L		01/11/24 05:03	01/13/24 14:36	1
Perfluorodecanoic acid (PFDA)	ND	*+	1.8	0.44	ng/L		01/11/24 05:03	01/13/24 14:36	1
Perfluoroundecanoic acid (PFUnA)	ND	*+	1.8	0.44	ng/L		01/11/24 05:03	01/13/24 14:36	1
Perfluorododecanoic acid (PFDoA)	ND	*+	1.8	0.44	ng/L		01/11/24 05:03	01/13/24 14:36	1
Perfluorotridecanoic acid (PFTrDA)	ND	*+	1.8	0.44	ng/L		01/11/24 05:03	01/13/24 14:36	1
Perfluorotetradecanoic acid (PFTeDA)	ND	*+	1.8	0.44	ng/L		01/11/24 05:03	01/13/24 14:36	1
Perfluorobutanesulfonic acid (PFBS)	ND	*+	1.8	0.44	ng/L		01/11/24 05:03	01/13/24 14:36	1
Perfluoropentanesulfonic acid (PFPeS)	ND	*+	1.8	0.44	ng/L		01/11/24 05:03	01/13/24 14:36	1
Perfluorohexanesulfonic acid (PFHxS)	ND	*+	1.8	0.44	ng/L		01/11/24 05:03	01/13/24 14:36	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	*+	1.8	0.44	ng/L		01/11/24 05:03	01/13/24 14:36	1
Perfluorooctanesulfonic acid (PFOS)	ND	*+ *1	1.8	0.44	ng/L		01/11/24 05:03	01/13/24 14:36	1
Perfluorononanesulfonic acid (PFNS)	ND	*+	1.8	0.44	ng/L		01/11/24 05:03	01/13/24 14:36	1
Perfluorodecanesulfonic acid (PFDS)	ND	*+	1.8	0.44	ng/L		01/11/24 05:03	01/13/24 14:36	1
Perfluorododecanesulfonic acid (PFDoS)	ND	*+	1.8	0.44	ng/L		01/11/24 05:03	01/13/24 14:36	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	*+	7.0	1.8	ng/L		01/11/24 05:03	01/13/24 14:36	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	*+	7.0	1.8	ng/L		01/11/24 05:03	01/13/24 14:36	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22504-1

Client Sample ID: FB-121423
Date Collected: 12/14/23 08:30
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-5
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	*+	1.8	0.44	ng/L		01/11/24 05:03	01/13/24 14:36	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	*+	1.8	0.44	ng/L		01/11/24 05:03	01/13/24 14:36	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	*+	1.8	0.44	ng/L		01/11/24 05:03	01/13/24 14:36	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	*+	1.8	0.44	ng/L		01/11/24 05:03	01/13/24 14:36	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	*+	18	4.4	ng/L		01/11/24 05:03	01/13/24 14:36	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	*+	18	4.4	ng/L		01/11/24 05:03	01/13/24 14:36	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	*+	7.0	1.8	ng/L		01/11/24 05:03	01/13/24 14:36	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	*+ *1	7.0	1.8	ng/L		01/11/24 05:03	01/13/24 14:36	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	*+	3.5	0.88	ng/L		01/11/24 05:03	01/13/24 14:36	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	*+	3.5	0.88	ng/L		01/11/24 05:03	01/13/24 14:36	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	*+	3.5	0.88	ng/L		01/11/24 05:03	01/13/24 14:36	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND	*+	7.0	1.8	ng/L		01/11/24 05:03	01/13/24 14:36	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		7.0	1.8	ng/L		01/11/24 05:03	01/13/24 14:36	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND	*+	3.5	0.88	ng/L		01/11/24 05:03	01/13/24 14:36	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	*+	8.8	2.2	ng/L		01/11/24 05:03	01/13/24 14:36	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND	*+	44	11	ng/L		01/11/24 05:03	01/13/24 14:36	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	*+	44	11	ng/L		01/11/24 05:03	01/13/24 14:36	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*77.5*		*5 - 130*	*01/11/24 05:03*	*01/13/24 14:36*	*1*
13C5 PFPeA	*81.0*		*40 - 130*	*01/11/24 05:03*	*01/13/24 14:36*	*1*
13C5 PFHxA	*75.6*		*40 - 130*	*01/11/24 05:03*	*01/13/24 14:36*	*1*
13C4 PFHpA	*83.1*		*40 - 130*	*01/11/24 05:03*	*01/13/24 14:36*	*1*
13C8 PFOA	*77.1*		*40 - 130*	*01/11/24 05:03*	*01/13/24 14:36*	*1*
13C9 PFNA	*83.3*		*40 - 130*	*01/11/24 05:03*	*01/13/24 14:36*	*1*
13C6 PFDA	*78.0*		*40 - 130*	*01/11/24 05:03*	*01/13/24 14:36*	*1*
13C7 PFUnA	*75.2*		*30 - 130*	*01/11/24 05:03*	*01/13/24 14:36*	*1*
13C2 PFDoA	*71.1*		*10 - 130*	*01/11/24 05:03*	*01/13/24 14:36*	*1*
13C2 PFTeDA	*56.9*		*10 - 130*	*01/11/24 05:03*	*01/13/24 14:36*	*1*
13C3 PFBS	*70.2*		*40 - 135*	*01/11/24 05:03*	*01/13/24 14:36*	*1*
13C3 PFHxS	*77.3*		*40 - 130*	*01/11/24 05:03*	*01/13/24 14:36*	*1*
13C8 PFOS	*76.0*		*40 - 130*	*01/11/24 05:03*	*01/13/24 14:36*	*1*
d3-NMeFOSAA	*70.1*		*40 - 170*	*01/11/24 05:03*	*01/13/24 14:36*	*1*
d5-NEtFOSAA	*72.4*		*25 - 135*	*01/11/24 05:03*	*01/13/24 14:36*	*1*
13C2 4:2 FTS	*67.8*		*40 - 200*	*01/11/24 05:03*	*01/13/24 14:36*	*1*
13C2 6:2 FTS	*70.1*		*40 - 200*	*01/11/24 05:03*	*01/13/24 14:36*	*1*
13C3 HFPO-DA	*87.3*		*40 - 130*	*01/11/24 05:03*	*01/13/24 14:36*	*1*

Client Sample ID: FB-121423

Date Collected: 12/14/23 08:30
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-5

Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
d7-N-MeFOSE-M	*70.5*		*10 - 130*	*01/11/24 05:03*	*01/13/24 14:36*	*1*
d9-N-EtFOSE-M	*60.4*		*10 - 130*	*01/11/24 05:03*	*01/13/24 14:36*	*1*
d5-NEtPFOSA	*61.4*		*10 - 130*	*01/11/24 05:03*	*01/13/24 14:36*	*1*
d3-NMePFOSA	*64.1*		*10 - 130*	*01/11/24 05:03*	*01/13/24 14:36*	*1*

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	*+	7.0	1.8	ng/L		01/11/24 05:03	01/19/24 22:17	1
Perfluorooctanesulfonamide (PFOSA)	ND	*+	1.8	0.44	ng/L		01/11/24 05:03	01/19/24 22:17	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOSA	*70.4*		*40 - 130*	*01/11/24 05:03*	*01/19/24 22:17*	*1*
13C2 8:2 FTS	*104*		*40 - 300*	*01/11/24 05:03*	*01/19/24 22:17*	*1*

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	H	7.3	1.8	ng/L		01/16/24 03:55	01/18/24 17:21	1
Perfluoropentanoic acid (PFPeA)	ND	H	3.6	0.91	ng/L		01/16/24 03:55	01/18/24 17:21	1
Perfluorohexanoic acid (PFHxA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 17:21	1
Perfluoroheptanoic acid (PFHpA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 17:21	1
Perfluorooctanoic acid (PFOA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 17:21	1
Perfluorononanoic acid (PFNA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 17:21	1
Perfluorodecanoic acid (PFDA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 17:21	1
Perfluoroundecanoic acid (PFUnA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 17:21	1
Perfluorododecanoic acid (PFDoA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 17:21	1
Perfluorotridecanoic acid (PFTrDA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 17:21	1
Perfluorotetradecanoic acid (PFTeDA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 17:21	1
Perfluorobutanesulfonic acid (PFBS)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 17:21	1
Perfluoropentanesulfonic acid (PFPeS)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 17:21	1
Perfluorohexanesulfonic acid (PFHxS)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 17:21	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 17:21	1
Perfluorooctanesulfonic acid (PFOS)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 17:21	1
Perfluorononanesulfonic acid (PFNS)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 17:21	1
Perfluorodecanesulfonic acid (PFDS)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 17:21	1
Perfluorododecanesulfonic acid (PFDoS)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 17:21	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	H	7.3	1.8	ng/L		01/16/24 03:55	01/18/24 17:21	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	H	7.3	1.8	ng/L		01/16/24 03:55	01/18/24 17:21	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	H	7.3	1.8	ng/L		01/16/24 03:55	01/18/24 17:21	1
Perfluorooctanesulfonamide (PFOSA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 17:21	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 17:21	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 17:21	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 17:21	1

Client Sample ID: FB-121423
Date Collected: 12/14/23 08:30
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-5
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RE (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	H	1.8	0.46	ng/L		01/16/24 03:55	01/18/24 17:21	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	H	18	4.6	ng/L		01/16/24 03:55	01/18/24 17:21	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	H	18	4.6	ng/L		01/16/24 03:55	01/18/24 17:21	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	H	7.3	1.8	ng/L		01/16/24 03:55	01/18/24 17:21	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H	7.3	1.8	ng/L		01/16/24 03:55	01/18/24 17:21	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	H	3.6	0.91	ng/L		01/16/24 03:55	01/18/24 17:21	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	H	3.6	0.91	ng/L		01/16/24 03:55	01/18/24 17:21	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	H	3.6	0.91	ng/L		01/16/24 03:55	01/18/24 17:21	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND	H	7.3	1.8	ng/L		01/16/24 03:55	01/18/24 17:21	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND	H	7.3	1.8	ng/L		01/16/24 03:55	01/18/24 17:21	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND	H	3.6	0.91	ng/L		01/16/24 03:55	01/18/24 17:21	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	H	9.1	2.3	ng/L		01/16/24 03:55	01/18/24 17:21	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND	H	46	11	ng/L		01/16/24 03:55	01/18/24 17:21	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	H	46	11	ng/L		01/16/24 03:55	01/18/24 17:21	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*81.1*		*5 - 130*	*01/16/24 03:55*	*01/18/24 17:21*	*1*
13C5 PFPeA	*86.7*		*40 - 130*	*01/16/24 03:55*	*01/18/24 17:21*	*1*
13C5 PFHxA	*82.5*		*40 - 130*	*01/16/24 03:55*	*01/18/24 17:21*	*1*
13C4 PFHpA	*90.9*		*40 - 130*	*01/16/24 03:55*	*01/18/24 17:21*	*1*
13C8 PFOA	*77.3*		*40 - 130*	*01/16/24 03:55*	*01/18/24 17:21*	*1*
13C9 PFNA	*80.7*		*40 - 130*	*01/16/24 03:55*	*01/18/24 17:21*	*1*
13C6 PFDA	*75.4*		*40 - 130*	*01/16/24 03:55*	*01/18/24 17:21*	*1*
13C7 PFUnA	*74.3*		*30 - 130*	*01/16/24 03:55*	*01/18/24 17:21*	*1*
13C2 PFDoA	*69.5*		*10 - 130*	*01/16/24 03:55*	*01/18/24 17:21*	*1*
13C2 PFTeDA	*61.3*		*10 - 130*	*01/16/24 03:55*	*01/18/24 17:21*	*1*
13C3 PFBS	*81.5*		*40 - 135*	*01/16/24 03:55*	*01/18/24 17:21*	*1*
13C3 PFHxS	*81.8*		*40 - 130*	*01/16/24 03:55*	*01/18/24 17:21*	*1*
13C8 PFOS	*82.2*		*40 - 130*	*01/16/24 03:55*	*01/18/24 17:21*	*1*
13C8 PFOSA	*77.2*		*40 - 130*	*01/16/24 03:55*	*01/18/24 17:21*	*1*
d3-NMeFOSAA	*83.0*		*40 - 170*	*01/16/24 03:55*	*01/18/24 17:21*	*1*
d5-NEtFOSAA	*81.5*		*25 - 135*	*01/16/24 03:55*	*01/18/24 17:21*	*1*
13C2 4:2 FTS	*112*		*40 - 200*	*01/16/24 03:55*	*01/18/24 17:21*	*1*
13C2 6:2 FTS	*105*		*40 - 200*	*01/16/24 03:55*	*01/18/24 17:21*	*1*
13C2 8:2 FTS	*97.9*		*40 - 300*	*01/16/24 03:55*	*01/18/24 17:21*	*1*
13C3 HFPO-DA	*89.0*		*40 - 130*	*01/16/24 03:55*	*01/18/24 17:21*	*1*
d7-N-MeFOSE-M	*63.5*		*10 - 130*	*01/16/24 03:55*	*01/18/24 17:21*	*1*
d9-N-EtFOSE-M	*70.1*		*10 - 130*	*01/16/24 03:55*	*01/18/24 17:21*	*1*
d5-NEtPFOSA	*69.6*		*10 - 130*	*01/16/24 03:55*	*01/18/24 17:21*	*1*
d3-NMePFOSA	*74.5*		*10 - 130*	*01/16/24 03:55*	*01/18/24 17:21*	*1*

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 590-45100/10
Matrix: Water
Analysis Batch: 45100

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.48	ug/L			12/15/23 13:42	1
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			12/15/23 13:42	1
1,1,2,2-Tetrachloroethane	ND		2.0	0.32	ug/L			12/15/23 13:42	1
1,1,2-Trichloroethane	ND		2.0	0.43	ug/L			12/15/23 13:42	1
1,1-Dichloroethane	ND		1.0	0.29	ug/L			12/15/23 13:42	1
1,1-Dichloroethene	ND		1.0	0.20	ug/L			12/15/23 13:42	1
1,1-Dichloropropene	ND		1.0	0.50	ug/L			12/15/23 13:42	1
1,2,3-Trichlorobenzene	ND		1.0	0.33	ug/L			12/15/23 13:42	1
1,2,3-Trichloropropane	ND		2.0	0.50	ug/L			12/15/23 13:42	1
1,2,4-Trichlorobenzene	ND		1.0	0.50	ug/L			12/15/23 13:42	1
1,2,4-Trimethylbenzene	ND		1.0	0.31	ug/L			12/15/23 13:42	1
1,2-Dibromo-3-Chloropropane	ND		10	1.5	ug/L			12/15/23 13:42	1
1,2-Dibromoethane (EDB)	ND		1.0	0.20	ug/L			12/15/23 13:42	1
1,2-Dichlorobenzene	ND		1.0	0.23	ug/L			12/15/23 13:42	1
1,2-Dichloroethane	ND		1.0	0.31	ug/L			12/15/23 13:42	1
1,2-Dichloropropane	ND		1.0	0.23	ug/L			12/15/23 13:42	1
1,3,5-Trimethylbenzene	ND		1.0	0.32	ug/L			12/15/23 13:42	1
1,3-Dichlorobenzene	ND		1.0	0.14	ug/L			12/15/23 13:42	1
1,3-Dichloropropane	ND		2.0	0.21	ug/L			12/15/23 13:42	1
1,4-Dichlorobenzene	ND		1.0	0.28	ug/L			12/15/23 13:42	1
2,2-Dichloropropane	ND		2.0	0.66	ug/L			12/15/23 13:42	1
2-Chlorotoluene	ND		1.0	0.36	ug/L			12/15/23 13:42	1
4-Chlorotoluene	ND		1.0	0.26	ug/L			12/15/23 13:42	1
Benzene	ND		0.40	0.093	ug/L			12/15/23 13:42	1
Bromobenzene	ND		1.0	0.28	ug/L			12/15/23 13:42	1
Bromochloromethane	ND		2.0	0.44	ug/L			12/15/23 13:42	1
Bromodichloromethane	ND		1.0	0.29	ug/L			12/15/23 13:42	1
Bromoform	ND		5.0	0.66	ug/L			12/15/23 13:42	1
Bromomethane	ND		5.0	0.76	ug/L			12/15/23 13:42	1
Carbon tetrachloride	ND		1.0	0.40	ug/L			12/15/23 13:42	1
Chlorobenzene	ND		1.0	0.32	ug/L			12/15/23 13:42	1
Chloroethane	ND		2.0	0.40	ug/L			12/15/23 13:42	1
Chloroform	ND		1.0	0.24	ug/L			12/15/23 13:42	1
Chloromethane	ND		3.0	0.50	ug/L			12/15/23 13:42	1
cis-1,2-Dichloroethene	ND		1.0	0.23	ug/L			12/15/23 13:42	1
cis-1,3-Dichloropropene	ND		1.0	0.25	ug/L			12/15/23 13:42	1
Dibromochloromethane	ND		2.0	0.33	ug/L			12/15/23 13:42	1
Dibromomethane	ND		2.0	0.50	ug/L			12/15/23 13:42	1
Dichlorodifluoromethane	ND		2.0	0.64	ug/L			12/15/23 13:42	1
Ethylbenzene	ND		1.0	0.20	ug/L			12/15/23 13:42	1
Hexachlorobutadiene	ND		2.0	0.21	ug/L			12/15/23 13:42	1
Isopropylbenzene	ND		1.0	0.24	ug/L			12/15/23 13:42	1
m,p-Xylene	ND		2.0	0.28	ug/L			12/15/23 13:42	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			12/15/23 13:42	1
Methylene Chloride	ND		5.0	2.2	ug/L			12/15/23 13:42	1
Naphthalene	ND		2.0	0.63	ug/L			12/15/23 13:42	1
n-Butylbenzene	ND		1.0	0.20	ug/L			12/15/23 13:42	1
N-Propylbenzene	ND		1.0	0.25	ug/L			12/15/23 13:42	1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 590-45100/10
Matrix: Water
Analysis Batch: 45100

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	ND		1.0	0.16	ug/L			12/15/23 13:42	1
p-Isopropyltoluene	ND		1.0	0.27	ug/L			12/15/23 13:42	1
sec-Butylbenzene	ND		1.0	0.22	ug/L			12/15/23 13:42	1
Styrene	ND		1.0	0.24	ug/L			12/15/23 13:42	1
tert-Butylbenzene	ND		1.0	0.12	ug/L			12/15/23 13:42	1
Tetrachloroethene	ND		1.0	0.22	ug/L			12/15/23 13:42	1
Toluene	ND		1.0	0.31	ug/L			12/15/23 13:42	1
trans-1,2-Dichloroethene	ND		1.0	0.20	ug/L			12/15/23 13:42	1
trans-1,3-Dichloropropene	ND		1.0	0.45	ug/L			12/15/23 13:42	1
Trichloroethene	ND		1.0	0.20	ug/L			12/15/23 13:42	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/15/23 13:42	1
Vinyl chloride	ND		0.40	0.13	ug/L			12/15/23 13:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*80 - 120*		*12/15/23 13:42*	*1*
4-Bromofluorobenzene (Surr)	*94*		*76 - 120*		*12/15/23 13:42*	*1*
Dibromofluoromethane (Surr)	*109*		*80 - 123*		*12/15/23 13:42*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*12/15/23 13:42*	*1*

Lab Sample ID: LCS 590-45100/1003
Matrix: Water
Analysis Batch: 45100

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1,2-Tetrachloroethane	10.0	10.2		ug/L		102	80 - 131
1,1,1-Trichloroethane	10.0	10.9		ug/L		109	71 - 138
1,1,2,2-Tetrachloroethane	10.0	9.55		ug/L		96	60 - 150
1,1,2-Trichloroethane	10.0	10.8		ug/L		108	80 - 128
1,1-Dichloroethane	10.0	9.75		ug/L		98	80 - 125
1,1-Dichloroethene	10.0	9.99		ug/L		100	65 - 141
1,1-Dichloropropene	10.0	9.86		ug/L		99	82 - 123
1,2,3-Trichlorobenzene	10.0	9.85		ug/L		99	70 - 137
1,2,3-Trichloropropane	10.0	9.28		ug/L		93	65 - 142
1,2,4-Trichlorobenzene	10.0	9.64		ug/L		96	76 - 131
1,2,4-Trimethylbenzene	10.0	8.36		ug/L		84	78 - 131
1,2-Dibromo-3-Chloropropane	10.0	9.81	J	ug/L		98	53 - 142
1,2-Dibromoethane (EDB)	10.0	10.7		ug/L		107	80 - 124
1,2-Dichlorobenzene	10.0	9.69		ug/L		97	80 - 120
1,2-Dichloroethane	10.0	9.90		ug/L		99	80 - 120
1,2-Dichloropropane	10.0	9.51		ug/L		95	79 - 122
1,3,5-Trimethylbenzene	10.0	8.24		ug/L		82	76 - 129
1,3-Dichlorobenzene	10.0	9.67		ug/L		97	80 - 122
1,3-Dichloropropane	10.0	10.1		ug/L		101	78 - 129
1,4-Dichlorobenzene	10.0	9.36		ug/L		94	80 - 120
2,2-Dichloropropane	10.0	13.3		ug/L		133	73 - 140
2-Chlorotoluene	10.0	9.07		ug/L		91	74 - 129
4-Chlorotoluene	10.0	9.10		ug/L		91	79 - 125
Benzene	10.0	9.90		ug/L		99	80 - 120

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 590-45100/1003
Matrix: Water
Analysis Batch: 45100

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Bromobenzene	10.0	8.94		ug/L		89	73 - 125
Bromochloromethane	10.0	9.81		ug/L		98	71 - 136
Bromodichloromethane	10.0	9.56		ug/L		96	80 - 120
Bromoform	10.0	11.3		ug/L		113	73 - 139
Bromomethane	10.0	8.34		ug/L		83	66 - 149
Carbon tetrachloride	10.0	11.2		ug/L		112	72 - 138
Chlorobenzene	10.0	9.79		ug/L		98	80 - 124
Chloroethane	10.0	9.27		ug/L		93	64 - 134
Chloroform	10.0	9.96		ug/L		100	80 - 123
Chloromethane	10.0	16.6	*+	ug/L		166	19 - 150
cis-1,2-Dichloroethene	10.0	9.60		ug/L		96	80 - 122
cis-1,3-Dichloropropene	10.0	9.39		ug/L		94	80 - 121
Dibromochloromethane	10.0	10.5		ug/L		105	80 - 130
Dibromomethane	10.0	9.37		ug/L		94	80 - 122
Dichlorodifluoromethane	10.0	9.54		ug/L		95	30 - 150
Ethylbenzene	10.0	9.76		ug/L		98	80 - 122
Hexachlorobutadiene	10.0	10.1		ug/L		101	77 - 132
Isopropylbenzene	10.0	10.3		ug/L		103	80 - 122
m,p-Xylene	10.0	9.96		ug/L		100	80 - 125
Methyl tert-butyl ether	10.0	11.4		ug/L		114	68 - 134
Methylene Chloride	10.0	8.30		ug/L		83	30 - 150
Naphthalene	10.0	10.1		ug/L		101	61 - 140
n-Butylbenzene	10.0	9.52		ug/L		95	75 - 121
N-Propylbenzene	10.0	9.10		ug/L		91	73 - 136
o-Xylene	10.0	9.98		ug/L		100	80 - 130
p-Isopropyltoluene	10.0	9.54		ug/L		95	78 - 128
sec-Butylbenzene	10.0	8.29		ug/L		83	73 - 138
Styrene	10.0	9.46		ug/L		95	79 - 134
tert-Butylbenzene	10.0	8.27		ug/L		83	76 - 131
Tetrachloroethene	10.0	11.0		ug/L		110	80 - 139
Toluene	10.0	9.12		ug/L		91	80 - 129
trans-1,2-Dichloroethene	10.0	8.99		ug/L		90	73 - 137
trans-1,3-Dichloropropene	10.0	10.5		ug/L		105	73 - 138
Trichloroethene	10.0	9.73		ug/L		97	80 - 123
Trichlorofluoromethane	10.0	9.49		ug/L		95	71 - 147
Vinyl chloride	10.0	8.41		ug/L		84	50 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*103*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*76 - 120*
Dibromofluoromethane (Surr)	*103*		*80 - 123*
Toluene-d8 (Surr)	*100*		*80 - 120*

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 590-45100/4
Matrix: Water
Analysis Batch: 45100

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane			10.0	10.7		ug/L		107	80 - 131	5	17
1,1,1-Trichloroethane			10.0	11.4		ug/L		114	71 - 138	5	17
1,1,2,2-Tetrachloroethane			10.0	9.77		ug/L		98	60 - 150	2	17
1,1,2-Trichloroethane			10.0	10.1		ug/L		101	80 - 128	6	15
1,1-Dichloroethane			10.0	10.0		ug/L		100	80 - 125	3	20
1,1-Dichloroethene			10.0	10.9		ug/L		109	65 - 141	9	19
1,1-Dichloropropene			10.0	9.71		ug/L		97	82 - 123	2	20
1,2,3-Trichlorobenzene			10.0	9.68		ug/L		97	70 - 137	2	30
1,2,3-Trichloropropane			10.0	9.42		ug/L		94	65 - 142	1	34
1,2,4-Trichlorobenzene			10.0	9.51		ug/L		95	76 - 131	1	24
1,2,4-Trimethylbenzene			10.0	8.57		ug/L		86	78 - 131	2	16
1,2-Dibromo-3-Chloropropane			10.0	11.3		ug/L		113	53 - 142	14	29
1,2-Dibromoethane (EDB)			10.0	10.7		ug/L		107	80 - 124	0	14
1,2-Dichlorobenzene			10.0	10.3		ug/L		103	80 - 120	6	14
1,2-Dichloroethane			10.0	9.66		ug/L		97	80 - 120	2	14
1,2-Dichloropropane			10.0	9.28		ug/L		93	79 - 122	2	15
1,3,5-Trimethylbenzene			10.0	8.51		ug/L		85	76 - 129	3	17
1,3-Dichlorobenzene			10.0	9.88		ug/L		99	80 - 122	2	15
1,3-Dichloropropane			10.0	9.78		ug/L		98	78 - 129	3	17
1,4-Dichlorobenzene			10.0	9.80		ug/L		98	80 - 120	5	14
2,2-Dichloropropane			10.0	13.0		ug/L		130	73 - 140	2	18
2-Chlorotoluene			10.0	9.70		ug/L		97	74 - 129	7	19
4-Chlorotoluene			10.0	9.29		ug/L		93	79 - 125	2	16
Benzene			10.0	9.85		ug/L		99	80 - 120	0	15
Bromobenzene			10.0	8.77		ug/L		88	73 - 125	2	16
Bromochloromethane			10.0	9.39		ug/L		94	71 - 136	4	21
Bromodichloromethane			10.0	9.76		ug/L		98	80 - 120	2	16
Bromoform			10.0	11.1		ug/L		111	73 - 139	2	17
Bromomethane			10.0	8.51		ug/L		85	66 - 149	2	24
Carbon tetrachloride			10.0	11.3		ug/L		113	72 - 138	0	28
Chlorobenzene			10.0	9.91		ug/L		99	80 - 124	1	14
Chloroethane			10.0	9.76		ug/L		98	64 - 134	5	24
Chloroform			10.0	10.3		ug/L		103	80 - 123	3	18
Chloromethane			10.0	5.25	*1	ug/L		52	19 - 150	104	35
cis-1,2-Dichloroethene			10.0	9.77		ug/L		98	80 - 122	2	17
cis-1,3-Dichloropropene			10.0	9.46		ug/L		95	80 - 121	1	16
Dibromochloromethane			10.0	10.1		ug/L		101	80 - 130	4	15
Dibromomethane			10.0	9.19		ug/L		92	80 - 122	2	16
Dichlorodifluoromethane			10.0	10.3		ug/L		103	30 - 150	7	22
Ethylbenzene			10.0	10.1		ug/L		101	80 - 122	3	35
Hexachlorobutadiene			10.0	10.3		ug/L		103	77 - 132	2	25
Isopropylbenzene			10.0	10.9		ug/L		109	80 - 122	6	16
m,p-Xylene			10.0	10.4		ug/L		104	80 - 125	4	35
Methyl tert-butyl ether			10.0	11.4		ug/L		114	68 - 134	0	18
Methylene Chloride			10.0	9.60		ug/L		96	30 - 150	15	25
Naphthalene			10.0	10.1		ug/L		101	61 - 140	0	25
n-Butylbenzene			10.0	9.78		ug/L		98	75 - 121	3	16
N-Propylbenzene			10.0	9.33		ug/L		93	73 - 136	2	18

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 590-45100/4
Matrix: Water
Analysis Batch: 45100

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
o-Xylene			10.0	10.6		ug/L		106	80 - 130	6	35
p-Isopropyltoluene			10.0	9.93		ug/L		99	78 - 128	4	17
sec-Butylbenzene			10.0	8.59		ug/L		86	73 - 138	4	17
Styrene			10.0	9.69		ug/L		97	79 - 134	2	17
tert-Butylbenzene			10.0	8.49		ug/L		85	76 - 131	3	18
Tetrachloroethene			10.0	11.1		ug/L		111	80 - 139	1	20
Toluene			10.0	9.28		ug/L		93	80 - 129	2	35
trans-1,2-Dichloroethene			10.0	9.99		ug/L		100	73 - 137	11	18
trans-1,3-Dichloropropene			10.0	10.3		ug/L		103	73 - 138	1	17
Trichloroethene			10.0	9.89		ug/L		99	80 - 123	2	14
Trichlorofluoromethane			10.0	10.4		ug/L		104	71 - 147	10	24
Vinyl chloride			10.0	9.22		ug/L		92	50 - 150	9	26

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*97*		*80 - 120*
4-Bromofluorobenzene (Surr)	*96*		*76 - 120*
Dibromofluoromethane (Surr)	*102*		*80 - 123*
Toluene-d8 (Surr)	*99*		*80 - 120*

Lab Sample ID: 590-22504-1 DU
Matrix: Water
Analysis Batch: 45100

Client Sample ID: MW-7B-121423
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
1,1,1,2-Tetrachloroethane	ND			ND		ug/L				NC	17
1,1,1-Trichloroethane	ND			ND		ug/L				NC	17
1,1,2,2-Tetrachloroethane	ND			ND		ug/L				NC	17
1,1,2-Trichloroethane	ND			ND		ug/L				NC	15
1,1-Dichloroethane	ND			ND		ug/L				NC	20
1,1-Dichloroethene	ND			ND		ug/L				NC	19
1,1-Dichloropropene	ND			ND		ug/L				NC	20
1,2,3-Trichlorobenzene	ND			ND		ug/L				NC	30
1,2,3-Trichloropropane	ND			ND		ug/L				NC	34
1,2,4-Trichlorobenzene	ND			ND		ug/L				NC	24
1,2,4-Trimethylbenzene	ND			ND		ug/L				NC	16
1,2-Dibromo-3-Chloropropane	ND			ND		ug/L				NC	29
1,2-Dibromoethane (EDB)	ND			ND		ug/L				NC	14
1,2-Dichlorobenzene	ND			ND		ug/L				NC	14
1,2-Dichloroethane	ND			ND		ug/L				NC	14
1,2-Dichloropropane	ND			ND		ug/L				NC	15
1,3,5-Trimethylbenzene	ND			ND		ug/L				NC	17
1,3-Dichlorobenzene	ND			ND		ug/L				NC	15
1,3-Dichloropropane	ND			ND		ug/L				NC	17
1,4-Dichlorobenzene	ND			ND		ug/L				NC	14
2,2-Dichloropropane	ND			ND		ug/L				NC	18
2-Chlorotoluene	ND			ND		ug/L				NC	19
4-Chlorotoluene	ND			ND		ug/L				NC	16
Benzene	ND			ND		ug/L				NC	15

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 590-22504-1 DU
Matrix: Water
Analysis Batch: 45100

Client Sample ID: MW-7B-121423
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Bromobenzene	ND			ND		ug/L				NC	16
Bromochloromethane	ND			ND		ug/L				NC	21
Bromodichloromethane	ND			ND		ug/L				NC	16
Bromoform	ND			ND		ug/L				NC	17
Bromomethane	ND			ND		ug/L				NC	24
Carbon tetrachloride	ND			ND		ug/L				NC	28
Chlorobenzene	ND			ND		ug/L				NC	14
Chloroethane	ND			ND		ug/L				NC	24
Chloroform	ND			ND		ug/L				NC	18
Chloromethane	ND	*+ *1		ND	*+ *1	ug/L				NC	35
cis-1,2-Dichloroethene	ND			ND		ug/L				NC	17
cis-1,3-Dichloropropene	ND			ND		ug/L				NC	16
Dibromochloromethane	ND			ND		ug/L				NC	15
Dibromomethane	ND			ND		ug/L				NC	16
Dichlorodifluoromethane	ND			ND		ug/L				NC	22
Ethylbenzene	ND			ND		ug/L				NC	35
Hexachlorobutadiene	ND			ND		ug/L				NC	25
Isopropylbenzene	ND			ND		ug/L				NC	16
m,p-Xylene	ND			ND		ug/L				NC	35
Methyl tert-butyl ether	ND			ND		ug/L				NC	18
Methylene Chloride	ND			ND		ug/L				NC	25
Naphthalene	ND			ND		ug/L				NC	25
n-Butylbenzene	ND			ND		ug/L				NC	16
N-Propylbenzene	ND			ND		ug/L				NC	18
o-Xylene	ND			ND		ug/L				NC	35
p-Isopropyltoluene	ND			ND		ug/L				NC	17
sec-Butylbenzene	ND			ND		ug/L				NC	17
Styrene	ND			ND		ug/L				NC	17
tert-Butylbenzene	ND			ND		ug/L				NC	18
Tetrachloroethene	ND			ND		ug/L				NC	20
Toluene	ND			ND		ug/L				NC	35
trans-1,2-Dichloroethene	ND			ND		ug/L				NC	18
trans-1,3-Dichloropropene	ND			ND		ug/L				NC	17
Trichloroethene	ND			ND		ug/L				NC	14
Trichlorofluoromethane	ND			ND		ug/L				NC	24
Vinyl chloride	ND			ND		ug/L				NC	26

Surrogate	*DU %Recovery*	*DU Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*98*		*80 - 120*
4-Bromofluorobenzene (Surr)	*97*		*76 - 120*
Dibromofluoromethane (Surr)	*109*		*80 - 123*
Toluene-d8 (Surr)	*101*		*80 - 120*

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-446589/1-A
Matrix: Water
Analysis Batch: 446659

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 446589

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		0.40	0.090	ug/L		12/19/23 08:40	12/19/23 20:06	1
1,2-Dichlorobenzene	ND		0.40	0.050	ug/L		12/19/23 08:40	12/19/23 20:06	1
1,3-Dichlorobenzene	ND		0.40	0.040	ug/L		12/19/23 08:40	12/19/23 20:06	1
1,4-Dichlorobenzene	ND		0.40	0.040	ug/L		12/19/23 08:40	12/19/23 20:06	1
1-Methylnaphthalene	ND		1.0	0.050	ug/L		12/19/23 08:40	12/19/23 20:06	1
2,4,5-Trichlorophenol	ND		0.40	0.10	ug/L		12/19/23 08:40	12/19/23 20:06	1
2,4,6-Trichlorophenol	ND		0.60	0.10	ug/L		12/19/23 08:40	12/19/23 20:06	1
2,4-Dichlorophenol	ND		1.0	0.20	ug/L		12/19/23 08:40	12/19/23 20:06	1
2,4-Dimethylphenol	ND		4.0	0.16	ug/L		12/19/23 08:40	12/19/23 20:06	1
2,4-Dinitrophenol	ND		5.0	0.45	ug/L		12/19/23 08:40	12/19/23 20:06	1
2,4-Dinitrotoluene	ND		1.0	0.10	ug/L		12/19/23 08:40	12/19/23 20:06	1
2,6-Dinitrotoluene	ND		0.40	0.10	ug/L		12/19/23 08:40	12/19/23 20:06	1
2-Chloronaphthalene	ND		1.0	0.070	ug/L		12/19/23 08:40	12/19/23 20:06	1
2-Chlorophenol	ND		1.0	0.050	ug/L		12/19/23 08:40	12/19/23 20:06	1
2-Methylnaphthalene	ND		0.40	0.060	ug/L		12/19/23 08:40	12/19/23 20:06	1
2-Methylphenol	ND		0.60	0.050	ug/L		12/19/23 08:40	12/19/23 20:06	1
2-Nitroaniline	ND		1.0	0.10	ug/L		12/19/23 08:40	12/19/23 20:06	1
2-Nitrophenol	ND		1.0	0.070	ug/L		12/19/23 08:40	12/19/23 20:06	1
3 & 4 Methylphenol	ND		0.60	0.10	ug/L		12/19/23 08:40	12/19/23 20:06	1
3,3'-Dichlorobenzidine	ND		1.0	0.12	ug/L		12/19/23 08:40	12/19/23 20:06	1
3-Nitroaniline	ND		3.0	0.16	ug/L		12/19/23 08:40	12/19/23 20:06	1
4,6-Dinitro-2-methylphenol	ND		2.0	0.55	ug/L		12/19/23 08:40	12/19/23 20:06	1
4-Bromophenyl phenyl ether	ND		0.60	0.060	ug/L		12/19/23 08:40	12/19/23 20:06	1
4-Chloro-3-methylphenol	ND		0.60	0.13	ug/L		12/19/23 08:40	12/19/23 20:06	1
4-Chloroaniline	ND		2.0	0.15	ug/L		12/19/23 08:40	12/19/23 20:06	1
4-Chlorophenyl phenyl ether	ND		0.60	0.050	ug/L		12/19/23 08:40	12/19/23 20:06	1
4-Nitroaniline	ND		2.0	0.21	ug/L		12/19/23 08:40	12/19/23 20:06	1
4-Nitrophenol	ND		10	1.7	ug/L		12/19/23 08:40	12/19/23 20:06	1
Acenaphthene	ND		0.40	0.050	ug/L		12/19/23 08:40	12/19/23 20:06	1
Acenaphthylene	ND		1.0	0.060	ug/L		12/19/23 08:40	12/19/23 20:06	1
Anthracene	ND		1.0	0.050	ug/L		12/19/23 08:40	12/19/23 20:06	1
Benzo[a]anthracene	ND		0.25	0.050	ug/L		12/19/23 08:40	12/19/23 20:06	1
Benzo[a]pyrene	ND		0.25	0.040	ug/L		12/19/23 08:40	12/19/23 20:06	1
Benzo[b]fluoranthene	ND		0.25	0.040	ug/L		12/19/23 08:40	12/19/23 20:06	1
Benzo[g,h,i]perylene	ND		0.25	0.040	ug/L		12/19/23 08:40	12/19/23 20:06	1
Benzo[k]fluoranthene	ND		0.25	0.050	ug/L		12/19/23 08:40	12/19/23 20:06	1
Benzoic acid	ND		10	1.3	ug/L		12/19/23 08:40	12/19/23 20:06	1
Benzyl alcohol	ND		5.0	0.18	ug/L		12/19/23 08:40	12/19/23 20:06	1
Bis(2-chloroethoxy)methane	ND		0.60	0.050	ug/L		12/19/23 08:40	12/19/23 20:06	1
Bis(2-chloroethyl)ether	ND		0.10	0.030	ug/L		12/19/23 08:40	12/19/23 20:06	1
Bis(2-ethylhexyl) phthalate	ND		3.0	0.74	ug/L		12/19/23 08:40	12/19/23 20:06	1
bis(chloroisopropyl) ether	ND		0.25	0.060	ug/L		12/19/23 08:40	12/19/23 20:06	1
Butyl benzyl phthalate	ND		4.0	0.27	ug/L		12/19/23 08:40	12/19/23 20:06	1
Carbazole	ND		0.60	0.10	ug/L		12/19/23 08:40	12/19/23 20:06	1
Chrysene	ND		0.25	0.090	ug/L		12/19/23 08:40	12/19/23 20:06	1
Dibenz(a,h)anthracene	ND		0.25	0.070	ug/L		12/19/23 08:40	12/19/23 20:06	1
Dibenzofuran	ND		0.40	0.10	ug/L		12/19/23 08:40	12/19/23 20:06	1
Diethyl phthalate	ND		1.0	0.15	ug/L		12/19/23 08:40	12/19/23 20:06	1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 580-446589/1-A
Matrix: Water
Analysis Batch: 446659

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 446589

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dimethyl phthalate	ND		0.60	0.060	ug/L		12/19/23 08:40	12/19/23 20:06	1
Di-n-butyl phthalate	ND		10	3.0	ug/L		12/19/23 08:40	12/19/23 20:06	1
Di-n-octyl phthalate	ND		1.0	0.13	ug/L		12/19/23 08:40	12/19/23 20:06	1
Fluoranthene	ND		0.25	0.060	ug/L		12/19/23 08:40	12/19/23 20:06	1
Fluorene	ND		0.25	0.050	ug/L		12/19/23 08:40	12/19/23 20:06	1
Hexachlorobenzene	ND		0.60	0.080	ug/L		12/19/23 08:40	12/19/23 20:06	1
Hexachlorobutadiene	ND		1.0	0.080	ug/L		12/19/23 08:40	12/19/23 20:06	1
Hexachlorocyclopentadiene	ND		1.0	0.14	ug/L		12/19/23 08:40	12/19/23 20:06	1
Hexachloroethane	ND		1.0	0.050	ug/L		12/19/23 08:40	12/19/23 20:06	1
Indeno[1,2,3-cd]pyrene	ND		0.40	0.13	ug/L		12/19/23 08:40	12/19/23 20:06	1
Isophorone	ND		0.40	0.10	ug/L		12/19/23 08:40	12/19/23 20:06	1
Naphthalene	ND		0.40	0.16	ug/L		12/19/23 08:40	12/19/23 20:06	1
Nitrobenzene	ND		1.0	0.040	ug/L		12/19/23 08:40	12/19/23 20:06	1
N-Nitrosodi-n-propylamine	ND		0.40	0.060	ug/L		12/19/23 08:40	12/19/23 20:06	1
N-Nitrosodiphenylamine	ND		1.0	0.070	ug/L		12/19/23 08:40	12/19/23 20:06	1
Pentachlorophenol	ND		5.0	0.51	ug/L		12/19/23 08:40	12/19/23 20:06	1
Phenanthrene	ND		1.0	0.12	ug/L		12/19/23 08:40	12/19/23 20:06	1
Phenol	ND		1.0	0.16	ug/L		12/19/23 08:40	12/19/23 20:06	1
Pyrene	ND		1.0	0.040	ug/L		12/19/23 08:40	12/19/23 20:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*72*		*50 - 130*	*12/19/23 08:40*	*12/19/23 20:06*	*1*
2-Fluorobiphenyl	*56*		*35 - 120*	*12/19/23 08:40*	*12/19/23 20:06*	*1*
2-Fluorophenol (Surr)	*47*		*21 - 120*	*12/19/23 08:40*	*12/19/23 20:06*	*1*
Nitrobenzene-d5 (Surr)	*67*		*39 - 120*	*12/19/23 08:40*	*12/19/23 20:06*	*1*
Phenol-d5 (Surr)	*28*		*10 - 120*	*12/19/23 08:40*	*12/19/23 20:06*	*1*
Terphenyl-d14 (Surr)	*79*		*63 - 137*	*12/19/23 08:40*	*12/19/23 20:06*	*1*

Lab Sample ID: LCS 580-446589/2-A
Matrix: Water
Analysis Batch: 446659

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 446589

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2,4-Trichlorobenzene	4.00	1.23		ug/L		31	21 - 120
1,2-Dichlorobenzene	4.00	1.23		ug/L		31	20 - 120
1,3-Dichlorobenzene	4.00	1.01		ug/L		25	20 - 120
1,4-Dichlorobenzene	4.00	1.10		ug/L		28	20 - 120
1-Methylnaphthalene	4.00	2.21		ug/L		55	36 - 120
2,4,5-Trichlorophenol	4.00	3.56		ug/L		89	45 - 120
2,4,6-Trichlorophenol	4.00	3.75		ug/L		94	43 - 120
2,4-Dichlorophenol	4.00	3.49		ug/L		87	45 - 120
2,4-Dimethylphenol	4.00	3.41	J	ug/L		85	37 - 120
2,4-Dinitrophenol	8.00	5.84		ug/L		73	10 - 146
2,4-Dinitrotoluene	4.00	3.53		ug/L		88	51 - 120
2,6-Dinitrotoluene	4.00	3.70		ug/L		92	52 - 120
2-Chloronaphthalene	4.00	2.35		ug/L		59	35 - 120
2-Chlorophenol	4.00	3.42		ug/L		86	44 - 120
2-Methylnaphthalene	4.00	2.14		ug/L		53	35 - 120

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 580-446589/2-A
Matrix: Water
Analysis Batch: 446659

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 446589

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2-Methylphenol	4.00	3.17		ug/L		79	30 - 120
2-Nitroaniline	4.00	3.50		ug/L		88	43 - 120
2-Nitrophenol	4.00	3.14		ug/L		79	44 - 120
3 & 4 Methylphenol	4.00	2.95		ug/L		74	29 - 120
3,3'-Dichlorobenzidine	8.00	7.25		ug/L		91	33 - 150
3-Nitroaniline	4.00	3.30		ug/L		82	10 - 138
4,6-Dinitro-2-methylphenol	8.00	7.14		ug/L		89	29 - 136
4-Bromophenyl phenyl ether	4.00	3.52		ug/L		88	53 - 120
4-Chloro-3-methylphenol	4.00	3.66		ug/L		91	36 - 120
4-Chloroaniline	4.00	2.23		ug/L		56	10 - 150
4-Chlorophenyl phenyl ether	4.00	3.08		ug/L		77	41 - 120
4-Nitroaniline	4.00	4.43		ug/L		111	38 - 133
4-Nitrophenol	8.00	3.72	J	ug/L		47	10 - 120
Acenaphthene	4.00	2.76		ug/L		69	41 - 120
Acenaphthylene	4.00	2.99		ug/L		75	43 - 120
Anthracene	4.00	3.61		ug/L		90	58 - 120
Benzo[a]anthracene	4.00	4.03		ug/L		101	48 - 131
Benzo[a]pyrene	4.00	3.63		ug/L		91	55 - 125
Benzo[b]fluoranthene	4.00	3.91		ug/L		98	54 - 124
Benzo[g,h,i]perylene	4.00	3.59		ug/L		90	46 - 124
Benzo[k]fluoranthene	4.00	3.60		ug/L		90	52 - 132
Benzoic acid	8.00	5.41	J	ug/L		68	10 - 120
Benzyl alcohol	4.00	3.24	J	ug/L		81	10 - 120
Bis(2-chloroethoxy)methane	4.00	3.35		ug/L		84	38 - 120
Bis(2-chloroethyl)ether	4.00	3.13		ug/L		78	39 - 120
Bis(2-ethylhexyl) phthalate	4.00	4.08		ug/L		102	41 - 150
bis(chloroisopropyl) ether	4.00	2.89		ug/L		72	20 - 139
Butyl benzyl phthalate	4.00	4.09		ug/L		102	40 - 150
Carbazole	4.00	3.27		ug/L		82	61 - 150
Chrysene	4.00	3.56		ug/L		89	57 - 125
Dibenz(a,h)anthracene	4.00	3.64		ug/L		91	48 - 126
Dibenzofuran	4.00	3.06		ug/L		77	45 - 120
Diethyl phthalate	4.00	3.69		ug/L		92	60 - 121
Dimethyl phthalate	4.00	3.59		ug/L		90	54 - 120
Di-n-butyl phthalate	4.00	3.99	J	ug/L		100	55 - 150
Di-n-octyl phthalate	4.00	4.19		ug/L		105	48 - 140
Fluoranthene	4.00	3.84		ug/L		96	60 - 121
Fluorene	4.00	3.22		ug/L		80	20 - 120
Hexachlorobenzene	4.00	3.33		ug/L		83	49 - 120
Hexachlorobutadiene	4.00	0.451	J	ug/L		11	10 - 130
Hexachlorocyclopentadiene	4.00	0.615	J	ug/L		15	10 - 125
Hexachloroethane	4.00	0.554	J	ug/L		14	10 - 130
Indeno[1,2,3-cd]pyrene	4.00	3.93		ug/L		98	39 - 124
Isophorone	4.00	3.50		ug/L		87	41 - 120
Naphthalene	4.00	2.17		ug/L		54	42 - 120
Nitrobenzene	4.00	3.25		ug/L		81	38 - 120
N-Nitrosodi-n-propylamine	4.00	3.28		ug/L		82	39 - 120
N-Nitrosodiphenylamine	4.00	3.59		ug/L		90	52 - 120
Pentachlorophenol	8.00	3.56	J	ug/L		45	18 - 135

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 580-446589/2-A
Matrix: Water
Analysis Batch: 446659

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 446589

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Phenanthrene			4.00	3.43		ug/L		86	54 - 120		
Phenol			4.00	1.57		ug/L		39	13 - 120		
Pyrene			4.00	3.81		ug/L		95	57 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*84*		*50 - 130*
2-Fluorobiphenyl	*63*		*35 - 120*
2-Fluorophenol (Surr)	*52*		*21 - 120*
Nitrobenzene-d5 (Surr)	*72*		*39 - 120*
Phenol-d5 (Surr)	*32*		*10 - 120*
Terphenyl-d14 (Surr)	*80*		*63 - 137*

Lab Sample ID: LCSD 580-446589/3-A
Matrix: Water
Analysis Batch: 446659

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 446589

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,2,4-Trichlorobenzene			4.00	1.07		ug/L		27	21 - 120	14	35
1,2-Dichlorobenzene			4.00	1.04		ug/L		26	20 - 120	17	35
1,3-Dichlorobenzene			4.00	0.876		ug/L		22	20 - 120	14	35
1,4-Dichlorobenzene			4.00	0.944		ug/L		24	20 - 120	16	35
1-Methylnaphthalene			4.00	1.98		ug/L		49	36 - 120	11	35
2,4,5-Trichlorophenol			4.00	3.42		ug/L		85	45 - 120	4	35
2,4,6-Trichlorophenol			4.00	3.58		ug/L		89	43 - 120	5	35
2,4-Dichlorophenol			4.00	3.32		ug/L		83	45 - 120	5	35
2,4-Dimethylphenol			4.00	3.11	J	ug/L		78	37 - 120	9	35
2,4-Dinitrophenol			8.00	6.82		ug/L		85	10 - 146	15	35
2,4-Dinitrotoluene			4.00	3.75		ug/L		94	51 - 120	6	35
2,6-Dinitrotoluene			4.00	3.80		ug/L		95	52 - 120	3	35
2-Chloronaphthalene			4.00	2.13		ug/L		53	35 - 120	10	35
2-Chlorophenol			4.00	3.07		ug/L		77	44 - 120	11	35
2-Methylnaphthalene			4.00	1.93		ug/L		48	35 - 120	10	35
2-Methylphenol			4.00	2.73		ug/L		68	30 - 120	15	35
2-Nitroaniline			4.00	3.68		ug/L		92	43 - 120	5	35
2-Nitrophenol			4.00	3.10		ug/L		77	44 - 120	1	35
3 & 4 Methylphenol			4.00	2.70		ug/L		68	29 - 120	9	35
3,3'-Dichlorobenzidine			8.00	6.17		ug/L		77	33 - 150	16	35
3-Nitroaniline			4.00	3.05		ug/L		76	10 - 138	8	35
4,6-Dinitro-2-methylphenol			8.00	7.93		ug/L		99	29 - 136	10	35
4-Bromophenyl phenyl ether			4.00	3.64		ug/L		91	53 - 120	3	35
4-Chloro-3-methylphenol			4.00	3.49		ug/L		87	36 - 120	5	35
4-Chloroaniline			4.00	1.74	J	ug/L		44	10 - 150	25	35
4-Chlorophenyl phenyl ether			4.00	3.12		ug/L		78	41 - 120	1	35
4-Nitroaniline			4.00	4.48		ug/L		112	38 - 133	1	35
4-Nitrophenol			8.00	3.96	J	ug/L		50	10 - 120	6	35
Acenaphthene			4.00	2.68		ug/L		67	41 - 120	3	35
Acenaphthylene			4.00	2.80		ug/L		70	43 - 120	7	35
Anthracene			4.00	3.68		ug/L		92	58 - 120	2	35

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-446589/3-A
Matrix: Water
Analysis Batch: 446659

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 446589

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzo[a]anthracene			4.00	4.17		ug/L		104	48 - 131	3	35
Benzo[a]pyrene			4.00	3.82		ug/L		96	55 - 125	5	35
Benzo[b]fluoranthene			4.00	4.38		ug/L		110	54 - 124	11	35
Benzo[g,h,i]perylene			4.00	3.96		ug/L		99	46 - 124	10	35
Benzo[k]fluoranthene			4.00	3.73		ug/L		93	52 - 132	4	35
Benzoic acid			8.00	5.66	J	ug/L		71	10 - 120	4	35
Benzyl alcohol			4.00	2.89	J	ug/L		72	10 - 120	12	35
Bis(2-chloroethoxy)methane			4.00	3.10		ug/L		78	38 - 120	7	35
Bis(2-chloroethyl)ether			4.00	2.76		ug/L		69	39 - 120	13	35
Bis(2-ethylhexyl) phthalate			4.00	4.20		ug/L		105	41 - 150	3	35
bis(chloroisopropyl) ether			4.00	2.53		ug/L		63	20 - 139	13	35
Butyl benzyl phthalate			4.00	4.42		ug/L		110	40 - 150	8	35
Carbazole			4.00	3.41		ug/L		85	61 - 150	4	35
Chrysene			4.00	3.61		ug/L		90	57 - 125	1	35
Dibenz(a,h)anthracene			4.00	3.94		ug/L		98	48 - 126	8	35
Dibenzofuran			4.00	2.96		ug/L		74	45 - 120	3	35
Diethyl phthalate			4.00	3.96		ug/L		99	60 - 121	7	35
Dimethyl phthalate			4.00	3.76		ug/L		94	54 - 120	4	35
Di-n-butyl phthalate			4.00	4.32	J	ug/L		108	55 - 150	8	35
Di-n-octyl phthalate			4.00	4.51		ug/L		113	48 - 140	7	35
Fluoranthene			4.00	3.98		ug/L		100	60 - 121	4	35
Fluorene			4.00	3.16		ug/L		79	20 - 120	2	35
Hexachlorobenzene			4.00	3.42		ug/L		86	49 - 120	3	35
Hexachlorobutadiene			4.00	0.413	J	ug/L		10	10 - 130	9	35
Hexachlorocyclopentadiene			4.00	0.568	J	ug/L		14	10 - 125	8	35
Hexachloroethane			4.00	0.492	J	ug/L		12	10 - 130	12	35
Indeno[1,2,3-cd]pyrene			4.00	4.23		ug/L		106	39 - 124	7	35
Isophorone			4.00	3.15		ug/L		79	41 - 120	11	35
Naphthalene			4.00	1.91		ug/L		48	42 - 120	13	35
Nitrobenzene			4.00	2.82		ug/L		70	38 - 120	14	35
N-Nitrosodi-n-propylamine			4.00	3.06		ug/L		77	39 - 120	7	35
N-Nitrosodiphenylamine			4.00	3.66		ug/L		92	52 - 120	2	35
Pentachlorophenol			8.00	4.94	J	ug/L		62	18 - 135	32	35
Phenanthrene			4.00	3.56		ug/L		89	54 - 120	4	35
Phenol			4.00	1.36		ug/L		34	13 - 120	14	35
Pyrene			4.00	3.96		ug/L		99	57 - 120	4	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*84*		*50 - 130*
2-Fluorobiphenyl	*56*		*35 - 120*
2-Fluorophenol (Surr)	*46*		*21 - 120*
Nitrobenzene-d5 (Surr)	*69*		*39 - 120*
Phenol-d5 (Surr)	*29*		*10 - 120*
Terphenyl-d14 (Surr)	*84*		*63 - 137*

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 570-394080/1-A
Matrix: Water
Analysis Batch: 394962

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 394080

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-T	ND		0.50	0.21	ug/L		12/18/23 21:35	12/20/23 21:19	1
2,4,5-TP (Silvex)	ND		0.50	0.14	ug/L		12/18/23 21:35	12/20/23 21:19	1
2,4-D	ND		5.0	2.0	ug/L		12/18/23 21:35	12/20/23 21:19	1
2,4-DB	ND		5.0	3.5	ug/L		12/18/23 21:35	12/20/23 21:19	1
Dalapon	ND		13	4.7	ug/L		12/18/23 21:35	12/20/23 21:19	1
Dicamba	ND		0.50	0.29	ug/L		12/18/23 21:35	12/20/23 21:19	1
Dichlorprop	ND		5.0	2.0	ug/L		12/18/23 21:35	12/20/23 21:19	1
Dinoseb	ND		2.5	2.2	ug/L		12/18/23 21:35	12/20/23 21:19	1
MCPA	ND		500	350	ug/L		12/18/23 21:35	12/20/23 21:19	1
MCPP	ND		500	310	ug/L		12/18/23 21:35	12/20/23 21:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*99*		*20 - 161*	*12/18/23 21:35*	*12/20/23 21:19*	*1*

Lab Sample ID: LCS 570-394080/2-A
Matrix: Water
Analysis Batch: 394962

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 394080

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
2,4,5-T			1.00	0.755		ug/L		76	28 - 180		
2,4-D			10.0	9.12		ug/L		91	10 - 180		
2,4-DB			10.0	8.37		ug/L		84	10 - 180		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*82*		*20 - 161*

Lab Sample ID: LCSD 570-394080/3-A
Matrix: Water
Analysis Batch: 394962

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 394080

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4,5-T			1.00	1.23	*1	ug/L		123	28 - 180	48	20
2,4-D			10.0	14.9	*1	ug/L		149	10 - 180	48	20
2,4-DB			10.0	11.7	*1	ug/L		117	10 - 180	33	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*102*		*20 - 161*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 590-45119/1003
Matrix: Water
Analysis Batch: 45119

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.80	0.42	mg/L			12/15/23 13:55	1
Sulfate	ND		0.50	0.13	mg/L			12/15/23 13:55	1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 590-45119/1004
Matrix: Water
Analysis Batch: 45119

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			12.5	12.7		mg/L		102	90 - 110		
Sulfate			12.5	12.5		mg/L		100	90 - 110		

Lab Sample ID: 590-22504-1 MS
Matrix: Water
Analysis Batch: 45119

Client Sample ID: MW-7B-121423
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	0.58	J	11.4	12.7		mg/L		106	80 - 120		
Sulfate	4.0		11.4	15.8		mg/L		103	80 - 120		

Lab Sample ID: 590-22504-1 MSD
Matrix: Water
Analysis Batch: 45119

Client Sample ID: MW-7B-121423
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	0.58	J	11.4	12.7		mg/L		106	80 - 120	0	10
Sulfate	4.0		11.4	15.8		mg/L		103	80 - 120	0	10

Lab Sample ID: 590-22504-1 DU
Matrix: Water
Analysis Batch: 45119

Client Sample ID: MW-7B-121423
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chloride	0.58	J		0.643	J	mg/L				10	18.8
Sulfate	4.0			4.19		mg/L				4	15.7

Lab Sample ID: MB 590-45120/1003
Matrix: Water
Analysis Batch: 45120

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20	0.057	mg/L			12/15/23 13:55	1
Nitrite as N	ND		0.20	0.069	mg/L			12/15/23 13:55	1

Lab Sample ID: LCS 590-45120/1004
Matrix: Water
Analysis Batch: 45120

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate as N			5.00	5.09		mg/L		102	90 - 110		
Nitrite as N			5.00	5.03		mg/L		101	90 - 110		

Lab Sample ID: 590-22504-1 MS
Matrix: Water
Analysis Batch: 45120

Client Sample ID: MW-7B-121423
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate as N	ND		4.55	4.78		mg/L		105	80 - 120		
Nitrite as N	ND		4.55	4.73		mg/L		104	80 - 120		

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: 590-22504-1 MSD
Matrix: Water
Analysis Batch: 45120

Client Sample ID: MW-7B-121423
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate as N	ND		4.55	4.78		mg/L		105	80 - 120	0	12.1
Nitrite as N	ND		4.55	4.77		mg/L		105	80 - 120	1	10

Lab Sample ID: 590-22504-1 DU
Matrix: Water
Analysis Batch: 45120

Client Sample ID: MW-7B-121423
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Nitrate as N	ND		ND		mg/L				NC	13.1
Nitrite as N	ND		ND		mg/L				NC	10

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Lab Sample ID: MB 320-732663/1-A
Matrix: Water
Analysis Batch: 733287

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 732663

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		8.0	2.0	ng/L		01/11/24 05:03	01/13/24 10:27	1
Perfluoropentanoic acid (PFPeA)	ND		4.0	1.0	ng/L		01/11/24 05:03	01/13/24 10:27	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.50	ng/L		01/11/24 05:03	01/13/24 10:27	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.50	ng/L		01/11/24 05:03	01/13/24 10:27	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.50	ng/L		01/11/24 05:03	01/13/24 10:27	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.50	ng/L		01/11/24 05:03	01/13/24 10:27	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.50	ng/L		01/11/24 05:03	01/13/24 10:27	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.50	ng/L		01/11/24 05:03	01/13/24 10:27	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.50	ng/L		01/11/24 05:03	01/13/24 10:27	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	0.50	ng/L		01/11/24 05:03	01/13/24 10:27	1
Perfluorotetradecanoic acid (PFTeDA)	ND		2.0	0.50	ng/L		01/11/24 05:03	01/13/24 10:27	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.50	ng/L		01/11/24 05:03	01/13/24 10:27	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.50	ng/L		01/11/24 05:03	01/13/24 10:27	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.50	ng/L		01/11/24 05:03	01/13/24 10:27	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.50	ng/L		01/11/24 05:03	01/13/24 10:27	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.50	ng/L		01/11/24 05:03	01/13/24 10:27	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.50	ng/L		01/11/24 05:03	01/13/24 10:27	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.50	ng/L		01/11/24 05:03	01/13/24 10:27	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.50	ng/L		01/11/24 05:03	01/13/24 10:27	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		8.0	2.0	ng/L		01/11/24 05:03	01/13/24 10:27	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		8.0	2.0	ng/L		01/11/24 05:03	01/13/24 10:27	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		2.0	0.50	ng/L		01/11/24 05:03	01/13/24 10:27	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		2.0	0.50	ng/L		01/11/24 05:03	01/13/24 10:27	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.50	ng/L		01/11/24 05:03	01/13/24 10:27	1

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: MB 320-732663/1-A
Matrix: Water
Analysis Batch: 733287

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 732663

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.50	ng/L		01/11/24 05:03	01/13/24 10:27	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		20	5.0	ng/L		01/11/24 05:03	01/13/24 10:27	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		20	5.0	ng/L		01/11/24 05:03	01/13/24 10:27	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		8.0	2.0	ng/L		01/11/24 05:03	01/13/24 10:27	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		8.0	2.0	ng/L		01/11/24 05:03	01/13/24 10:27	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		4.0	1.0	ng/L		01/11/24 05:03	01/13/24 10:27	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		4.0	1.0	ng/L		01/11/24 05:03	01/13/24 10:27	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		4.0	1.0	ng/L		01/11/24 05:03	01/13/24 10:27	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		8.0	2.0	ng/L		01/11/24 05:03	01/13/24 10:27	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		8.0	2.0	ng/L		01/11/24 05:03	01/13/24 10:27	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		4.0	1.0	ng/L		01/11/24 05:03	01/13/24 10:27	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		10	2.5	ng/L		01/11/24 05:03	01/13/24 10:27	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		50	13	ng/L		01/11/24 05:03	01/13/24 10:27	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		50	13	ng/L		01/11/24 05:03	01/13/24 10:27	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*85.5*		*5 - 130*	*01/11/24 05:03*	*01/13/24 10:27*	*1*
13C5 PFPeA	*90.5*		*40 - 130*	*01/11/24 05:03*	*01/13/24 10:27*	*1*
13C5 PFHxA	*85.5*		*40 - 130*	*01/11/24 05:03*	*01/13/24 10:27*	*1*
13C4 PFHpA	*92.8*		*40 - 130*	*01/11/24 05:03*	*01/13/24 10:27*	*1*
13C8 PFOA	*85.7*		*40 - 130*	*01/11/24 05:03*	*01/13/24 10:27*	*1*
13C9 PFNA	*85.0*		*40 - 130*	*01/11/24 05:03*	*01/13/24 10:27*	*1*
13C6 PFDA	*77.5*		*40 - 130*	*01/11/24 05:03*	*01/13/24 10:27*	*1*
13C7 PFUnA	*70.5*		*30 - 130*	*01/11/24 05:03*	*01/13/24 10:27*	*1*
13C2 PFDoA	*71.2*		*10 - 130*	*01/11/24 05:03*	*01/13/24 10:27*	*1*
13C2 PFTeDA	*57.2*		*10 - 130*	*01/11/24 05:03*	*01/13/24 10:27*	*1*
13C3 PFBS	*82.1*		*40 - 135*	*01/11/24 05:03*	*01/13/24 10:27*	*1*
13C3 PFHxS	*86.6*		*40 - 130*	*01/11/24 05:03*	*01/13/24 10:27*	*1*
13C8 PFOS	*86.6*		*40 - 130*	*01/11/24 05:03*	*01/13/24 10:27*	*1*
d3-NMeFOSAA	*77.2*		*40 - 170*	*01/11/24 05:03*	*01/13/24 10:27*	*1*
d5-NEtFOSAA	*79.3*		*25 - 135*	*01/11/24 05:03*	*01/13/24 10:27*	*1*
13C2 4:2 FTS	*67.0*		*40 - 200*	*01/11/24 05:03*	*01/13/24 10:27*	*1*
13C2 6:2 FTS	*71.4*		*40 - 200*	*01/11/24 05:03*	*01/13/24 10:27*	*1*
13C3 HFPO-DA	*92.7*		*40 - 130*	*01/11/24 05:03*	*01/13/24 10:27*	*1*
d7-N-MeFOSE-M	*71.2*		*10 - 130*	*01/11/24 05:03*	*01/13/24 10:27*	*1*
d9-N-EtFOSE-M	*73.7*		*10 - 130*	*01/11/24 05:03*	*01/13/24 10:27*	*1*
d5-NEtPFOSA	*72.1*		*10 - 130*	*01/11/24 05:03*	*01/13/24 10:27*	*1*
d3-NMePFOSA	*72.8*		*10 - 130*	*01/11/24 05:03*	*01/13/24 10:27*	*1*

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-732663/3-A
Matrix: Water
Analysis Batch: 733287

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 732663

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	128	131		ng/L		102	70 - 140
Perfluoropentanoic acid (PFPeA)	64.0	58.5		ng/L		91	65 - 135
Perfluorohexanoic acid (PFHxA)	32.0	30.8		ng/L		96	70 - 145
Perfluoroheptanoic acid (PFHpA)	32.0	28.1		ng/L		88	70 - 150
Perfluorooctanoic acid (PFOA)	32.0	28.6		ng/L		89	70 - 150
Perfluorononanoic acid (PFNA)	32.0	33.8		ng/L		106	70 - 150
Perfluorodecanoic acid (PFDA)	32.0	30.5		ng/L		95	70 - 140
Perfluoroundecanoic acid (PFUnA)	32.0	31.8		ng/L		99	70 - 145
Perfluorododecanoic acid (PFDoA)	32.0	34.3		ng/L		107	70 - 140
Perfluorotridecanoic acid (PFTrDA)	32.0	34.5		ng/L		108	65 - 140
Perfluorotetradecanoic acid (PFTeDA)	32.0	39.0		ng/L		122	60 - 140
Perfluorobutanesulfonic acid (PFBS)	28.4	29.2		ng/L		103	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	30.1	31.8		ng/L		106	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	29.2	27.4		ng/L		94	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	30.5	30.2		ng/L		99	70 - 150
Perfluorooctanesulfonic acid (PFOS)	29.8	28.0		ng/L		94	55 - 150
Perfluorononanesulfonic acid (PFNS)	30.7	30.9		ng/L		100	65 - 145
Perfluorodecanesulfonic acid (PFDS)	30.8	29.4		ng/L		95	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	31.0	28.0		ng/L		90	50 - 145
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	116		ng/L		97	70 - 145
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	122	135		ng/L		110	65 - 155
N-methylperfluorooctane sulfonamide (NMeFOSA)	32.0	34.4		ng/L		108	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA)	32.0	31.4		ng/L		98	65 - 145
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	32.0	30.9		ng/L		96	50 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	32.0	28.8		ng/L		90	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	320	343		ng/L		107	70 - 145
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	320	322		ng/L		101	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	128	103		ng/L		81	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	121	95.8		ng/L		79	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	64.0	57.0		ng/L		89	55 - 140

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-732663/3-A
Matrix: Water
Analysis Batch: 733287

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 732663

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoro-4-methoxybutanoic acid (PFMBA)	64.0	60.6		ng/L		95	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	64.0	77.9		ng/L		122	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	120	99.8		ng/L		83	70 - 155
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	121	92.6		ng/L		77	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	57.1	56.7		ng/L		99	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	160	152		ng/L		95	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	799	759		ng/L		95	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	799	790		ng/L		99	50 - 145

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*75.0*		*5 - 130*
13C5 PFPeA	*76.0*		*40 - 130*
13C5 PFHxA	*71.3*		*40 - 130*
13C4 PFHpA	*81.6*		*40 - 130*
13C8 PFOA	*88.1*		*40 - 130*
13C9 PFNA	*77.4*		*40 - 130*
13C6 PFDA	*80.1*		*40 - 130*
13C7 PFUnA	*85.4*		*30 - 130*
13C2 PFDoA	*80.6*		*10 - 130*
13C2 PFTeDA	*61.4*		*10 - 130*
13C3 PFBS	*74.5*		*40 - 135*
13C3 PFHxS	*77.3*		*40 - 130*
13C8 PFOS	*74.3*		*40 - 130*
d3-NMeFOSAA	*74.9*		*40 - 170*
d5-NEtFOSAA	*69.6*		*25 - 135*
13C2 4:2 FTS	*64.8*		*40 - 200*
13C2 6:2 FTS	*67.6*		*40 - 200*
13C3 HFPO-DA	*92.4*		*40 - 130*
d7-N-MeFOSE-M	*70.2*		*10 - 130*
d9-N-EtFOSE-M	*65.1*		*10 - 130*
d5-NEtPFOSA	*62.3*		*10 - 130*
d3-NMePFOSA	*62.2*		*10 - 130*

Lab Sample ID: LCSD 320-732663/4-A
Matrix: Water
Analysis Batch: 733287

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 732663

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	128	136		ng/L		106	70 - 140	4	30
Perfluoropentanoic acid (PFPeA)	64.0	62.4		ng/L		97	65 - 135	6	30
Perfluorohexanoic acid (PFHxA)	32.0	31.0		ng/L		97	70 - 145	1	30

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCSD 320-732663/4-A
Matrix: Water
Analysis Batch: 733287

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 732663

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoroheptanoic acid (PFHpA)	32.0	32.8		ng/L		103	70 - 150	16	30
Perfluorooctanoic acid (PFOA)	32.0	30.2		ng/L		94	70 - 150	5	30
Perfluorononanoic acid (PFNA)	32.0	34.3		ng/L		107	70 - 150	1	30
Perfluorodecanoic acid (PFDA)	32.0	31.6		ng/L		99	70 - 140	4	30
Perfluoroundecanoic acid (PFUnA)	32.0	30.7		ng/L		96	70 - 145	3	30
Perfluorododecanoic acid (PFDoA)	32.0	35.3		ng/L		110	70 - 140	3	30
Perfluorotridecanoic acid (PFTrDA)	32.0	32.7		ng/L		102	65 - 140	5	30
Perfluorotetradecanoic acid (PFTeDA)	32.0	31.7		ng/L		99	60 - 140	21	30
Perfluorobutanesulfonic acid (PFBS)	28.4	24.9		ng/L		88	60 - 145	16	30
Perfluoropentanesulfonic acid (PFPeS)	30.1	31.5		ng/L		105	65 - 140	1	30
Perfluorohexanesulfonic acid (PFHxS)	29.2	30.6		ng/L		105	65 - 145	11	30
Perfluoroheptanesulfonic acid (PFHpS)	30.5	33.7		ng/L		110	70 - 150	11	30
Perfluorooctanesulfonic acid (PFOS)	29.8	31.5	*1	ng/L		106	55 - 150	36	30
Perfluorononanesulfonic acid (PFNS)	30.7	32.0		ng/L		104	65 - 145	4	30
Perfluorodecanesulfonic acid (PFDS)	30.8	34.5		ng/L		112	60 - 145	16	30
Perfluorododecanesulfonic acid (PFDoS)	31.0	31.3		ng/L		101	50 - 145	11	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	115		ng/L		96	70 - 145	1	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	122	128		ng/L		105	65 - 155	5	30
N-methylperfluorooctane sulfonamide (NMeFOSA)	32.0	33.0		ng/L		103	60 - 150	4	30
N-ethylperfluorooctane sulfonamide (NEtFOSA)	32.0	35.2		ng/L		110	65 - 145	11	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	32.0	32.0		ng/L		100	50 - 140	3	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	32.0	31.6		ng/L		99	70 - 145	9	30
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	320	338		ng/L		106	70 - 145	1	30
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	320	329		ng/L		103	70 - 135	2	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	128	127		ng/L		99	70 - 140	20	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	121	133	*1	ng/L		110	65 - 145	32	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	64.0	60.0		ng/L		94	55 - 140	5	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	64.0	67.5		ng/L		106	60 - 150	11	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	64.0	77.1		ng/L		121	50 - 150	1	30

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCSD 320-732663/4-A
Matrix: Water
Analysis Batch: 733287

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 732663

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)			120	128		ng/L		107	70 - 155	24	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)			121	123		ng/L		101	55 - 160	28	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			57.1	57.5		ng/L		101	70 - 140	1	30
3-Perfluoropropylpropanoic acid (3:3 FTCA)			160	153		ng/L		96	65 - 130	0	30
3-Perfluoropentylpropanoic acid (5:3 FTCA)			799	826		ng/L		103	70 - 135	8	30
3-Perfluoroheptylpropanoic acid (7:3 FTCA)			799	789		ng/L		99	50 - 145	0	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*69.8*		*5 - 130*
13C5 PFPeA	*70.5*		*40 - 130*
13C5 PFHxA	*70.6*		*40 - 130*
13C4 PFHpA	*69.6*		*40 - 130*
13C8 PFOA	*69.0*		*40 - 130*
13C9 PFNA	*64.1*		*40 - 130*
13C6 PFDA	*69.2*		*40 - 130*
13C7 PFUnA	*71.6*		*30 - 130*
13C2 PFDoA	*62.3*		*10 - 130*
13C2 PFTeDA	*56.5*		*10 - 130*
13C3 PFBS	*68.0*		*40 - 135*
13C3 PFHxS	*69.1*		*40 - 130*
13C8 PFOS	*69.2*		*40 - 130*
d3-NMeFOSAA	*70.1*		*40 - 170*
d5-NEtFOSAA	*67.7*		*25 - 135*
13C2 4:2 FTS	*62.1*		*40 - 200*
13C2 6:2 FTS	*64.9*		*40 - 200*
13C3 HFPO-DA	*67.5*		*40 - 130*
d7-N-MeFOSE-M	*62.8*		*10 - 130*
d9-N-EtFOSE-M	*65.3*		*10 - 130*
d5-NEtPFOSA	*58.5*		*10 - 130*
d3-NMePFOSA	*60.8*		*10 - 130*

Lab Sample ID: LLCS 320-732663/2-A
Matrix: Water
Analysis Batch: 733287

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 732663

Analyte			Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)			12.8	22.9	*+	ng/L		179	70 - 140
Perfluoropentanoic acid (PFPeA)			6.40	10.5	*+	ng/L		164	65 - 135
Perfluorohexanoic acid (PFHxA)			3.20	5.42	*+	ng/L		169	70 - 145
Perfluoroheptanoic acid (PFHpA)			3.20	5.17	*+	ng/L		162	70 - 150
Perfluorooctanoic acid (PFOA)			3.20	5.11	*+	ng/L		160	70 - 150
Perfluorononanoic acid (PFNA)			3.20	5.14	*+	ng/L		161	70 - 150
Perfluorodecanoic acid (PFDA)			3.20	5.50	*+	ng/L		172	70 - 140

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-732663/2-A
Matrix: Water
Analysis Batch: 733287

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 732663

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	3.20	5.10	*+	ng/L		159	70 - 145
Perfluorododecanoic acid (PFDoA)	3.20	5.79	*+	ng/L		181	70 - 140
Perfluorotridecanoic acid (PFTrDA)	3.20	5.41	*+	ng/L		169	65 - 140
Perfluorotetradecanoic acid (PFTeDA)	3.20	6.21	*+	ng/L		194	60 - 140
Perfluorobutanesulfonic acid (PFBS)	2.84	4.93	*+	ng/L		174	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	3.01	5.44	*+	ng/L		181	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	2.92	4.78	*+	ng/L		164	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	3.05	5.80	*+	ng/L		190	70 - 150
Perfluorooctanesulfonic acid (PFOS)	2.98	5.23	*+	ng/L		176	55 - 150
Perfluorononanesulfonic acid (PFNS)	3.07	5.28	*+	ng/L		172	65 - 145
Perfluorodecanesulfonic acid (PFDS)	3.08	5.10	*+	ng/L		165	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	3.10	4.65	*+	ng/L		150	50 - 145
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	12.0	19.5	*+	ng/L		163	70 - 145
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	12.2	22.4	*+	ng/L		184	65 - 155
N-methylperfluorooctane sulfonamide (NMeFOSA)	3.20	5.65	*+	ng/L		177	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA)	3.20	5.47	*+	ng/L		171	65 - 145
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.20	4.99	*+	ng/L		156	50 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	3.20	5.16	*+	ng/L		161	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	32.0	54.5	*+	ng/L		170	70 - 145
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	32.0	55.4	*+	ng/L		173	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	12.8	19.4	*+	ng/L		152	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	12.1	20.7	*+	ng/L		171	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	6.40	10.3	*+	ng/L		161	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	6.40	10.7	*+	ng/L		168	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	6.40	10.8	*+	ng/L		169	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	12.0	19.6	*+	ng/L		164	70 - 155
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	12.1	17.5		ng/L		145	55 - 160

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-732663/2-A
Matrix: Water
Analysis Batch: 733287

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 732663

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	5.71	9.67	*+	ng/L		169	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	16.0	23.8	*+	ng/L		149	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	79.9	135	*+	ng/L		169	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	79.9	121	*+	ng/L		151	50 - 145

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C4 PFBA	*86.3*		*5 - 130*
13C5 PFPeA	*93.7*		*40 - 130*
13C5 PFHxA	*85.4*		*40 - 130*
13C4 PFHpA	*96.0*		*40 - 130*
13C8 PFOA	*90.9*		*40 - 130*
13C9 PFNA	*93.0*		*40 - 130*
13C6 PFDA	*91.7*		*40 - 130*
13C7 PFUnA	*80.4*		*30 - 130*
13C2 PFDoA	*75.8*		*10 - 130*
13C2 PFTeDA	*60.7*		*10 - 130*
13C3 PFBS	*85.6*		*40 - 135*
13C3 PFHxS	*87.7*		*40 - 130*
13C8 PFOS	*89.9*		*40 - 130*
d3-NMeFOSAA	*81.9*		*40 - 170*
d5-NEtFOSAA	*82.1*		*25 - 135*
13C2 4:2 FTS	*65.8*		*40 - 200*
13C2 6:2 FTS	*65.3*		*40 - 200*
13C3 HFPO-DA	*96.5*		*40 - 130*
d7-N-MeFOSE-M	*85.7*		*10 - 130*
d9-N-EtFOSE-M	*83.6*		*10 - 130*
d5-NEtPFOSA	*75.0*		*10 - 130*
d3-NMePFOSA	*76.2*		*10 - 130*

Lab Sample ID: MB 320-733811/1-A
Matrix: Water
Analysis Batch: 734386

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 733811

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		8.0	2.0	ng/L		01/16/24 03:55	01/18/24 12:06	1
Perfluoropentanoic acid (PFPeA)	ND		4.0	1.0	ng/L		01/16/24 03:55	01/18/24 12:06	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.50	ng/L		01/16/24 03:55	01/18/24 12:06	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.50	ng/L		01/16/24 03:55	01/18/24 12:06	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.50	ng/L		01/16/24 03:55	01/18/24 12:06	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.50	ng/L		01/16/24 03:55	01/18/24 12:06	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.50	ng/L		01/16/24 03:55	01/18/24 12:06	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.50	ng/L		01/16/24 03:55	01/18/24 12:06	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.50	ng/L		01/16/24 03:55	01/18/24 12:06	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	0.50	ng/L		01/16/24 03:55	01/18/24 12:06	1
Perfluorotetradecanoic acid (PFTeDA)	ND		2.0	0.50	ng/L		01/16/24 03:55	01/18/24 12:06	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.50	ng/L		01/16/24 03:55	01/18/24 12:06	1

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: MB 320-733811/1-A
Matrix: Water
Analysis Batch: 734386

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 733811

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.50	ng/L		01/16/24 03:55	01/18/24 12:06	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.50	ng/L		01/16/24 03:55	01/18/24 12:06	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.50	ng/L		01/16/24 03:55	01/18/24 12:06	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.50	ng/L		01/16/24 03:55	01/18/24 12:06	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.50	ng/L		01/16/24 03:55	01/18/24 12:06	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.50	ng/L		01/16/24 03:55	01/18/24 12:06	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.50	ng/L		01/16/24 03:55	01/18/24 12:06	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		8.0	2.0	ng/L		01/16/24 03:55	01/18/24 12:06	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		8.0	2.0	ng/L		01/16/24 03:55	01/18/24 12:06	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		8.0	2.0	ng/L		01/16/24 03:55	01/18/24 12:06	1
Perfluorooctanesulfonamide (PFOSA)	ND		2.0	0.50	ng/L		01/16/24 03:55	01/18/24 12:06	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		2.0	0.50	ng/L		01/16/24 03:55	01/18/24 12:06	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		2.0	0.50	ng/L		01/16/24 03:55	01/18/24 12:06	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.50	ng/L		01/16/24 03:55	01/18/24 12:06	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.50	ng/L		01/16/24 03:55	01/18/24 12:06	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		20	5.0	ng/L		01/16/24 03:55	01/18/24 12:06	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		20	5.0	ng/L		01/16/24 03:55	01/18/24 12:06	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		8.0	2.0	ng/L		01/16/24 03:55	01/18/24 12:06	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		8.0	2.0	ng/L		01/16/24 03:55	01/18/24 12:06	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		4.0	1.0	ng/L		01/16/24 03:55	01/18/24 12:06	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		4.0	1.0	ng/L		01/16/24 03:55	01/18/24 12:06	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		4.0	1.0	ng/L		01/16/24 03:55	01/18/24 12:06	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		8.0	2.0	ng/L		01/16/24 03:55	01/18/24 12:06	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		8.0	2.0	ng/L		01/16/24 03:55	01/18/24 12:06	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		4.0	1.0	ng/L		01/16/24 03:55	01/18/24 12:06	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		10	2.5	ng/L		01/16/24 03:55	01/18/24 12:06	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		50	13	ng/L		01/16/24 03:55	01/18/24 12:06	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		50	13	ng/L		01/16/24 03:55	01/18/24 12:06	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*79.3*		*5 - 130*	*01/16/24 03:55*	*01/18/24 12:06*	*1*

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: MB 320-733811/1-A
Matrix: Water
Analysis Batch: 734386

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 733811

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	87.9		40 - 130	01/16/24 03:55	01/18/24 12:06	1
13C5 PFHxA	87.2		40 - 130	01/16/24 03:55	01/18/24 12:06	1
13C4 PFHpA	93.5		40 - 130	01/16/24 03:55	01/18/24 12:06	1
13C8 PFOA	79.2		40 - 130	01/16/24 03:55	01/18/24 12:06	1
13C9 PFNA	83.3		40 - 130	01/16/24 03:55	01/18/24 12:06	1
13C6 PFDA	76.3		40 - 130	01/16/24 03:55	01/18/24 12:06	1
13C7 PFUnA	75.9		30 - 130	01/16/24 03:55	01/18/24 12:06	1
13C2 PFDoA	73.0		10 - 130	01/16/24 03:55	01/18/24 12:06	1
13C2 PFTeDA	61.1		10 - 130	01/16/24 03:55	01/18/24 12:06	1
13C3 PFBS	84.2		40 - 135	01/16/24 03:55	01/18/24 12:06	1
13C3 PFHxS	79.8		40 - 130	01/16/24 03:55	01/18/24 12:06	1
13C8 PFOS	77.5		40 - 130	01/16/24 03:55	01/18/24 12:06	1
13C8 PFOSA	75.3		40 - 130	01/16/24 03:55	01/18/24 12:06	1
d3-NMeFOSAA	77.4		40 - 170	01/16/24 03:55	01/18/24 12:06	1
d5-NEtFOSAA	76.0		25 - 135	01/16/24 03:55	01/18/24 12:06	1
13C2 4:2 FTS	117		40 - 200	01/16/24 03:55	01/18/24 12:06	1
13C2 6:2 FTS	95.8		40 - 200	01/16/24 03:55	01/18/24 12:06	1
13C2 8:2 FTS	97.9		40 - 300	01/16/24 03:55	01/18/24 12:06	1
13C3 HFPO-DA	96.2		40 - 130	01/16/24 03:55	01/18/24 12:06	1
d7-N-MeFOSE-M	67.3		10 - 130	01/16/24 03:55	01/18/24 12:06	1
d9-N-EtFOSE-M	67.1		10 - 130	01/16/24 03:55	01/18/24 12:06	1
d5-NEtPFOSA	71.1		10 - 130	01/16/24 03:55	01/18/24 12:06	1
d3-NMePFOSA	71.1		10 - 130	01/16/24 03:55	01/18/24 12:06	1

Lab Sample ID: LCS 320-733811/3-A
Matrix: Water
Analysis Batch: 734386

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 733811

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	128	134		ng/L		105	70 - 140
Perfluoropentanoic acid (PFPeA)	64.0	64.7		ng/L		101	65 - 135
Perfluorohexanoic acid (PFHxA)	32.0	30.0		ng/L		94	70 - 145
Perfluoroheptanoic acid (PFHpA)	32.0	30.1		ng/L		94	70 - 150
Perfluorooctanoic acid (PFOA)	32.0	28.3		ng/L		88	70 - 150
Perfluorononanoic acid (PFNA)	32.0	33.5		ng/L		105	70 - 150
Perfluorodecanoic acid (PFDA)	32.0	32.1		ng/L		100	70 - 140
Perfluoroundecanoic acid (PFUnA)	32.0	32.0		ng/L		100	70 - 145
Perfluorododecanoic acid (PFDoA)	32.0	33.9		ng/L		106	70 - 140
Perfluorotridecanoic acid (PFTrDA)	32.0	34.1		ng/L		107	65 - 140
Perfluorotetradecanoic acid (PFTeDA)	32.0	39.7		ng/L		124	60 - 140
Perfluorobutanesulfonic acid (PFBS)	28.4	27.0		ng/L		95	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	30.1	27.9		ng/L		93	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	29.2	30.0		ng/L		103	65 - 145

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-733811/3-A
Matrix: Water
Analysis Batch: 734386

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 733811

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroheptanesulfonic acid (PFHpS)	30.5	31.7		ng/L		104	70 - 150
Perfluorooctanesulfonic acid (PFOS)	29.8	29.5		ng/L		99	55 - 150
Perfluorononanesulfonic acid (PFNS)	30.7	31.1		ng/L		101	65 - 145
Perfluorodecanesulfonic acid (PFDS)	30.8	34.0		ng/L		110	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	31.0	31.0		ng/L		100	50 - 145
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	125		ng/L		105	70 - 145
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	122	136		ng/L		112	65 - 155
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	123	134		ng/L		109	60 - 150
Perfluorooctanesulfonamide (PFOSA)	32.0	30.1		ng/L		94	70 - 145
N-methylperfluorooctane sulfonamide (NMeFOSA)	32.0	32.0		ng/L		100	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA)	32.0	31.0		ng/L		97	65 - 145
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	32.0	32.3		ng/L		101	50 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	32.0	30.7		ng/L		96	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	320	330		ng/L		103	70 - 145
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	320	392		ng/L		122	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	128	128		ng/L		100	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	121	122		ng/L		100	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	64.0	59.7		ng/L		93	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	64.0	71.1		ng/L		111	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	64.0	59.9		ng/L		94	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	120	118		ng/L		98	70 - 155
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	121	106		ng/L		87	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	57.1	50.7		ng/L		89	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	160	138		ng/L		87	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	799	680		ng/L		85	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	799	694		ng/L		87	50 - 145

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFBA	77.9		5 - 130
13C5 PFPeA	75.8		40 - 130
13C5 PFHxA	81.8		40 - 130
13C4 PFHpA	78.9		40 - 130
13C8 PFOA	73.0		40 - 130
13C9 PFNA	74.2		40 - 130
13C6 PFDA	71.9		40 - 130
13C7 PFUnA	71.6		30 - 130
13C2 PFDoA	65.5		10 - 130
13C2 PFTeDA	46.9		10 - 130
13C3 PFBS	85.9		40 - 135
13C3 PFHxS	75.9		40 - 130
13C8 PFOS	74.0		40 - 130
13C8 PFOSA	76.8		40 - 130
d3-NMeFOSAA	73.2		40 - 170
d5-NEtFOSAA	76.9		25 - 135
13C2 4:2 FTS	101		40 - 200
13C2 6:2 FTS	91.3		40 - 200
13C2 8:2 FTS	86.8		40 - 300
13C3 HFPO-DA	76.5		40 - 130
d7-N-MeFOSE-M	73.6		10 - 130
d9-N-EtFOSE-M	64.3		10 - 130
d5-NEtPFOSA	69.9		10 - 130
d3-NMePFOSA	72.0		10 - 130

Lab Sample ID: LCSD 320-733811/4-A
Matrix: Water
Analysis Batch: 734386

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 733811

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			128	137		ng/L		107	70 - 140	3	30
Perfluoropentanoic acid (PFPeA)			64.0	64.8		ng/L		101	65 - 135	0	30
Perfluorohexanoic acid (PFHxA)			32.0	32.7		ng/L		102	70 - 145	9	30
Perfluoroheptanoic acid (PFHpA)			32.0	34.3		ng/L		107	70 - 150	13	30
Perfluorooctanoic acid (PFOA)			32.0	30.9		ng/L		96	70 - 150	9	30
Perfluorononanoic acid (PFNA)			32.0	36.2		ng/L		113	70 - 150	8	30
Perfluorodecanoic acid (PFDA)			32.0	38.3		ng/L		120	70 - 140	18	30
Perfluoroundecanoic acid (PFUnA)			32.0	33.9		ng/L		106	70 - 145	6	30
Perfluorododecanoic acid (PFDoA)			32.0	33.3		ng/L		104	70 - 140	2	30
Perfluorotridecanoic acid (PFTrDA)			32.0	32.5		ng/L		102	65 - 140	5	30
Perfluorotetradecanoic acid (PFTeDA)			32.0	33.3		ng/L		104	60 - 140	17	30
Perfluorobutanesulfonic acid (PFBS)			28.4	31.8		ng/L		112	60 - 145	16	30
Perfluoropentanesulfonic acid (PFPeS)			30.1	29.9		ng/L		100	65 - 140	7	30
Perfluorohexanesulfonic acid (PFHxS)			29.2	29.8		ng/L		102	65 - 145	1	30
Perfluoroheptanesulfonic acid (PFHpS)			30.5	33.2		ng/L		109	70 - 150	5	30

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCSD 320-733811/4-A
Matrix: Water
Analysis Batch: 734386

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 733811

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)			29.8	34.9		ng/L		117	55 - 150	17	30
Perfluorononanesulfonic acid (PFNS)			30.7	34.3		ng/L		112	65 - 145	10	30
Perfluorodecanesulfonic acid (PFDS)			30.8	34.2		ng/L		111	60 - 145	0	30
Perfluorododecanesulfonic acid (PFDoS)			31.0	31.5		ng/L		102	50 - 145	2	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)			120	134		ng/L		112	70 - 145	7	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)			122	144		ng/L		118	65 - 155	6	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)			123	128		ng/L		104	60 - 150	5	30
Perfluorooctanesulfonamide (PFOSA)			32.0	33.9		ng/L		106	70 - 145	12	30
N-methylperfluorooctane sulfonamide (NMeFOSA)			32.0	35.0		ng/L		109	60 - 150	9	30
N-ethylperfluorooctane sulfonamide (NEtFOSA)			32.0	33.7		ng/L		105	65 - 145	8	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			32.0	34.3		ng/L		107	50 - 140	6	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			32.0	32.7		ng/L		102	70 - 145	6	30
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)			320	377		ng/L		118	70 - 145	13	30
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)			320	356		ng/L		111	70 - 135	10	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			128	121		ng/L		95	70 - 140	6	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			121	119		ng/L		98	65 - 145	2	30
Perfluoro-3-methoxypropanoic acid (PFMPA)			64.0	61.8		ng/L		97	55 - 140	3	30
Perfluoro-4-methoxybutanoic acid (PFMBA)			64.0	71.3		ng/L		111	60 - 150	0	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)			64.0	64.8		ng/L		101	50 - 150	8	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)			120	120		ng/L		101	70 - 155	2	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)			121	105		ng/L		87	55 - 160	1	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			57.1	57.8		ng/L		101	70 - 140	13	30
3-Perfluoropropylpropanoic acid (3:3 FTCA)			160	145		ng/L		91	65 - 130	5	30
3-Perfluoropentylpropanoic acid (5:3 FTCA)			799	788		ng/L		99	70 - 135	15	30
3-Perfluoroheptylpropanoic acid (7:3 FTCA)			799	776		ng/L		97	50 - 145	11	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*78.2*		*5 - 130*

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCSD 320-733811/4-A
Matrix: Water
Analysis Batch: 734386

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 733811

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C5 PFPeA	*85.1*		*40 - 130*
13C5 PFHxA	*81.9*		*40 - 130*
13C4 PFHpA	*87.1*		*40 - 130*
13C8 PFOA	*70.4*		*40 - 130*
13C9 PFNA	*79.4*		*40 - 130*
13C6 PFDA	*72.9*		*40 - 130*
13C7 PFUnA	*77.7*		*30 - 130*
13C2 PFDoA	*75.7*		*10 - 130*
13C2 PFTeDA	*69.2*		*10 - 130*
13C3 PFBS	*72.0*		*40 - 135*
13C3 PFHxS	*74.4*		*40 - 130*
13C8 PFOS	*72.4*		*40 - 130*
13C8 PFOSA	*73.3*		*40 - 130*
d3-NMeFOSAA	*78.7*		*40 - 170*
d5-NEtFOSAA	*82.2*		*25 - 135*
13C2 4:2 FTS	*83.9*		*40 - 200*
13C2 6:2 FTS	*91.1*		*40 - 200*
13C2 8:2 FTS	*93.1*		*40 - 300*
13C3 HFPO-DA	*91.1*		*40 - 130*
d7-N-MeFOSE-M	*67.2*		*10 - 130*
d9-N-EtFOSE-M	*70.8*		*10 - 130*
d5-NEtPFOSA	*69.4*		*10 - 130*
d3-NMePFOSA	*73.4*		*10 - 130*

Lab Sample ID: LLCS 320-733811/2-A
Matrix: Water
Analysis Batch: 734386

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 733811

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	12.8	14.1		ng/L		110	70 - 140
Perfluoropentanoic acid (PFPeA)	6.40	6.72		ng/L		105	65 - 135
Perfluorohexanoic acid (PFHxA)	3.20	3.43		ng/L		107	70 - 145
Perfluoroheptanoic acid (PFHpA)	3.20	3.37		ng/L		105	70 - 150
Perfluorooctanoic acid (PFOA)	3.20	3.64		ng/L		114	70 - 150
Perfluorononanoic acid (PFNA)	3.20	3.88		ng/L		121	70 - 150
Perfluorodecanoic acid (PFDA)	3.20	3.49		ng/L		109	70 - 140
Perfluoroundecanoic acid (PFUnA)	3.20	3.51		ng/L		110	70 - 145
Perfluorododecanoic acid (PFDoA)	3.20	3.66		ng/L		114	70 - 140
Perfluorotridecanoic acid (PFTrDA)	3.20	3.52		ng/L		110	65 - 140
Perfluorotetradecanoic acid (PFTeDA)	3.20	3.36		ng/L		105	60 - 140
Perfluorobutanesulfonic acid (PFBS)	2.84	2.99		ng/L		105	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	3.01	2.95		ng/L		98	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	2.92	3.60		ng/L		123	65 - 145

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-733811/2-A
Matrix: Water
Analysis Batch: 734386

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 733811

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroheptanesulfonic acid (PFHpS)	3.05	3.29		ng/L		108	70 - 150
Perfluorooctanesulfonic acid (PFOS)	2.98	3.52		ng/L		118	55 - 150
Perfluorononanesulfonic acid (PFNS)	3.07	3.27		ng/L		106	65 - 145
Perfluorodecanesulfonic acid (PFDS)	3.08	3.09		ng/L		100	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	3.10	3.06		ng/L		99	50 - 145
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	12.0	12.2		ng/L		102	70 - 145
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	12.2	15.0		ng/L		123	65 - 155
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	12.3	14.7		ng/L		120	60 - 150
Perfluorooctanesulfonamide (PFOSA)	3.20	3.71		ng/L		116	70 - 145
N-methylperfluorooctane sulfonamide (NMeFOSA)	3.20	3.61		ng/L		113	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA)	3.20	3.47		ng/L		108	65 - 145
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.20	3.44		ng/L		108	50 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	3.20	3.41		ng/L		106	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	32.0	37.4		ng/L		117	70 - 145
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	32.0	36.5		ng/L		114	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	12.8	13.8		ng/L		107	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	12.1	13.8		ng/L		114	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	6.40	6.63		ng/L		104	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	6.40	7.43		ng/L		116	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	6.40	6.80		ng/L		106	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	12.0	13.0		ng/L		109	70 - 155
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	12.1	12.0		ng/L		99	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	5.71	5.72		ng/L		100	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	16.0	12.8		ng/L		80	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	79.9	84.2		ng/L		105	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	79.9	77.6		ng/L		97	50 - 145

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Isotope Dilution	LLCS %Recovery	LLCS Qualifier	Limits
13C4 PFBA	81.6		5 - 130
13C5 PFPeA	82.2		40 - 130
13C5 PFHxA	81.3		40 - 130
13C4 PFHpA	77.6		40 - 130
13C8 PFOA	75.4		40 - 130
13C9 PFNA	77.5		40 - 130
13C6 PFDA	78.1		40 - 130
13C7 PFUnA	75.8		30 - 130
13C2 PFDoA	69.2		10 - 130
13C2 PFTeDA	63.2		10 - 130
13C3 PFBS	79.3		40 - 135
13C3 PFHxS	77.4		40 - 130
13C8 PFOS	81.2		40 - 130
13C8 PFOSA	71.7		40 - 130
d3-NMeFOSAA	79.5		40 - 170
d5-NEtFOSAA	85.3		25 - 135
13C2 4:2 FTS	107		40 - 200
13C2 6:2 FTS	102		40 - 200
13C2 8:2 FTS	95.8		40 - 300
13C3 HFPO-DA	82.8		40 - 130
d7-N-MeFOSE-M	61.7		10 - 130
d9-N-EtFOSE-M	69.8		10 - 130
d5-NEtPFOSA	66.8		10 - 130
d3-NMePFOSA	70.6		10 - 130

Lab Sample ID: MB 320-734764/1-A
Matrix: Water
Analysis Batch: 735461

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 734764

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		8.0	2.0	ng/L		01/19/24 11:50	01/23/24 05:13	1
Perfluoropentanoic acid (PFPeA)	ND		4.0	1.0	ng/L		01/19/24 11:50	01/23/24 05:13	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.50	ng/L		01/19/24 11:50	01/23/24 05:13	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.50	ng/L		01/19/24 11:50	01/23/24 05:13	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.50	ng/L		01/19/24 11:50	01/23/24 05:13	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.50	ng/L		01/19/24 11:50	01/23/24 05:13	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.50	ng/L		01/19/24 11:50	01/23/24 05:13	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.50	ng/L		01/19/24 11:50	01/23/24 05:13	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.50	ng/L		01/19/24 11:50	01/23/24 05:13	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	0.50	ng/L		01/19/24 11:50	01/23/24 05:13	1
Perfluorotetradecanoic acid (PFTeDA)	ND		2.0	0.50	ng/L		01/19/24 11:50	01/23/24 05:13	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.50	ng/L		01/19/24 11:50	01/23/24 05:13	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.50	ng/L		01/19/24 11:50	01/23/24 05:13	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.50	ng/L		01/19/24 11:50	01/23/24 05:13	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.50	ng/L		01/19/24 11:50	01/23/24 05:13	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.50	ng/L		01/19/24 11:50	01/23/24 05:13	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.50	ng/L		01/19/24 11:50	01/23/24 05:13	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.50	ng/L		01/19/24 11:50	01/23/24 05:13	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.50	ng/L		01/19/24 11:50	01/23/24 05:13	1

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: MB 320-734764/1-A
Matrix: Water
Analysis Batch: 735461

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 734764

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		8.0	2.0	ng/L		01/19/24 11:50	01/23/24 05:13	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		8.0	2.0	ng/L		01/19/24 11:50	01/23/24 05:13	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		8.0	2.0	ng/L		01/19/24 11:50	01/23/24 05:13	1
Perfluorooctanesulfonamide (PFOSA)	ND		2.0	0.50	ng/L		01/19/24 11:50	01/23/24 05:13	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		2.0	0.50	ng/L		01/19/24 11:50	01/23/24 05:13	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		2.0	0.50	ng/L		01/19/24 11:50	01/23/24 05:13	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.50	ng/L		01/19/24 11:50	01/23/24 05:13	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.50	ng/L		01/19/24 11:50	01/23/24 05:13	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		20	5.0	ng/L		01/19/24 11:50	01/23/24 05:13	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		20	5.0	ng/L		01/19/24 11:50	01/23/24 05:13	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		8.0	2.0	ng/L		01/19/24 11:50	01/23/24 05:13	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		8.0	2.0	ng/L		01/19/24 11:50	01/23/24 05:13	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		4.0	1.0	ng/L		01/19/24 11:50	01/23/24 05:13	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		4.0	1.0	ng/L		01/19/24 11:50	01/23/24 05:13	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		4.0	1.0	ng/L		01/19/24 11:50	01/23/24 05:13	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		8.0	2.0	ng/L		01/19/24 11:50	01/23/24 05:13	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		8.0	2.0	ng/L		01/19/24 11:50	01/23/24 05:13	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		4.0	1.0	ng/L		01/19/24 11:50	01/23/24 05:13	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		10	2.5	ng/L		01/19/24 11:50	01/23/24 05:13	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		50	13	ng/L		01/19/24 11:50	01/23/24 05:13	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		50	13	ng/L		01/19/24 11:50	01/23/24 05:13	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*83.6*		*5 - 130*	*01/19/24 11:50*	*01/23/24 05:13*	*1*
13C5 PFPeA	*92.4*		*40 - 130*	*01/19/24 11:50*	*01/23/24 05:13*	*1*
13C5 PFHxA	*85.7*		*40 - 130*	*01/19/24 11:50*	*01/23/24 05:13*	*1*
13C4 PFHpA	*94.8*		*40 - 130*	*01/19/24 11:50*	*01/23/24 05:13*	*1*
13C8 PFOA	*74.7*		*40 - 130*	*01/19/24 11:50*	*01/23/24 05:13*	*1*
13C9 PFNA	*82.0*		*40 - 130*	*01/19/24 11:50*	*01/23/24 05:13*	*1*
13C6 PFDA	*77.6*		*40 - 130*	*01/19/24 11:50*	*01/23/24 05:13*	*1*
13C7 PFUnA	*73.6*		*30 - 130*	*01/19/24 11:50*	*01/23/24 05:13*	*1*
13C2 PFDoA	*59.7*		*10 - 130*	*01/19/24 11:50*	*01/23/24 05:13*	*1*
13C2 PFTeDA	*62.5*		*10 - 130*	*01/19/24 11:50*	*01/23/24 05:13*	*1*
13C3 PFBS	*88.3*		*40 - 135*	*01/19/24 11:50*	*01/23/24 05:13*	*1*

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: MB 320-734764/1-A
Matrix: Water
Analysis Batch: 735461

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 734764

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFHxS	83.9		40 - 130	01/19/24 11:50	01/23/24 05:13	1
13C8 PFOS	81.1		40 - 130	01/19/24 11:50	01/23/24 05:13	1
13C8 PFOSA	74.3		40 - 130	01/19/24 11:50	01/23/24 05:13	1
d3-NMeFOSAA	84.3		40 - 170	01/19/24 11:50	01/23/24 05:13	1
d5-NEtFOSAA	76.1		25 - 135	01/19/24 11:50	01/23/24 05:13	1
13C2 4:2 FTS	76.7		40 - 200	01/19/24 11:50	01/23/24 05:13	1
13C2 6:2 FTS	87.1		40 - 200	01/19/24 11:50	01/23/24 05:13	1
13C2 8:2 FTS	98.4		40 - 300	01/19/24 11:50	01/23/24 05:13	1
13C3 HFPO-DA	97.4		40 - 130	01/19/24 11:50	01/23/24 05:13	1
d7-N-MeFOSE-M	62.6		10 - 130	01/19/24 11:50	01/23/24 05:13	1
d9-N-EtFOSE-M	60.1		10 - 130	01/19/24 11:50	01/23/24 05:13	1
d5-NEtPFOSA	55.3		10 - 130	01/19/24 11:50	01/23/24 05:13	1
d3-NMePFOSA	52.4		10 - 130	01/19/24 11:50	01/23/24 05:13	1

Lab Sample ID: LCS 320-734764/3-A
Matrix: Water
Analysis Batch: 735461

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 734764

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	128	132		ng/L		103	70 - 140
Perfluoropentanoic acid (PFPeA)	64.0	60.3		ng/L		94	65 - 135
Perfluorohexanoic acid (PFHxA)	32.0	30.2		ng/L		94	70 - 145
Perfluoroheptanoic acid (PFHpA)	32.0	30.7		ng/L		96	70 - 150
Perfluorooctanoic acid (PFOA)	32.0	31.3		ng/L		98	70 - 150
Perfluorononanoic acid (PFNA)	32.0	30.9		ng/L		97	70 - 150
Perfluorodecanoic acid (PFDA)	32.0	35.4		ng/L		111	70 - 140
Perfluoroundecanoic acid (PFUnA)	32.0	32.9		ng/L		103	70 - 145
Perfluorododecanoic acid (PFDoA)	32.0	32.3		ng/L		101	70 - 140
Perfluorotridecanoic acid (PFTrDA)	32.0	29.4		ng/L		92	65 - 140
Perfluorotetradecanoic acid (PFTeDA)	32.0	27.2		ng/L		85	60 - 140
Perfluorobutanesulfonic acid (PFBS)	28.4	30.7		ng/L		108	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	30.1	29.0		ng/L		96	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	29.2	27.0		ng/L		93	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	30.5	31.8		ng/L		104	70 - 150
Perfluorooctanesulfonic acid (PFOS)	29.8	31.0		ng/L		104	55 - 150
Perfluorononanesulfonic acid (PFNS)	30.7	33.0		ng/L		107	65 - 145
Perfluorodecanesulfonic acid (PFDS)	30.8	34.5		ng/L		112	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	31.0	27.3		ng/L		88	50 - 145
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	111		ng/L		93	70 - 145

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-734764/3-A
Matrix: Water
Analysis Batch: 735461

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 734764

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	122	131		ng/L		108	65 - 155
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	123	150		ng/L		122	60 - 150
Perfluorooctanesulfonamide (PFOSA)	32.0	31.6		ng/L		99	70 - 145
N-methylperfluorooctane sulfonamide (NMeFOSA)	32.0	33.8		ng/L		106	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA)	32.0	33.2		ng/L		104	65 - 145
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	32.0	29.2		ng/L		91	50 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	32.0	34.8		ng/L		109	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	320	358		ng/L		112	70 - 145
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	320	318		ng/L		99	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	128	128		ng/L		100	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	121	111		ng/L		91	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	64.0	51.6		ng/L		81	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	64.0	61.4		ng/L		96	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	64.0	59.5		ng/L		93	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	120	109		ng/L		91	70 - 155
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	121	96.5		ng/L		80	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	57.1	49.7		ng/L		87	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	160	129		ng/L		80	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	799	727		ng/L		91	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	799	735		ng/L		92	50 - 145

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*81.3*		*5 - 130*
13C5 PFPeA	*88.5*		*40 - 130*
13C5 PFHxA	*83.6*		*40 - 130*
13C4 PFHpA	*85.7*		*40 - 130*
13C8 PFOA	*83.9*		*40 - 130*
13C9 PFNA	*88.8*		*40 - 130*
13C6 PFDA	*79.3*		*40 - 130*
13C7 PFUnA	*77.2*		*30 - 130*
13C2 PFDoA	*73.2*		*10 - 130*
13C2 PFTeDA	*70.5*		*10 - 130*

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-734764/3-A
Matrix: Water
Analysis Batch: 735461

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 734764

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C3 PFBS	*78.4*		*40 - 135*
13C3 PFHxS	*83.6*		*40 - 130*
13C8 PFOS	*82.5*		*40 - 130*
13C8 PFOSA	*82.5*		*40 - 130*
d3-NMeFOSAA	*85.8*		*40 - 170*
d5-NEtFOSAA	*84.9*		*25 - 135*
13C2 4:2 FTS	*90.5*		*40 - 200*
13C2 6:2 FTS	*89.2*		*40 - 200*
13C2 8:2 FTS	*89.4*		*40 - 300*
13C3 HFPO-DA	*89.5*		*40 - 130*
d7-N-MeFOSE-M	*63.1*		*10 - 130*
d9-N-EtFOSE-M	*68.0*		*10 - 130*
d5-NEtPFOSA	*61.4*		*10 - 130*
d3-NMePFOSA	*59.2*		*10 - 130*

Lab Sample ID: LCSD 320-734764/4-A
Matrix: Water
Analysis Batch: 735461

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 734764

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			128	132		ng/L		103	70 - 140	0	30
Perfluoropentanoic acid (PFPeA)			64.0	59.3		ng/L		93	65 - 135	2	30
Perfluorohexanoic acid (PFHxA)			32.0	29.3		ng/L		92	70 - 145	3	30
Perfluoroheptanoic acid (PFHpA)			32.0	31.8		ng/L		99	70 - 150	4	30
Perfluorooctanoic acid (PFOA)			32.0	31.5		ng/L		98	70 - 150	1	30
Perfluorononanoic acid (PFNA)			32.0	31.6		ng/L		99	70 - 150	2	30
Perfluorodecanoic acid (PFDA)			32.0	32.2		ng/L		100	70 - 140	10	30
Perfluoroundecanoic acid (PFUnA)			32.0	31.4		ng/L		98	70 - 145	5	30
Perfluorododecanoic acid (PFDoA)			32.0	34.8		ng/L		109	70 - 140	7	30
Perfluorotridecanoic acid (PFTrDA)			32.0	26.7		ng/L		83	65 - 140	10	30
Perfluorotetradecanoic acid (PFTeDA)			32.0	28.1		ng/L		88	60 - 140	3	30
Perfluorobutanesulfonic acid (PFBS)			28.4	26.8		ng/L		94	60 - 145	13	30
Perfluoropentanesulfonic acid (PFPeS)			30.1	25.2		ng/L		84	65 - 140	14	30
Perfluorohexanesulfonic acid (PFHxS)			29.2	28.5		ng/L		98	65 - 145	5	30
Perfluoroheptanesulfonic acid (PFHpS)			30.5	30.6		ng/L		100	70 - 150	4	30
Perfluorooctanesulfonic acid (PFOS)			29.8	29.5		ng/L		99	55 - 150	5	30
Perfluorononanesulfonic acid (PFNS)			30.7	29.5		ng/L		96	65 - 145	11	30
Perfluorodecanesulfonic acid (PFDS)			30.8	30.5		ng/L		99	60 - 145	12	30
Perfluorododecanesulfonic acid (PFDoS)			31.0	25.4		ng/L		82	50 - 145	7	30

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCSD 320-734764/4-A
Matrix: Water
Analysis Batch: 735461

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 734764

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)			120	114		ng/L		96	70 - 145	3	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)			122	140		ng/L		115	65 - 155	6	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)			123	134		ng/L		109	60 - 150	11	30
Perfluorooctanesulfonamide (PFOSA)			32.0	30.7		ng/L		96	70 - 145	3	30
N-methylperfluorooctane sulfonamide (NMeFOSA)			32.0	33.8		ng/L		106	60 - 150	0	30
N-ethylperfluorooctane sulfonamide (NEtFOSA)			32.0	34.0		ng/L		106	65 - 145	2	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			32.0	29.9		ng/L		93	50 - 140	2	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			32.0	34.9		ng/L		109	70 - 145	0	30
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)			320	323		ng/L		101	70 - 145	10	30
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)			320	369		ng/L		115	70 - 135	15	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			128	136		ng/L		106	70 - 140	6	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			121	128		ng/L		106	65 - 145	15	30
Perfluoro-3-methoxypropanoic acid (PFMPA)			64.0	51.6		ng/L		81	55 - 140	0	30
Perfluoro-4-methoxybutanoic acid (PFMBA)			64.0	62.9		ng/L		98	60 - 150	2	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)			64.0	72.7		ng/L		114	50 - 150	20	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)			120	126		ng/L		106	70 - 155	15	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)			121	105		ng/L		87	55 - 160	8	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			57.1	57.1		ng/L		100	70 - 140	14	30
3-Perfluoropropylpropanoic acid (3:3 FTCA)			160	134		ng/L		84	65 - 130	4	30
3-Perfluoropentylpropanoic acid (5:3 FTCA)			799	788		ng/L		99	70 - 135	8	30
3-Perfluoroheptylpropanoic acid (7:3 FTCA)			799	822		ng/L		103	50 - 145	11	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*82.9*		*5 - 130*
13C5 PFPeA	*95.2*		*40 - 130*
13C5 PFHxA	*81.7*		*40 - 130*
13C4 PFHpA	*85.3*		*40 - 130*
13C8 PFOA	*75.3*		*40 - 130*
13C9 PFNA	*87.2*		*40 - 130*
13C6 PFDA	*80.7*		*40 - 130*
13C7 PFUnA	*81.7*		*30 - 130*

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCSD 320-734764/4-A
Matrix: Water
Analysis Batch: 735461

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 734764

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFDoA	*71.6*		*10 - 130*
13C2 PFTeDA	*62.8*		*10 - 130*
13C3 PFBS	*89.1*		*40 - 135*
13C3 PFHxS	*84.6*		*40 - 130*
13C8 PFOS	*87.4*		*40 - 130*
13C8 PFOSA	*82.3*		*40 - 130*
d3-NMeFOSAA	*87.0*		*40 - 170*
d5-NEtFOSAA	*89.2*		*25 - 135*
13C2 4:2 FTS	*90.1*		*40 - 200*
13C2 6:2 FTS	*84.2*		*40 - 200*
13C2 8:2 FTS	*97.8*		*40 - 300*
13C3 HFPO-DA	*88.5*		*40 - 130*
d7-N-MeFOSE-M	*61.6*		*10 - 130*
d9-N-EtFOSE-M	*52.8*		*10 - 130*
d5-NEtPFOSA	*57.1*		*10 - 130*
d3-NMePFOSA	*58.7*		*10 - 130*

Lab Sample ID: LLCS 320-734764/2-A
Matrix: Water
Analysis Batch: 735461

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 734764

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	12.8	13.3		ng/L		104	70 - 140
Perfluoropentanoic acid (PFPeA)	6.40	6.11		ng/L		95	65 - 135
Perfluorohexanoic acid (PFHxA)	3.20	3.46		ng/L		108	70 - 145
Perfluoroheptanoic acid (PFHpA)	3.20	3.02		ng/L		95	70 - 150
Perfluorooctanoic acid (PFOA)	3.20	3.38		ng/L		106	70 - 150
Perfluorononanoic acid (PFNA)	3.20	3.40		ng/L		106	70 - 150
Perfluorodecanoic acid (PFDA)	3.20	2.91		ng/L		91	70 - 140
Perfluoroundecanoic acid (PFUnA)	3.20	3.26		ng/L		102	70 - 145
Perfluorododecanoic acid (PFDoA)	3.20	3.31		ng/L		103	70 - 140
Perfluorotridecanoic acid (PFTrDA)	3.20	2.92		ng/L		91	65 - 140
Perfluorotetradecanoic acid (PFTeDA)	3.20	2.93		ng/L		91	60 - 140
Perfluorobutanesulfonic acid (PFBS)	2.84	2.94		ng/L		104	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	3.01	2.71		ng/L		90	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	2.92	3.09		ng/L		106	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	3.05	3.62		ng/L		118	70 - 150
Perfluorooctanesulfonic acid (PFOS)	2.98	3.22		ng/L		108	55 - 150
Perfluorononanesulfonic acid (PFNS)	3.07	3.15		ng/L		102	65 - 145
Perfluorodecanesulfonic acid (PFDS)	3.08	3.50		ng/L		114	60 - 145

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-734764/2-A
Matrix: Water
Analysis Batch: 735461

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 734764

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorododecanesulfonic acid (PFDoS)	3.10	2.94		ng/L		95	50 - 145
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	12.0	13.0		ng/L		109	70 - 145
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	12.2	13.8		ng/L		113	65 - 155
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	12.3	14.3		ng/L		116	60 - 150
Perfluorooctanesulfonamide (PFOSA)	3.20	3.13		ng/L		98	70 - 145
N-methylperfluorooctane sulfonamide (NMeFOSA)	3.20	3.17		ng/L		99	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA)	3.20	2.99		ng/L		93	65 - 145
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.20	3.20		ng/L		100	50 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	3.20	3.73		ng/L		117	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	32.0	31.3		ng/L		98	70 - 145
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	32.0	31.6		ng/L		99	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	12.8	14.3		ng/L		112	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	12.1	13.1		ng/L		108	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	6.40	5.39		ng/L		84	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	6.40	6.42		ng/L		100	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	6.40	4.87		ng/L		76	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	12.0	12.6		ng/L		105	70 - 155
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	12.1	10.5		ng/L		87	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	5.71	6.05		ng/L		106	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	16.0	12.1		ng/L		76	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	79.9	81.4		ng/L		102	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	79.9	78.8		ng/L		99	50 - 145

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C4 PFBA	*82.0*		*5 - 130*
13C5 PFPeA	*99.0*		*40 - 130*
13C5 PFHxA	*85.7*		*40 - 130*
13C4 PFHpA	*95.3*		*40 - 130*
13C8 PFOA	*76.8*		*40 - 130*
13C9 PFNA	*82.0*		*40 - 130*

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-734764/2-A
Matrix: Water
Analysis Batch: 735461

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 734764

Isotope Dilution	LLCS %Recovery	LLCS Qualifier	Limits
13C6 PFDA	86.1		40 - 130
13C7 PFUnA	82.8		30 - 130
13C2 PFDoA	73.3		10 - 130
13C2 PFTeDA	71.5		10 - 130
13C3 PFBS	89.0		40 - 135
13C3 PFHxS	85.0		40 - 130
13C8 PFOS	83.7		40 - 130
13C8 PFOSA	82.4		40 - 130
d3-NMeFOSAA	89.9		40 - 170
d5-NEtFOSAA	81.4		25 - 135
13C2 4:2 FTS	82.2		40 - 200
13C2 6:2 FTS	80.2		40 - 200
13C2 8:2 FTS	92.7		40 - 300
13C3 HFPO-DA	93.9		40 - 130
d7-N-MeFOSE-M	69.9		10 - 130
d9-N-EtFOSE-M	66.8		10 - 130
d5-NEtPFOSA	64.9		10 - 130
d3-NMePFOSA	62.6		10 - 130

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Lab Sample ID: MB 320-732663/1-A
Matrix: Water
Analysis Batch: 735085

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 732663

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) - RA	ND		8.0	2.0	ng/L		01/11/24 05:03	01/19/24 19:56	1
Perfluorooctanesulfonamide (PFOSA) - RA	ND		2.0	0.50	ng/L		01/11/24 05:03	01/19/24 19:56	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOSA - RA	78.9		40 - 130	01/11/24 05:03	01/19/24 19:56	1
13C2 8:2 FTS - RA	114		40 - 300	01/11/24 05:03	01/19/24 19:56	1

Lab Sample ID: LCS 320-732663/3-A
Matrix: Water
Analysis Batch: 735085

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 732663

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) - RA	123	136		ng/L		110	60 - 150
Perfluorooctanesulfonamide (PFOSA) - RA	32.0	31.7		ng/L		99	70 - 145

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C8 PFOSA - RA	74.8		40 - 130
13C2 8:2 FTS - RA	91.4		40 - 300

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA (Continued)

Lab Sample ID: LCSD 320-732663/4-A
Matrix: Water
Analysis Batch: 735085

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 732663

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) - RA			123	141		ng/L		115	60 - 150	4	30
Perfluorooctanesulfonamide (PFOSA) - RA			32.0	32.1		ng/L		100	70 - 145	1	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C8 PFOSA - RA	*64.2*		*40 - 130*
13C2 8:2 FTS - RA	*88.5*		*40 - 300*

Lab Sample ID: LLCS 320-732663/2-A
Matrix: Water
Analysis Batch: 735085

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 732663

Analyte			Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits		
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) - RA			12.3	22.5	*+	ng/L		183	60 - 150		
Perfluorooctanesulfonamide (PFOSA) - RA			3.20	5.49	*+	ng/L		171	70 - 145		

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C8 PFOSA - RA	*83.1*		*40 - 130*
13C2 8:2 FTS - RA	*111*		*40 - 300*

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 590-45128/2-A
Matrix: Water
Analysis Batch: 45138

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 45128

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	ND		1.0	0.13	mg/L		12/18/23 10:30	12/18/23 14:01	1
Potassium	ND		0.50	0.29	mg/L		12/18/23 10:30	12/18/23 14:01	1

Lab Sample ID: LCS 590-45128/1-A
Matrix: Water
Analysis Batch: 45138

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 45128

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Magnesium			25.0	23.7		mg/L		95	80 - 120		
Potassium			25.0	23.3		mg/L		93	80 - 135		

Lab Sample ID: MB 590-45148/2-B
Matrix: Water
Analysis Batch: 45163

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 45147

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		2.0	0.20	mg/L		12/18/23 17:27	12/19/23 11:02	1
Magnesium	ND		1.0	0.13	mg/L		12/18/23 17:27	12/19/23 11:02	1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCS 590-45148/1-B
Matrix: Water
Analysis Batch: 45163

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 45147

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	25.0	27.5		mg/L		110	80 - 120
Magnesium	25.0	27.6		mg/L		110	80 - 120

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 580-446548/24-A
Matrix: Water
Analysis Batch: 446858

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 446548

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.0010	mg/L		12/18/23 15:58	12/20/23 17:07	5
Cadmium	ND		0.0020	0.00019	mg/L		12/18/23 15:58	12/20/23 17:07	5
Iron	ND		0.50	0.067	mg/L		12/18/23 15:58	12/20/23 17:07	5
Lead	ND		0.0020	0.00020	mg/L		12/18/23 15:58	12/20/23 17:07	5
Manganese	ND		0.010	0.0023	mg/L		12/18/23 15:58	12/20/23 17:07	5
Zinc	ND		0.035	0.0046	mg/L		12/18/23 15:58	12/20/23 17:07	5

Lab Sample ID: LCS 580-446548/25-A
Matrix: Water
Analysis Batch: 446858

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 446548

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	0.931		mg/L		93	80 - 120
Cadmium	1.00	0.920		mg/L		92	80 - 120
Iron	20.0	19.2		mg/L		96	80 - 120
Lead	1.00	0.957		mg/L		96	80 - 120
Manganese	1.00	0.977		mg/L		98	80 - 120
Zinc	1.00	0.922		mg/L		92	80 - 120

Lab Sample ID: LCSD 580-446548/26-A
Matrix: Water
Analysis Batch: 446858

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 446548

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	1.00	0.947		mg/L		95	80 - 120	2	20
Cadmium	1.00	0.927		mg/L		93	80 - 120	1	20
Iron	20.0	19.6		mg/L		98	80 - 120	2	20
Lead	1.00	0.975		mg/L		98	80 - 120	2	20
Manganese	1.00	0.987		mg/L		99	80 - 120	1	20
Zinc	1.00	0.931		mg/L		93	80 - 120	1	20

Lab Sample ID: MB 580-446663/21-B
Matrix: Water
Analysis Batch: 447094

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 446761

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.0010	mg/L		12/20/23 15:52	12/22/23 09:50	5
Cadmium	ND		0.0020	0.00019	mg/L		12/20/23 15:52	12/22/23 09:50	5
Iron	ND		0.50	0.067	mg/L		12/20/23 15:52	12/22/23 09:50	5
Lead	ND		0.0020	0.00020	mg/L		12/20/23 15:52	12/22/23 09:50	5

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 580-446663/21-B
Matrix: Water
Analysis Batch: 447094

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 446761

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		0.010	0.0023	mg/L		12/20/23 15:52	12/22/23 09:50	5
Zinc	ND		0.035	0.0046	mg/L		12/20/23 15:52	12/22/23 09:50	5

Lab Sample ID: LCS 580-446663/22-B
Matrix: Water
Analysis Batch: 447094

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 446761

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	1.04		mg/L		104	80 - 120
Cadmium	1.00	0.992		mg/L		99	80 - 120
Iron	20.0	19.9		mg/L		100	80 - 120
Lead	1.00	0.985		mg/L		99	80 - 120
Manganese	1.00	0.975		mg/L		98	80 - 120
Zinc	1.00	0.979		mg/L		98	80 - 120

Lab Sample ID: LCSD 580-446663/23-B
Matrix: Water
Analysis Batch: 447094

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 446761

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	1.00	1.07		mg/L		107	80 - 120	3	20
Cadmium	1.00	0.981		mg/L		98	80 - 120	1	20
Iron	20.0	20.2		mg/L		101	80 - 120	1	20
Lead	1.00	0.988		mg/L		99	80 - 120	0	20
Manganese	1.00	0.992		mg/L		99	80 - 120	2	20
Zinc	1.00	1.00		mg/L		100	80 - 120	2	20

Lab Sample ID: 590-22504-2 MS
Matrix: Water
Analysis Batch: 447094

Client Sample ID: MW-11A-121423
Prep Type: Dissolved
Prep Batch: 446761

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.0020	J	1.00	1.08		mg/L		108	80 - 120
Cadmium	ND		1.00	1.01		mg/L		101	80 - 120
Iron	ND		20.0	20.8		mg/L		104	80 - 120
Lead	ND		1.00	1.00		mg/L		100	80 - 120
Manganese	ND		1.00	1.02		mg/L		102	80 - 120
Zinc	0.0051	J	1.00	1.02		mg/L		102	80 - 120

Lab Sample ID: 590-22504-2 MSD
Matrix: Water
Analysis Batch: 447094

Client Sample ID: MW-11A-121423
Prep Type: Dissolved
Prep Batch: 446761

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	0.0020	J	1.00	1.05		mg/L		105	80 - 120	2	20
Cadmium	ND		1.00	0.980		mg/L		98	80 - 120	3	20
Iron	ND		20.0	20.0		mg/L		100	80 - 120	4	20
Lead	ND		1.00	0.978		mg/L		98	80 - 120	3	20
Manganese	ND		1.00	0.978		mg/L		98	80 - 120	4	20
Zinc	0.0051	J	1.00	0.992		mg/L		99	80 - 120	3	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: 590-22504-2 DU
Matrix: Water
Analysis Batch: 447094

Client Sample ID: MW-11A-121423
Prep Type: Dissolved
Prep Batch: 446761

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	0.0020	J	0.00194	J	mg/L		5	20
Cadmium	ND		ND		mg/L		NC	20
Iron	ND		ND		mg/L		NC	20
Lead	ND		ND		mg/L		NC	20
Manganese	ND		ND		mg/L		NC	20
Zinc	0.0051	J	ND		mg/L		NC	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 590-45127/9-A
Matrix: Water
Analysis Batch: 45139

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 45127

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		12/18/23 10:28	12/18/23 15:06	1

Lab Sample ID: LCS 590-45127/8-A
Matrix: Water
Analysis Batch: 45139

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 45127

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	2.00	1.82		ug/L		91	80 - 120

Lab Sample ID: MB 590-45221/2-A
Matrix: Water
Analysis Batch: 45244

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 45221

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		12/27/23 10:16	12/28/23 13:18	1

Lab Sample ID: LCS 590-45221/1-A
Matrix: Water
Analysis Batch: 45244

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 45221

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	2.00	1.87		ug/L		94	80 - 120

Lab Sample ID: 590-22504-1 MS
Matrix: Water
Analysis Batch: 45244

Client Sample ID: MW-7B-121423
Prep Type: Dissolved
Prep Batch: 45221

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		2.00	1.92		ug/L		96	80 - 120

Lab Sample ID: 590-22504-1 MSD
Matrix: Water
Analysis Batch: 45244

Client Sample ID: MW-7B-121423
Prep Type: Dissolved
Prep Batch: 45221

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		2.00	1.93		ug/L		97	80 - 120	1	20

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 590-22504-1 DU
Matrix: Water
Analysis Batch: 45244

Client Sample ID: MW-7B-121423
Prep Type: Dissolved
Prep Batch: 45221

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Mercury	ND		ND		ug/L		NC	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 280-639548/19
Matrix: Water
Analysis Batch: 639548

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	ND		0.10	0.029	mg/L			01/09/24 11:03	1

Lab Sample ID: LCS 280-639548/17
Matrix: Water
Analysis Batch: 639548

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	2.50	2.49		mg/L		99	90 - 110

Lab Sample ID: LCSD 280-639548/18
Matrix: Water
Analysis Batch: 639548

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia as N	2.50	2.49		mg/L		100	90 - 110	0	10

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 590-45219/1
Matrix: Water
Analysis Batch: 45219

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.00	J	20	5.0	mg/L			12/27/23 10:12	1
Bicarbonate Alkalinity as CaCO3	5.00	J	20	5.0	mg/L			12/27/23 10:12	1

Lab Sample ID: LCS 590-45219/2
Matrix: Water
Analysis Batch: 45219

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	501	500		mg/L		100	90 - 110

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 590-45141/1
Matrix: Water
Analysis Batch: 45141

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		25	13	mg/L			12/18/23 16:56	1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 590-45141/2
Matrix: Water
Analysis Batch: 45141

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	503	499		mg/L		99	80 - 120

Method: SM 4500 CN I - Cyanide, Weak Acid Dissociable

Lab Sample ID: MB 280-638313/20
Matrix: Water
Analysis Batch: 638313

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Weak Acid Dissociable	ND		0.010	0.0050	mg/L			12/22/23 12:08	1

Lab Sample ID: HLCS 280-638313/19
Matrix: Water
Analysis Batch: 638313

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Weak Acid Dissociable	0.350	0.361		mg/L		103	75 - 120

Lab Sample ID: LCS 280-638313/17
Matrix: Water
Analysis Batch: 638313

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Weak Acid Dissociable	0.100	0.0983		mg/L		98	75 - 120

Lab Sample ID: LLCS 280-638313/18
Matrix: Water
Analysis Batch: 638313

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Weak Acid Dissociable	0.100	0.0951		mg/L		95	90 - 110

Lab Sample ID: 590-22504-1 MS
Matrix: Water
Analysis Batch: 638313

Client Sample ID: MW-7B-121423
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Weak Acid Dissociable	ND		0.100	0.119		mg/L		119	75 - 120

Lab Sample ID: 590-22504-1 MSD
Matrix: Water
Analysis Batch: 638313

Client Sample ID: MW-7B-121423
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Weak Acid Dissociable	ND		0.100	0.117		mg/L		117	75 - 120	2	20

Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 280-638646/69
Matrix: Water
Analysis Batch: 638646

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		1.0	0.35	mg/L			12/28/23 07:05	1

Lab Sample ID: LCS 280-638646/68
Matrix: Water
Analysis Batch: 638646

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Organic Carbon - Duplicates			25.0	26.5		mg/L		106	88 - 112		

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22504-1

Client Sample ID: MW-7B-121423

Date Collected: 12/14/23 13:00
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	43 mL	43 mL	45100	12/15/23 15:51	JSP	EET SPK
Total/NA	Prep	3510C			1053.9 mL	2 mL	446589	12/19/23 08:40	SL	EET SEA
Total/NA	Analysis	8270E		1	1 mL	1 mL	446659	12/19/23 22:31	K1K	EET SEA
Total/NA	Prep	8151A			1052 mL	5 mL	394080	12/18/23 21:35	C6FB	EET CAL 4
Total/NA	Analysis	8151A		1	1 mL	1 mL	394962	12/20/23 23:10	J7WE	EET CAL 4
Total/NA	Analysis	300.0		1	5 mL	5 mL	45119	12/15/23 14:15	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	45120	12/15/23 14:15	NMI	EET SPK
Total/NA	Prep	1633	RA		556.6 mL	5.0 mL	732663	01/11/24 05:03	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633	RA	1			735085	01/19/24 21:06	S1M	EET SAC
Total/NA	Prep	1633			556.6 mL	5.0 mL	732663	01/11/24 05:03	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633		1	1 mL	1 mL	733287	01/13/24 12:56	RS1	EET SAC
Total/NA	Prep	1633	RE		586.6 mL	5.0 mL	734764	01/19/24 11:50	JS	EET SAC
Total/NA	Analysis	Draft-4 1633	RE	1	1 mL	1 mL	735461	01/23/24 06:20	SEY	EET SAC
Dissolved	Filtration	FILTRATION			250 mL	250 mL	45148	12/18/23 17:26	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	45147	12/18/23 17:27	AMB	EET SPK
Dissolved	Analysis	6010D		1			45163	12/19/23 13:27	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	45128	12/18/23 10:30	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			45149	12/18/23 15:23	AMB	EET SPK
Dissolved	Filtration	FILTRATION			250 mL	250 mL	446663	12/19/23 16:28	AUA	EET SEA
Dissolved	Prep	3005A			50 mL	50 mL	446761	12/20/23 15:52	JL	EET SEA
Dissolved	Analysis	6020B		5	50 mL	50 mL	447094	12/22/23 11:51	FCW	EET SEA
Total Recoverable	Prep	3005A			50 mL	50 mL	446548	12/18/23 15:58	TMH	EET SEA
Total Recoverable	Analysis	6020B		5	50 mL	50 mL	446858	12/20/23 17:57	TMH	EET SEA
Dissolved	Filtration	FILTRATION			250 mL	250 mL	45148	12/18/23 17:26	AMB	EET SPK
Dissolved	Prep	7470A			50 mL	50 mL	45221	12/27/23 10:16	AMB	EET SPK
Dissolved	Analysis	7470A		1			45244	12/28/23 13:20	AMB	EET SPK
Total/NA	Prep	7470A			50 mL	50 mL	45127	12/18/23 10:28	AMB	EET SPK
Total/NA	Analysis	7470A		1			45139	12/18/23 15:24	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	639548	01/09/24 11:35	MMP	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	45219	12/27/23 10:12	AMB	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	45141	12/18/23 16:57	AMB	EET SPK
Total/NA	Analysis	SM 4500 CN I		1	10 mL	10 mL	638313	12/22/23 12:53	MMP	EET DEN
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	638646	12/28/23 09:03	ABW	EET DEN

Client Sample ID: MW-11A-121423

Date Collected: 12/14/23 11:05
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	43 mL	43 mL	45100	12/15/23 16:34	JSP	EET SPK
Total/NA	Prep	3510C			1038.4 mL	2 mL	446589	12/19/23 08:40	SL	EET SEA
Total/NA	Analysis	8270E		1	1 mL	1 mL	446659	12/19/23 22:56	K1K	EET SEA
Total/NA	Prep	8151A			1051.3 mL	5 mL	394080	12/18/23 21:35	C6FB	EET CAL 4
Total/NA	Analysis	8151A		1	1 mL	1 mL	394962	12/20/23 23:32	J7WE	EET CAL 4

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22504-1

Client Sample ID: MW-11A-121423

Date Collected: 12/14/23 11:05
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	5 mL	5 mL	45119	12/15/23 14:55	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	45120	12/15/23 14:55	NMI	EET SPK
Total/NA	Prep	1633	RA		552.9 mL	5.0 mL	732663	01/11/24 05:03	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633	RA	1			735085	01/19/24 21:24	S1M	EET SAC
Total/NA	Prep	1633			552.9 mL	5.0 mL	732663	01/11/24 05:03	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633		1	1 mL	1 mL	733287	01/13/24 13:46	RS1	EET SAC
Total/NA	Prep	1633	RE		542.5 mL	5.0 mL	733811	01/16/24 03:55	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633	RE	1	1 mL	1 mL	734386	01/18/24 16:31	S1M	EET SAC
Dissolved	Filtration	FILTRATION			250 mL	250 mL	45148	12/18/23 17:26	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	45147	12/18/23 17:27	AMB	EET SPK
Dissolved	Analysis	6010D		1			45163	12/19/23 13:32	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	45128	12/18/23 10:30	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			45149	12/18/23 15:27	AMB	EET SPK
Dissolved	Filtration	FILTRATION			250 mL	250 mL	446663	12/19/23 16:28	AUA	EET SEA
Dissolved	Prep	3005A			50 mL	50 mL	446761	12/20/23 15:52	JL	EET SEA
Dissolved	Analysis	6020B		5	50 mL	50 mL	447094	12/22/23 09:55	FCW	EET SEA
Total Recoverable	Prep	3005A			50 mL	50 mL	446548	12/18/23 15:58	TMH	EET SEA
Total Recoverable	Analysis	6020B		5	50 mL	50 mL	446858	12/20/23 18:00	TMH	EET SEA
Dissolved	Filtration	FILTRATION			250 mL	250 mL	45148	12/18/23 17:26	AMB	EET SPK
Dissolved	Prep	7470A			50 mL	50 mL	45221	12/27/23 10:16	AMB	EET SPK
Dissolved	Analysis	7470A		1			45244	12/28/23 13:31	AMB	EET SPK
Total/NA	Prep	7470A			50 mL	50 mL	45127	12/18/23 10:28	AMB	EET SPK
Total/NA	Analysis	7470A		1			45139	12/18/23 15:26	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	639548	01/09/24 11:37	MMP	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	45219	12/27/23 10:12	AMB	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	45141	12/18/23 16:57	AMB	EET SPK
Total/NA	Analysis	SM 4500 CN I		1	10 mL	10 mL	638313	12/22/23 13:01	MMP	EET DEN
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	638646	12/28/23 09:19	ABW	EET DEN

Client Sample ID: MW-12A-121423

Date Collected: 12/14/23 14:25
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	43 mL	43 mL	45100	12/15/23 16:56	JSP	EET SPK
Total/NA	Prep	3510C			1047.7 mL	2 mL	446589	12/19/23 08:40	SL	EET SEA
Total/NA	Analysis	8270E		1	1 mL	1 mL	446659	12/19/23 23:20	K1K	EET SEA
Total/NA	Prep	8151A			1053.9 mL	5 mL	394080	12/18/23 21:35	C6FB	EET CAL 4
Total/NA	Analysis	8151A		1	1 mL	1 mL	394962	12/20/23 23:55	J7WE	EET CAL 4
Total/NA	Analysis	300.0		1	5 mL	5 mL	45119	12/15/23 15:05	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	45120	12/15/23 15:05	NMI	EET SPK
Total/NA	Prep	1633	RA		552 mL	5.0 mL	732663	01/11/24 05:03	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633	RA	1			735085	01/19/24 21:42	S1M	EET SAC

Client Sample ID: MW-12A-121423

Lab Sample ID: 590-22504-3

Date Collected: 12/14/23 14:25

Matrix: Water

Date Received: 12/15/23 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633			552 mL	5.0 mL	732663	01/11/24 05:03	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633		1	1 mL	1 mL	733287	01/13/24 14:03	RS1	EET SAC
Total/NA	Prep	1633	RE		513.4 mL	5.0 mL	733811	01/16/24 03:55	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633	RE	1	1 mL	1 mL	734386	01/18/24 16:48	S1M	EET SAC
Dissolved	Filtration	FILTRATION			250 mL	250 mL	45148	12/18/23 17:26	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	45147	12/18/23 17:27	AMB	EET SPK
Dissolved	Analysis	6010D		1			45163	12/19/23 13:36	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	45128	12/18/23 10:30	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			45149	12/18/23 15:31	AMB	EET SPK
Dissolved	Filtration	FILTRATION			250 mL	250 mL	446663	12/19/23 16:28	AUA	EET SEA
Dissolved	Prep	3005A			50 mL	50 mL	446761	12/20/23 15:52	JL	EET SEA
Dissolved	Analysis	6020B		5	50 mL	50 mL	447094	12/22/23 11:29	FCW	EET SEA
Total Recoverable	Prep	3005A			50 mL	50 mL	446548	12/18/23 15:58	TMH	EET SEA
Total Recoverable	Analysis	6020B		5	50 mL	50 mL	446858	12/20/23 18:03	TMH	EET SEA
Dissolved	Filtration	FILTRATION			250 mL	250 mL	45148	12/18/23 17:26	AMB	EET SPK
Dissolved	Prep	7470A			50 mL	50 mL	45221	12/27/23 10:16	AMB	EET SPK
Dissolved	Analysis	7470A		1			45244	12/28/23 13:33	AMB	EET SPK
Total/NA	Prep	7470A			50 mL	50 mL	45127	12/18/23 10:28	AMB	EET SPK
Total/NA	Analysis	7470A		1			45139	12/18/23 15:34	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	639548	01/09/24 11:40	MMP	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	45219	12/27/23 10:12	AMB	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	45141	12/18/23 16:57	AMB	EET SPK
Total/NA	Analysis	SM 4500 CN I		1	10 mL	10 mL	638313	12/22/23 13:04	MMP	EET DEN
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	638646	12/28/23 09:34	ABW	EET DEN

Client Sample ID: EB-121423

Lab Sample ID: 590-22504-4

Date Collected: 12/14/23 08:20

Matrix: Water

Date Received: 12/15/23 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633	RA		550.8 mL	5.0 mL	732663	01/11/24 05:03	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633	RA	1			735085	01/19/24 21:59	S1M	EET SAC
Total/NA	Prep	1633			550.8 mL	5.0 mL	732663	01/11/24 05:03	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633		1	1 mL	1 mL	733287	01/13/24 14:19	RS1	EET SAC
Total/NA	Prep	1633	RE		559.7 mL	5.0 mL	733811	01/16/24 03:55	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633	RE	1	1 mL	1 mL	734386	01/18/24 17:05	S1M	EET SAC

Client Sample ID: FB-121423

Lab Sample ID: 590-22504-5

Date Collected: 12/14/23 08:30

Matrix: Water

Date Received: 12/15/23 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633	RA		567.5 mL	5.0 mL	732663	01/11/24 05:03	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633	RA	1			735085	01/19/24 22:17	S1M	EET SAC

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22504-1

Client Sample ID: FB-121423

Date Collected: 12/14/23 08:30
Date Received: 12/15/23 08:45

Lab Sample ID: 590-22504-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633			567.5 mL	5.0 mL	732663	01/11/24 05:03	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633		1	1 mL	1 mL	733287	01/13/24 14:36	RS1	EET SAC
Total/NA	Prep	1633	RE		548.6 mL	5.0 mL	733811	01/16/24 03:55	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633	RE	1	1 mL	1 mL	734386	01/18/24 17:21	S1M	EET SAC

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494
EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600
EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310
EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Accreditation/Certification Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22504-1

Laboratory: Eurofins Spokane

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C569	01-06-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-24
California	Los Angeles County Sanitation Districts	10109	08-01-24
California	State	3082	07-31-24
Kansas	NELAP	E-10420	08-01-24
Nevada	State	CA00111	07-31-24
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	06-08-26
Washington	State	C916-18	10-11-24

Laboratory: Eurofins Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-24
A2LA	ISO/IEC 17025	2907.01	10-31-25
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	02-10-24
Arizona	State	AZ0713	12-20-24
Arkansas DEQ	State	19-047-0	04-21-24
California	State	2513	01-08-25
Connecticut	State	PH-0686	09-30-24
Florida	NELAP	E87667-57	06-30-24
Georgia	State	4025-011	01-08-25
Illinois	NELAP	2000172019-1	04-30-24
Iowa	State	370	12-01-24
Kansas	NELAP	E-10166	04-30-24
Kentucky (WW)	State	KY98047	12-31-24
Louisiana	NELAP	30785	06-30-14 *
Louisiana	NELAP	30785	06-30-23 *
Louisiana (All)	NELAP	30785	06-30-24
Minnesota	NELAP	1788752	12-31-24
Nevada	State	CO000262020-1	07-31-24
New Hampshire	NELAP	2053	04-28-24
New Jersey	NELAP	230001	06-30-24
New York	NELAP	59923	03-31-24
North Dakota	State	R-034	01-08-24 *
Oklahoma	NELAP	8614	08-31-24
Oregon	NELAP	4025-020	01-08-25
Pennsylvania	NELAP	013	07-31-24

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22504-1

Laboratory: Eurofins Denver (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
South Carolina	State	72002001	01-08-24 *
Texas	NELAP	TX104704183-08-TX	09-30-09 *
Texas	NELAP	T104704183-21-19	09-30-24
USDA	US Federal Programs	P330-20-00065	12-19-25
Utah	NELAP	QUAN5	06-30-13 *
Utah	NELAP	CO000262019-11	07-31-24
Virginia	NELAP	460232	06-14-24
Washington	State	C583	08-03-24
West Virginia DEP	State	354	11-30-24
Wisconsin	State	999615430	08-31-24
Wyoming (UST)	A2LA	2907.01	10-31-25

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-27
ANAB	Dept. of Energy	L2468.01	01-20-27
ANAB	ISO/IEC 17025	L2468	01-20-27
Arizona	State	AZ0708	08-11-24
Arkansas DEQ	State	88-0691	05-18-24
California	State	2897	01-31-24
Colorado	State	CA00044	08-31-24
Florida	NELAP	E87570	06-30-24
Georgia	State	4040	01-29-24
Hawaii	State	<cert No.>	01-29-24
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-24
Louisiana	NELAP	01944	06-30-24
Louisiana (All)	NELAP	01944	06-30-24
Maine	State	CA00004	04-14-24
Michigan	State	9947	01-31-24
Nevada	State	CA00044	07-31-24
New Hampshire	NELAP	2997	04-18-24
New Jersey	NELAP	CA005	06-30-24
New York	NELAP	11666	04-01-24
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-24
Texas	NELAP	T104704399-23-17	05-31-24
US Fish & Wildlife	US Federal Programs	58448	04-30-24
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442023-16	02-29-24
Virginia	NELAP	460278	03-14-24
Washington	State	C581	05-05-24
West Virginia (DW)	State	9930C	01-31-25
Wisconsin	State	998204680	08-31-24
Wyoming	State Program	8TMS-L	01-28-19 *

Laboratory: Eurofins Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22504-1

Laboratory: Eurofins Seattle (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-004	02-19-25
ANAB	Dept. of Defense ELAP	L2236	01-19-25
ANAB	Dept. of Energy	L2236	01-19-25
ANAB	ISO/IEC 17025	L2236	01-19-25
California	State	2954	07-07-24
Florida	NELAP	E87575	06-30-24
Louisiana (All)	NELAP	03073	07-01-24
Maine	State	WA01273	05-02-24
Montana (UST)	State	NA	04-14-27
New Jersey	NELAP	WA014	06-30-24
New York	NELAP	11662	03-31-24
Oregon	NELAP	4167	07-07-24
US Fish & Wildlife	US Federal Programs	A20571	06-30-24
USDA	US Federal Programs	525-23-4-22573	01-04-26
Washington	State	C788	07-13-24
Wisconsin	State	399133460	08-31-24

Method Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22504-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET SPK
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	EET SEA
8151A	Herbicides (GC)	SW846	EET CAL 4
300.0	Anions, Ion Chromatography	EPA	EET SPK
Draft-4 1633	Per- and Polyfluoroalkyl Substances by LC/MS/MS	EPA	EET SAC
6010D	Metals (ICP)	SW846	EET SPK
6020B	Metals (ICP/MS)	SW846	EET SEA
7470A	Mercury (CVAA)	SW846	EET SPK
350.1	Nitrogen, Ammonia	EPA	EET DEN
SM 2320B	Alkalinity	SM	EET SPK
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET SPK
SM 4500 CN I	Cyanide, Weak Acid Dissociable	SM	EET DEN
SM 5310B	Organic Carbon, Total (TOC)	SM	EET DEN
1633	Solid-Phase Extraction (SPE)	EPA	EET SAC
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET SEA
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET SPK
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET SEA
5030C	Purge and Trap	SW846	EET SPK
7470A	Preparation, Mercury	SW846	EET SPK
8151A	Extraction (Herbicides)	SW846	EET CAL 4
FILTRATION	Sample Filtration	None	EET SEA
FILTRATION	Sample Filtration	None	EET SPK

Protocol References:

EPA = US Environmental Protection Agency
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494
EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600
EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310
EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone (509) 924-9200 Phone (509) 924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information	Sampler: Justin Orr	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-9177-2634.1
Client Contact: Justin Orr	Phone: (406) 890-1310	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: GeoEngineers Inc	PWSID:			Job #:
Address: 523 East Second Ave	Due Date Requested: STD			
City: Spokane	TAT Requested (days): STD			
State, Zip: WA, 99202	Compliance Project: Δ Yes Δ No			
Phone:	PO #: Purchase Order not required			
Email: jorr@geoengineers.com	WO #:			
Project Name: Marshall Landfill	Project #: 59002669			
Site	SSOW#:			

Analysis Requested

Preservation Codes

A HCL	M Hexane		
B NaOH	N None		
C Zn Acetate	O AsNaO2		
D Nitric Acid	P Na2O4S		
E NaHSO4	Q Na2SO3		
F MeOH	R Na2S2O3		
G Amchlor	S H2SO4		
H Ascorbic Acid	T TSP Dodecahydrate		
I Ice	U Acetone		
J DI Water	V MCAA		
K EDTA	W pH 4-5		
L EDA	Y Trizma		
Other:	Z other (specify)		

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2320B Alk/Bicarb, 2540C TDS, 300-Cl, NO3, NO2 & SO4	6020B Total As, Cd, Fe, Mn, Pb & Zn	6020B Diss As, Cd, Fe, Mn, Pb & Zn	6010D Total K, Mg & Na, 7470A Total Hg	6010D Dissolved Ca & Mg, 7470 Dissolved Hg	350.1 Ammonia	SM5310B TOC	4500_CN_I_NP Cyanide, Weak Acid Dissociable	8260D Standard Analyte List	8270E Semivolatiles, standard list	8151A Routine Herbicides List (Standard Spike	1633 EPA 1633	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	N	D	N	D	N	S	S	B	A	N	N	N	X	
MW-7B-121423	12/14/23	1300	G	Water			X	X	X	X	X	X	X	X	X	X	X	X		
MW-11A-121423	12/14/23	1105	G	Water			X	X	X	X	X	X	X	X	X	X	X	X		
MW-12A-121423	12/14/23	1425	G	Water			X	X	X	X	X	X	X	X	X	X	X	X		
EB-121423	12/14/23	0820	G	Water														X		
FB-121423	12/14/23	0830	G	Water														X		
				Water																
				Water																

590-22504 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal

Deliverable Requested: I II III IV Other (specify)

Special Instructions/QC Requirements.

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
		12-14-23 / 1600	GEI		12/14/23 1615	GEI
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
		12/15/23 / 1845	GEI		12/15/23 8:45	EETSPO
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact. Δ Yes Δ No	Custody Seal No.	Cooler Temperature(s) °C and Other Remarks: 5.4, 5.5 ✗ 2.8, 2.9 on IR006

1/31/2024

590-22504 Waybill

5099249200
RACKING NUMBER: 710195998783
FedEx.
TRK#
0201 7101 9599 8783
SATURDAY 1:30P
PRIORITY OVERNIGHT
X0 DTHA
92780
CA-US
SNA

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-8492.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Washington		Job #: 590-22504-1
Address: 4955 Yarrow Street, ,	Due Date Requested: 1/2/2024			
City: Arvada	TAT Requested (days):			
State, Zip: CO, 80002				
Phone: 303-736-0100(Tel) 303-431-7171(Fax)	PO #:			
Email:	WO #:			
Project Name: Marshall Landfill	Project #: 59002669			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	350.1	SM5310B/ (MOD) TOC	4500_CN_I_NP/ (MOD) Cyanide, Weak Acid Dissociable	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-7B-121423 (590-22504-1)	12/14/23	13:00 Pacific		Water			X	X	X	3	
MW-11A-121423 (590-22504-2)	12/14/23	11:05 Pacific		Water			X	X	X	3	
MW-12A-121423 (590-22504-3)	12/14/23	14:25 Pacific		Water			X	X	X	3	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)***
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	12/15/23 15:23	EET SPO	[signature]	12-16-23 1010	EETDEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 0.8 IR 0.2 IR AppA

Ver: 06/08/2021

1/31/2024

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-8493.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note): State Program Washington		Job #: 590-22504-1
Address: 880 Riverside Parkway	Due Date Requested: 1/2/2024			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Marshall Landfill	Project #: 59002669			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A HCL, B NaOH, C Zn Acetate, D Nitric Acid, E NaHSO4, F MeOH, G Amchlor, H Ascorbic Acid, I Ice, J DI Water, K EDTA, L EDA, M Hexane, N None, O AsNaO2, P Na2O4S, Q Na2SO3, R Na2S2O3, S H2SO4, T TSP Dodecahydrate, U Acetone, V MCAA, W pH 4-5, Y Trizma, Z - other (specify)

Other:

Sample Identification Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water S=solid, O=waste/oil BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1633/1633_SPE EPA 1633 Method List	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-7B-121423 (590-22504-1)	12/14/23	13:00 Pacific		Water			X	3	
MW-11A-121423 (590-22504-2)	12/14/23	11:05 Pacific		Water			X	3	
MW-12A-121423 (590-22504-3)	12/14/23	14:25 Pacific		Water			X	3	
EB-121423 (590-22504-4)	12/14/23	08:20 Pacific		Water			X	3	
FB-121423 (590-22504-5)	12/14/23	08:30 Pacific		Water			X	3	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I II, III, IV Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	12/15/23 15:37	EET SPO		12/16/23 900	EET SPO
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact. Δ Yes Δ No	Custody Seal No. 2260219	Cooler Temperature(s) °C and Other Remarks: 3.6

Ver: 06/08/2021

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Envir

Loc: 590
22504

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-8490.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Southwest,		Accreditations Required (See note): State Program - Washington		Job #: 590-22504-1
Address: 2841 Dow Avenue, Suite 100, ,	Due Date Requested: 1/2/2024			
City: Tustin	TAT Requested (days):			
State, Zip: CA, 92780				
Phone: 714-895-5494(Tel)	PO #:			
Email:	WO #:			
Project Name: Marshall Landfill	Project #: 59002669			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8151A/8151A_AP Routine Herbicides List (Standard Spike	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-7B-121423 (590-22504-1)	12/14/23	13:00 Pacific		Water			X	1	
MW-11A-121423 (590-22504-2)	12/14/23	11:05 Pacific		Water			X	1	
MW-12A-121423 (590-22504-3)	12/14/23	14:25 Pacific		Water			X	1	

590-22504 Chain of Custody

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	12/15/23 14:40	EET SPO		12/18/23 0905	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: *Melted Ice 11-9 | 11-8 542

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-22504-1

Login Number: 22504
List Number: 1
Creator: Morris, Mackenzie 1

List Source: Eurofins Spokane

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-22504-1

Login Number: 22504
List Number: 5
Creator: Khana, Piyush

List Source: Eurofins Calscience
List Creation: 12/18/23 12:13 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	2300748
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	Water present in cooler; indicates evidence of melted ice.
Cooler Temperature is acceptable.	False	Cooler temperature outside required temperature criteria.
Cooler Temperature is recorded.	True	11.8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-22504-1

Login Number: 22504
List Number: 3
Creator: Martinez, Anthony

List Source: Eurofins Denver
List Creation: 12/16/23 12:11 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-22504-1

Login Number: 22504
List Number: 4
Creator: Simmons, Jason C

List Source: Eurofins Sacramento
List Creation: 12/16/23 03:40 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	2300719
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.4c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-22504-1

Login Number: 22504
List Number: 2
Creator: Prigge, Madison

List Source: Eurofins Seattle
List Creation: 12/16/23 10:37 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	IR12 0.4/0.3
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing

Sacramento Sample Receiving Notes (SSRN)

Tracking # 7801599 8875

Job ___ 590-22504 Field Sheet ___

SO / PO / FO / (SAT) / 2-Day / Ground / UPS / CDO / Courier

GSL / OnTrac / Goldstreak / USPS / Other_____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Therm ID L06 Corr Factor (+ / -) - °C

Ice 1 Wet 1 Gel _____ Other _____

Cooler Custody Seal: 2300719

Cooler ID _____

Temp Observed 3.4 °C Corrected 3.4 °C

From Temp Blank ☐ Sample ☑

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Frozen samples show signs of thaw?	☐	☐	☑

Initials. [illegible] Date. 12-16-23

Unpacking/Labeling The Samples	Yes	No	NA
Containers are not broken or leaking?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
COC is complete w/o discrepancies	☑	☐	☐
Sample custody seal?	☐	☐	☑
Sample containers have legible labels?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Is the Field Sampler's name on COC?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials. [illegible] Date. 12-16-23

Notes _____

Trizma Lot #(s) _____

Ammonium Acetate Lot #(s) _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☑	☐	☐
NCM Filed?	☐	☐	☑
Samples received within hold time?	☐	☐	☑
Log Release checked in TALS?	☐	☐	☑

Initials. [illegible] Date. 12-16-23

Isotope Dilution Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22504-1

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (5-130)	PFPeA (40-130)	13C5PHA (40-130)	C4PFHA (40-130)	C8PFOA (40-130)	C9PFNA (40-130)	C6PFDA (40-130)	13C7PUA (30-130)
590-22504-1	MW-7B-121423	63.6	70.3	66.1	71.0	69.1	74.5	62.2	59.9
590-22504-1 - RA	MW-7B-121423								
590-22504-1 - RE	MW-7B-121423	81.6	89.1	82.4	78.7	86.0	77.4	79.6	67.6
590-22504-2	MW-11A-121423	69.9	75.3	72.7	79.7	68.3	68.1	66.4	67.0
590-22504-2 - RE	MW-11A-121423	77.7	87.4	82.6	107	73.6	80.4	71.9	62.6
590-22504-2 - RA	MW-11A-121423								
590-22504-3	MW-12A-121423	74.1	82.6	79.8	87.4	77.9	80.7	79.9	69.8
590-22504-3 - RE	MW-12A-121423	77.3	79.5	78.1	79.8	73.1	75.7	73.4	71.4
590-22504-3 - RA	MW-12A-121423								
590-22504-4	EB-121423	77.8	80.3	81.9	82.8	76.6	83.9	80.6	82.0
590-22504-4 - RE	EB-121423	78.2	78.8	74.5	80.6	74.0	80.5	72.5	77.0
590-22504-4 - RA	EB-121423								
590-22504-5	FB-121423	77.5	81.0	75.6	83.1	77.1	83.3	78.0	75.2
590-22504-5 - RE	FB-121423	81.1	86.7	82.5	90.9	77.3	80.7	75.4	74.3
590-22504-5 - RA	FB-121423								
LCS 320-732663/3-A	Lab Control Sample	75.0	76.0	71.3	81.6	88.1	77.4	80.1	85.4
LCS 320-732663/3-A - RA	Lab Control Sample								
LCS 320-733811/3-A	Lab Control Sample	77.9	75.8	81.8	78.9	73.0	74.2	71.9	71.6
LCS 320-734764/3-A	Lab Control Sample	81.3	88.5	83.6	85.7	83.9	88.8	79.3	77.2
LCSD 320-732663/4-A	Lab Control Sample Dup	69.8	70.5	70.6	69.6	69.0	64.1	69.2	71.6
LCSD 320-732663/4-A - RA	Lab Control Sample Dup								
LCSD 320-733811/4-A	Lab Control Sample Dup	78.2	85.1	81.9	87.1	70.4	79.4	72.9	77.7
LCSD 320-734764/4-A	Lab Control Sample Dup	82.9	95.2	81.7	85.3	75.3	87.2	80.7	81.7
LLCS 320-732663/2-A	Lab Control Sample	86.3	93.7	85.4	96.0	90.9	93.0	91.7	80.4
LLCS 320-732663/2-A - RA	Lab Control Sample								
LLCS 320-733811/2-A	Lab Control Sample	81.6	82.2	81.3	77.6	75.4	77.5	78.1	75.8
LLCS 320-734764/2-A	Lab Control Sample	82.0	99.0	85.7	95.3	76.8	82.0	86.1	82.8
MB 320-732663/1-A	Method Blank	85.5	90.5	85.5	92.8	85.7	85.0	77.5	70.5
MB 320-732663/1-A - RA	Method Blank								
MB 320-733811/1-A	Method Blank	79.3	87.9	87.2	93.5	79.2	83.3	76.3	75.9
MB 320-734764/1-A	Method Blank	83.6	92.4	85.7	94.8	74.7	82.0	77.6	73.6

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (10-130)	PFTDA (10-130)	C3PFBS (40-135)	C3PFHS (40-130)	C8PFOS (40-130)	PFOSA (40-130)	d3NMFOS (40-170)	d5NEFOS (25-135)
590-22504-1	MW-7B-121423	55.4	34.3	58.0	65.5	69.9	57.6	80.5	81.4
590-22504-1 - RA	MW-7B-121423						66.9		
590-22504-1 - RE	MW-7B-121423	52.0	42.7	78.3	77.0	80.1	76.4	92.3	94.9
590-22504-2	MW-11A-121423	56.7	54.1	63.7	70.4	66.0		63.8	68.2
590-22504-2 - RE	MW-11A-121423	64.7	56.3	82.7	81.4	82.9	82.6	79.4	84.2
590-22504-2 - RA	MW-11A-121423						66.6		
590-22504-3	MW-12A-121423	69.3	62.7	75.7	80.8	86.3		85.7	86.0
590-22504-3 - RE	MW-12A-121423	57.4	52.2	82.5	79.9	80.5	76.4	77.2	72.1
590-22504-3 - RA	MW-12A-121423						79.7		
590-22504-4	EB-121423	80.4	58.8	71.4	78.5	88.3		80.4	86.7
590-22504-4 - RE	EB-121423	70.8	59.7	75.2	79.5	76.4	75.9	74.0	75.1
590-22504-4 - RA	EB-121423						74.6		
590-22504-5	FB-121423	71.1	56.9	70.2	77.3	76.0		70.1	72.4
590-22504-5 - RE	FB-121423	69.5	61.3	81.5	81.8	82.2	77.2	83.0	81.5
590-22504-5 - RA	FB-121423						70.4		

Isotope Dilution Summary

Client: GeoEngineers Inc
Job ID: 590-22504-1
Project/Site: Marshall Landfill

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (10-130)	PFTDA (10-130)	C3PFBS (40-135)	C3PFHS (40-130)	C8PFOS (40-130)	PFOSA (40-130)	d3NMFOS (40-170)	d5NEFOS (25-135)
LCS 320-732663/3-A	Lab Control Sample	80.6	61.4	74.5	77.3	74.3		74.9	69.6
LCS 320-732663/3-A - RA	Lab Control Sample						74.8		
LCS 320-733811/3-A	Lab Control Sample	65.5	46.9	85.9	75.9	74.0	76.8	73.2	76.9
LCS 320-734764/3-A	Lab Control Sample	73.2	70.5	78.4	83.6	82.5	82.5	85.8	84.9
LCSD 320-732663/4-A	Lab Control Sample Dup	62.3	56.5	68.0	69.1	69.2		70.1	67.7
LCSD 320-732663/4-A - RA	Lab Control Sample Dup						64.2		
LCSD 320-733811/4-A	Lab Control Sample Dup	75.7	69.2	72.0	74.4	72.4	73.3	78.7	82.2
LCSD 320-734764/4-A	Lab Control Sample Dup	71.6	62.8	89.1	84.6	87.4	82.3	87.0	89.2
LLCS 320-732663/2-A	Lab Control Sample	75.8	60.7	85.6	87.7	89.9		81.9	82.1
LLCS 320-732663/2-A - RA	Lab Control Sample						83.1		
LLCS 320-733811/2-A	Lab Control Sample	69.2	63.2	79.3	77.4	81.2	71.7	79.5	85.3
LLCS 320-734764/2-A	Lab Control Sample	73.3	71.5	89.0	85.0	83.7	82.4	89.9	81.4
MB 320-732663/1-A	Method Blank	71.2	57.2	82.1	86.6	86.6		77.2	79.3
MB 320-732663/1-A - RA	Method Blank						78.9		
MB 320-733811/1-A	Method Blank	73.0	61.1	84.2	79.8	77.5	75.3	77.4	76.0
MB 320-734764/1-A	Method Blank	59.7	62.5	88.3	83.9	81.1	74.3	84.3	76.1

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M242FTS (40-200)	M262FTS (40-200)	M282FTS (40-300)	HFPODA (40-130)	NMFM (10-130)	NEFM (10-130)	d5NPFSA (10-130)	d3NMFSA (10-130)
590-22504-1	MW-7B-121423	114	116		69.2	55.2	49.7	43.9	53.0
590-22504-1 - RA	MW-7B-121423			111					
590-22504-1 - RE	MW-7B-121423	149	137	121	82.9	53.1	40.9	51.1	58.0
590-22504-2	MW-11A-121423	60.8	63.7		71.2	56.7	48.4	53.9	53.3
590-22504-2 - RE	MW-11A-121423	105	118	91.0	99.0	68.0	68.7	58.1	66.1
590-22504-2 - RA	MW-11A-121423			92.7					
590-22504-3	MW-12A-121423	85.7	77.4		77.0	70.4	66.0	69.9	71.6
590-22504-3 - RE	MW-12A-121423	116	104	91.7	79.6	58.7	55.4	60.7	66.1
590-22504-3 - RA	MW-12A-121423			96.2					
590-22504-4	EB-121423	65.8	63.3		76.3	75.3	69.0	66.1	66.0
590-22504-4 - RE	EB-121423	111	91.5	93.3	81.4	63.3	60.7	60.4	65.0
590-22504-4 - RA	EB-121423			109					
590-22504-5	FB-121423	67.8	70.1		87.3	70.5	60.4	61.4	64.1
590-22504-5 - RE	FB-121423	112	105	97.9	89.0	63.5	70.1	69.6	74.5
590-22504-5 - RA	FB-121423			104					
LCS 320-732663/3-A	Lab Control Sample	64.8	67.6		92.4	70.2	65.1	62.3	62.2
LCS 320-732663/3-A - RA	Lab Control Sample			91.4					
LCS 320-733811/3-A	Lab Control Sample	101	91.3	86.8	76.5	73.6	64.3	69.9	72.0
LCS 320-734764/3-A	Lab Control Sample	90.5	89.2	89.4	89.5	63.1	68.0	61.4	59.2
LCSD 320-732663/4-A	Lab Control Sample Dup	62.1	64.9		67.5	62.8	65.3	58.5	60.8
LCSD 320-732663/4-A - RA	Lab Control Sample Dup			88.5					
LCSD 320-733811/4-A	Lab Control Sample Dup	83.9	91.1	93.1	91.1	67.2	70.8	69.4	73.4
LCSD 320-734764/4-A	Lab Control Sample Dup	90.1	84.2	97.8	88.5	61.6	52.8	57.1	58.7
LLCS 320-732663/2-A	Lab Control Sample	65.8	65.3		96.5	85.7	83.6	75.0	76.2
LLCS 320-732663/2-A - RA	Lab Control Sample			111					
LLCS 320-733811/2-A	Lab Control Sample	107	102	95.8	82.8	61.7	69.8	66.8	70.6
LLCS 320-734764/2-A	Lab Control Sample	82.2	80.2	92.7	93.9	69.9	66.8	64.9	62.6
MB 320-732663/1-A	Method Blank	67.0	71.4		92.7	71.2	73.7	72.1	72.8
MB 320-732663/1-A - RA	Method Blank			114					
MB 320-733811/1-A	Method Blank	117	95.8	97.9	96.2	67.3	67.1	71.1	71.1
MB 320-734764/1-A	Method Blank	76.7	87.1	98.4	97.4	62.6	60.1	55.3	52.4

Isotope Dilution Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22504-1

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
13C5PHA = 13C5 PFHxA
C4PFHA = 13C4 PFHpA
C8PFOA = 13C8 PFOA
C9PFNA = 13C9 PFNA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
C8PFOS = 13C8 PFOS
PFOSA = 13C8 PFOSA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
M242FTS = 13C2 4:2 FTS
M262FTS = 13C2 6:2 FTS
M282FTS = 13C2 8:2 FTS
HFPODA = 13C3 HFPO-DA
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
d5NPFSA = d5-NEtPFOSA
d3NMFSA = d3-NMePFOSA

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ANALYTICAL REPORT

PREPARED FOR

Attn: Justin Orr
GeoEngineers Inc
523 East Second Ave
Spokane, Washington 99202

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JOB DESCRIPTION

Marshall Landfill

JOB NUMBER

590-22513-1

Eurofins Spokane
11922 East 1st Ave
Spokane WA 99206

See page two for job notes and contact information.

my EOL

Job Notes

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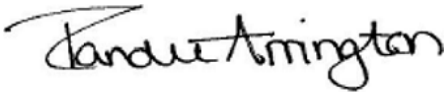

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Job Narrative
590-22513-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 12/15/2023 12:35 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.0°C

Receipt Exceptions
The following samples was received at the laboratory outside the required temperature criteria: MW-2A-121523 (590-22513-1), MW-5A-121523 (590-22513-2) and DUP-121523 (590-22513-3). This does not meet regulatory requirements

GC/MS VOA
Method 8260D: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for analytical batch 590-45132 recovered outside control limits for the following analytes: Chloromethane. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8260D: The continuing calibration verification (CCV) associated with batch 590-45132 recovered above the upper control limit for Trichloroethene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 8260D: The continuing calibration verification (CCV) associated with batch 590-45132 recovered above the upper control limit for 1,1,1-Trichloroethane, 2,2-Dichloropropane, Carbon tetrachloride, Chloromethane and Methyl tert-butyl ether. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS Semi VOA
Method 8270E: The continuing calibration verification (CCV) associated with batch 580-446882 recovered above the upper control limit for 3-Nitroaniline, 4-Nitroaniline, Benzoic acid, Di-n-octyl phthalate and Indeno[1,2,3-cd]pyrene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: MW-2A-121523 (590-22513-1), MW-5A-121523 (590-22513-2), DUP-121523 (590-22513-3) and (CCVIS 580-446882/3).

Method 8270E: The continuing calibration verification (CCV) associated with batch 580-446882 recovered outside acceptance criteria, low biased, for Pentachlorophenol. A reporting limit (RL) standard was analyzed, and the target analytes are detected. Since the associated samples were non-detect for the analyte(s), the data are reported.

Method 8270E: The minimum response factor (RF) criteria for the continuing calibration verification (CCV) analyzed in batch 580-446882 was outside criteria for the following analyte(s): Hexachlorobutadiene and Hexachlorocyclopentadiene. As indicated in the reference method, sample analysis may proceed; however, any detection or non-detection for the affected analyte(s) is considered estimated.

Method 8270E: The following sample(s) was re-prepared outside of preparation holding time due to low LCS/LCSD %R. 8270E.

Method 8270E: Internal standard (ISTD) response for the following sample was low outside of acceptance limits: (CCVIS 580-447355/3). The sample(s) was not re-analyzed due as the low CCVIS would create a high bias in the samples, and the affected samples were ND. Therefore, results have been reported.

Method 8270E: The laboratory control sample (LCS) for preparation batch 580-447085 and analytical batch 580-447355 recovered outside acceptance limits for 1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dichlorophenol, 2,4-Dimethylphenol, 2,4-Dinitrophenol, 2-Chlorophenol, 2-Methylphenol, 2-Nitroaniline, 2-Nitrophenol, 3 & 4 Methylphenol, 4,6-Dinitro-2-methylphenol, 4-Chloro-3-methylphenol, 4-Nitrophenol, Benzoic acid, Hexachlorobutadiene, Hexachlorocyclopentadiene, Hexachloroethane, Naphthalene, Pentachlorophenol and Phenol. There is insufficient sample for re-extraction, as this was the re-extracted sample; therefore, the both sets of data have been reported.

Method 8270E: The sample was re-extracted out of hold time due to failures in batch QC in the original extraction. Therefore, both sets of data have been reported.

DUP-121523 (590-22513-3)

Method 8270E: The continuing calibration verification (CCV) associated with batch 580-447355 recovered above the upper control limit for Benzoic acid. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: DUP-121523 (590-22513-3) and (CCVIS 580-447355/3).

Method 8270E: The CCVIS recovered low outside of control for bis(chloroisopropyl) ether, Pentachlorophenol and Phenol. These analytes have been reported in the previous run, and therefore are not being reported from this extraction.

(CCVIS 580-447355/3)

Method 8270E: Surrogate recovery for the following samples were outside of acceptance limits: DUP-121523 (590-22513-3), (LCS 580-447085/2-A), (LCSD 580-447085/3-A) and (MB 580-447085/1-A). There was insufficient sample to perform a re-extraction; therefore, the data have been reported.

Method 8270E: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 580-447085 and analytical batch 580-447355 recovered outside control limits for the following analytes: 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dichlorophenol, 2,4-Dimethylphenol, 2,4-Dinitrophenol, 2-Chlorophenol, 2-Methylphenol, 2-Nitrophenol, 3 & 4 Methylphenol, 4,6-Dinitro-2-methylphenol, 4-Chloro-3-methylphenol, 4-Nitrophenol, Benzoic acid, Hexachlorobutadiene, Hexachlorocyclopentadiene, Pentachlorophenol and Phenol.

Method 8270E: Surrogate recovery for the following samples were outside of acceptance limits: MW-5A-121523 (590-22513-2), (LCS 580-447085/2-A) and (MB 580-447085/1-A). There was insufficient sample to perform a re-extraction; therefore, the data have been reported.

Method 8270E: The samples were re-extracted out of preparation hold time due to failures in the original extraction.

MW-2A-121523 (590-22513-1) and MW-5A-121523 (590-22513-2)

Method 8270E: The LCS/LCSD recovered out of control for 1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Hexachlorobutadiene, Hexachlorocyclopentadiene, Hexachloroethane and Naphthalene. As these are the re-extracted samples which repeat the original failures, both sets of data have been reported.

(LCS 580-447085/2-A) and (LCSD 580-447085/3-A)

Method 8270E: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 580-447085 and analytical batch 580-447287 recovered outside control limits for the following analytes: 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dichlorophenol, 2,4-Dimethylphenol, 2,4-Dinitrophenol, 2,4-Dinitrotoluene, 2-Chlorophenol, 2-Methylphenol, 3 & 4 Methylphenol, 4,6-Dinitro-2-methylphenol, 4-Chloro-3-methylphenol, 4-Nitrophenol, Benzoic acid, Hexachlorobutadiene, Hexachlorocyclopentadiene, Pentachlorophenol and Phenol.

Method 8270E: The continuing calibration verification (CCV) associated with batch 580-447287 recovered above the upper control limit for 3-Nitroaniline, 4-Nitroaniline, Benzoic acid and Di-n-octyl phthalate. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: MW-2A-121523 (590-22513-1), MW-5A-121523 (590-22513-2) and (CCVIS 580-447287/3).

Method 8270E: The LCS/LCSD associated with batch 580-447287 recovered above the upper control limit for 4-Nitroaniline and Benzo[b]fluoranthene. The samples associated with the LCS/LCSD were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: MW-2A-121523 (590-22513-1), MW-5A-121523 (590-22513-2), (LCS

580-447085/2-A) and (LCSD 580-447085/3-A).

Method 8270E: The LCS/LCSD recovered low outside of control criteria for 1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1-Methylnaphthalene, 2-Methylnaphthalene, Hexachlorobutadiene, Hexachlorocyclopentadiene, Hexachloroethane and Naphthalene. The samples were re-extracted out of hold time, so both sets of data are reported.

(LCS 580-446826/2-A) and (LCSD 580-446826/3-A)

Method 8270E: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 580-446826 and analytical batch 580-446882 recovered outside control limits for the following analytes: 1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Hexachlorobutadiene, Hexachlorocyclopentadiene and Hexachloroethane.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Herbicides
Method 8151A: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 570-394080 and analytical batch 570-394962 recovered outside control limits for the following analytes: 2,4,5-T, 2,4,5-TP (Silvex), 2,4-D, 2,4-DB, Dalapon, Dicamba, Dichlorprop, Dinoseb and MCPA.

Method 8151A: The continuing calibration verification (CCV) associated with 570-394962 recovered high and outside the control limits for Dalapon and Dichlorprop on one column. Results are confirmed on both columns and reported from the passing column. The associated samples are: MW-2A-121523 (590-22513-1), MW-5A-121523 (590-22513-2) and DUP-121523 (590-22513-3).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

PFAS
Method 1633: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-732888.

Method 1633: The following samples in preparation batch 320-732888 were yellow in color following extraction. MW-2A-121523 (590-22513-1), MW-5A-121523 (590-22513-2) and DUP-121523 (590-22513-3)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
Method 6010D: The low level initial calibration verification (ICVL) associated with batch 590-45149 recovered above the upper control limit for Sodium. The samples associated with this ICVL were either 10x the spike amount, have hits below the RL, or non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
Method 2320B: The method blank for analytical batch 590-45219 contained Alkalinity and Bicarbonate Alkalinity as CaCO3 above the method detection limit (MDL). Associated samples were not re-analyzed because the method blank results were less than the reporting limit (RL)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Sample Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22513-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-22513-1	MW-2A-121523	Water	12/15/23 10:00	12/15/23 12:35
590-22513-2	MW-5A-121523	Water	12/15/23 08:25	12/15/23 12:35
590-22513-3	DUP-121523	Water	12/15/23 08:00	12/15/23 12:35
590-22513-4	Trip Blank	Water	12/15/23 08:00	12/15/23 12:35

Definitions/Glossary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22513-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.

GC Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
^1+	Initial Calibration Verification (ICV) is outside acceptance limits, high biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22513-1

Client Sample ID: MW-2A-121523
Date Collected: 12/15/23 10:00
Date Received: 12/15/23 12:35

Lab Sample ID: 590-22513-1
Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.48	ug/L			12/18/23 17:12	1
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			12/18/23 17:12	1
1,1,2,2-Tetrachloroethane	ND		2.0	0.32	ug/L			12/18/23 17:12	1
1,1,2-Trichloroethane	ND		2.0	0.43	ug/L			12/18/23 17:12	1
1,1-Dichloroethane	ND		1.0	0.29	ug/L			12/18/23 17:12	1
1,1-Dichloroethene	ND		1.0	0.20	ug/L			12/18/23 17:12	1
1,1-Dichloropropene	ND		1.0	0.50	ug/L			12/18/23 17:12	1
1,2,3-Trichlorobenzene	ND		1.0	0.33	ug/L			12/18/23 17:12	1
1,2,3-Trichloropropane	ND		2.0	0.50	ug/L			12/18/23 17:12	1
1,2,4-Trichlorobenzene	ND		1.0	0.50	ug/L			12/18/23 17:12	1
1,2,4-Trimethylbenzene	ND		1.0	0.31	ug/L			12/18/23 17:12	1
1,2-Dibromo-3-Chloropropane	ND		10	1.5	ug/L			12/18/23 17:12	1
1,2-Dibromoethane (EDB)	ND		1.0	0.20	ug/L			12/18/23 17:12	1
1,2-Dichlorobenzene	ND		1.0	0.23	ug/L			12/18/23 17:12	1
1,2-Dichloroethane	ND		1.0	0.31	ug/L			12/18/23 17:12	1
1,2-Dichloropropane	ND		1.0	0.23	ug/L			12/18/23 17:12	1
1,3,5-Trimethylbenzene	ND		1.0	0.32	ug/L			12/18/23 17:12	1
1,3-Dichlorobenzene	ND		1.0	0.14	ug/L			12/18/23 17:12	1
1,3-Dichloropropane	ND		2.0	0.21	ug/L			12/18/23 17:12	1
1,4-Dichlorobenzene	ND		1.0	0.28	ug/L			12/18/23 17:12	1
2,2-Dichloropropane	ND		2.0	0.66	ug/L			12/18/23 17:12	1
2-Chlorotoluene	ND		1.0	0.36	ug/L			12/18/23 17:12	1
4-Chlorotoluene	ND		1.0	0.26	ug/L			12/18/23 17:12	1
Benzene	ND		0.40	0.093	ug/L			12/18/23 17:12	1
Bromobenzene	ND		1.0	0.28	ug/L			12/18/23 17:12	1
Bromochloromethane	ND		2.0	0.44	ug/L			12/18/23 17:12	1
Bromodichloromethane	ND		1.0	0.29	ug/L			12/18/23 17:12	1
Bromoform	ND		5.0	0.66	ug/L			12/18/23 17:12	1
Bromomethane	ND		5.0	0.76	ug/L			12/18/23 17:12	1
Carbon tetrachloride	ND		1.0	0.40	ug/L			12/18/23 17:12	1
Chlorobenzene	ND		1.0	0.32	ug/L			12/18/23 17:12	1
Chloroethane	ND		2.0	0.40	ug/L			12/18/23 17:12	1
Chloroform	ND		1.0	0.24	ug/L			12/18/23 17:12	1
Chloromethane	ND	*+	3.0	0.50	ug/L			12/18/23 17:12	1
cis-1,2-Dichloroethene	ND		1.0	0.23	ug/L			12/18/23 17:12	1
cis-1,3-Dichloropropene	ND		1.0	0.25	ug/L			12/18/23 17:12	1
Dibromochloromethane	ND		2.0	0.33	ug/L			12/18/23 17:12	1
Dibromomethane	ND		2.0	0.50	ug/L			12/18/23 17:12	1
Dichlorodifluoromethane	ND		2.0	0.64	ug/L			12/18/23 17:12	1
Ethylbenzene	ND		1.0	0.20	ug/L			12/18/23 17:12	1
Hexachlorobutadiene	ND		2.0	0.21	ug/L			12/18/23 17:12	1
Isopropylbenzene	ND		1.0	0.24	ug/L			12/18/23 17:12	1
m,p-Xylene	ND		2.0	0.28	ug/L			12/18/23 17:12	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			12/18/23 17:12	1
Methylene Chloride	ND		5.0	2.2	ug/L			12/18/23 17:12	1
Naphthalene	ND		2.0	0.63	ug/L			12/18/23 17:12	1
n-Butylbenzene	ND		1.0	0.20	ug/L			12/18/23 17:12	1
N-Propylbenzene	ND		1.0	0.25	ug/L			12/18/23 17:12	1
o-Xylene	ND		1.0	0.16	ug/L			12/18/23 17:12	1

Client Sample ID: MW-2A-121523
Date Collected: 12/15/23 10:00
Date Received: 12/15/23 12:35

Lab Sample ID: 590-22513-1
Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
p-Isopropyltoluene	ND		1.0	0.27	ug/L			12/18/23 17:12	1
sec-Butylbenzene	ND		1.0	0.22	ug/L			12/18/23 17:12	1
Styrene	ND		1.0	0.24	ug/L			12/18/23 17:12	1
tert-Butylbenzene	ND		1.0	0.12	ug/L			12/18/23 17:12	1
Tetrachloroethene	ND		1.0	0.22	ug/L			12/18/23 17:12	1
Toluene	ND		1.0	0.31	ug/L			12/18/23 17:12	1
trans-1,2-Dichloroethene	ND		1.0	0.20	ug/L			12/18/23 17:12	1
trans-1,3-Dichloropropene	ND		1.0	0.45	ug/L			12/18/23 17:12	1
Trichloroethene	ND		1.0	0.20	ug/L			12/18/23 17:12	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/18/23 17:12	1
Vinyl chloride	ND		0.40	0.13	ug/L			12/18/23 17:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 120*		*12/18/23 17:12*	*1*
4-Bromofluorobenzene (Surr)	*99*		*76 - 120*		*12/18/23 17:12*	*1*
Dibromofluoromethane (Surr)	*108*		*80 - 123*		*12/18/23 17:12*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*12/18/23 17:12*	*1*

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND	*1 *-	0.38	0.086	ug/L		12/21/23 08:20	12/21/23 19:30	1
1,2-Dichlorobenzene	ND	*1 *-	0.38	0.048	ug/L		12/21/23 08:20	12/21/23 19:30	1
1,3-Dichlorobenzene	ND	*1 *-	0.38	0.038	ug/L		12/21/23 08:20	12/21/23 19:30	1
1,4-Dichlorobenzene	ND	*1 *-	0.38	0.038	ug/L		12/21/23 08:20	12/21/23 19:30	1
1-Methylnaphthalene	ND	*-	0.95	0.048	ug/L		12/21/23 08:20	12/21/23 19:30	1
2,4,5-Trichlorophenol	ND		0.38	0.095	ug/L		12/21/23 08:20	12/21/23 19:30	1
2,4,6-Trichlorophenol	ND		0.57	0.095	ug/L		12/21/23 08:20	12/21/23 19:30	1
2,4-Dichlorophenol	ND		0.95	0.19	ug/L		12/21/23 08:20	12/21/23 19:30	1
2,4-Dimethylphenol	ND		3.8	0.15	ug/L		12/21/23 08:20	12/21/23 19:30	1
2,4-Dinitrophenol	ND		4.8	0.43	ug/L		12/21/23 08:20	12/21/23 19:30	1
2,4-Dinitrotoluene	ND		0.95	0.095	ug/L		12/21/23 08:20	12/21/23 19:30	1
2,6-Dinitrotoluene	ND		0.38	0.095	ug/L		12/21/23 08:20	12/21/23 19:30	1
2-Chloronaphthalene	ND		0.95	0.067	ug/L		12/21/23 08:20	12/21/23 19:30	1
2-Chlorophenol	ND		0.95	0.048	ug/L		12/21/23 08:20	12/21/23 19:30	1
2-Methylnaphthalene	ND	*-	0.38	0.057	ug/L		12/21/23 08:20	12/21/23 19:30	1
2-Methylphenol	ND		0.57	0.048	ug/L		12/21/23 08:20	12/21/23 19:30	1
2-Nitroaniline	ND		0.95	0.095	ug/L		12/21/23 08:20	12/21/23 19:30	1
2-Nitrophenol	ND		0.95	0.067	ug/L		12/21/23 08:20	12/21/23 19:30	1
3 & 4 Methylphenol	ND		0.57	0.095	ug/L		12/21/23 08:20	12/21/23 19:30	1
3,3'-Dichlorobenzidine	ND		0.95	0.11	ug/L		12/21/23 08:20	12/21/23 19:30	1
3-Nitroaniline	ND		2.9	0.15	ug/L		12/21/23 08:20	12/21/23 19:30	1
4,6-Dinitro-2-methylphenol	ND		1.9	0.52	ug/L		12/21/23 08:20	12/21/23 19:30	1
4-Bromophenyl phenyl ether	ND		0.57	0.057	ug/L		12/21/23 08:20	12/21/23 19:30	1
4-Chloro-3-methylphenol	ND		0.57	0.12	ug/L		12/21/23 08:20	12/21/23 19:30	1
4-Chloroaniline	ND		1.9	0.14	ug/L		12/21/23 08:20	12/21/23 19:30	1
4-Chlorophenyl phenyl ether	ND		0.57	0.048	ug/L		12/21/23 08:20	12/21/23 19:30	1
4-Nitroaniline	ND		1.9	0.20	ug/L		12/21/23 08:20	12/21/23 19:30	1
4-Nitrophenol	ND		9.5	1.6	ug/L		12/21/23 08:20	12/21/23 19:30	1
Acenaphthene	ND		0.38	0.048	ug/L		12/21/23 08:20	12/21/23 19:30	1
Acenaphthylene	ND		0.95	0.057	ug/L		12/21/23 08:20	12/21/23 19:30	1

Client Sample ID: MW-2A-121523
Date Collected: 12/15/23 10:00
Date Received: 12/15/23 12:35

Lab Sample ID: 590-22513-1
Matrix: Water

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	ND		0.95	0.048	ug/L		12/21/23 08:20	12/21/23 19:30	1
Benzo[a]anthracene	ND		0.24	0.048	ug/L		12/21/23 08:20	12/21/23 19:30	1
Benzo[a]pyrene	ND		0.24	0.038	ug/L		12/21/23 08:20	12/21/23 19:30	1
Benzo[b]fluoranthene	ND		0.24	0.038	ug/L		12/21/23 08:20	12/21/23 19:30	1
Benzo[g,h,i]perylene	ND		0.24	0.038	ug/L		12/21/23 08:20	12/21/23 19:30	1
Benzo[k]fluoranthene	ND		0.24	0.048	ug/L		12/21/23 08:20	12/21/23 19:30	1
Benzoic acid	ND		9.5	1.3	ug/L		12/21/23 08:20	12/21/23 19:30	1
Benzyl alcohol	ND		4.8	0.17	ug/L		12/21/23 08:20	12/21/23 19:30	1
Bis(2-chloroethoxy)methane	ND		0.57	0.048	ug/L		12/21/23 08:20	12/21/23 19:30	1
Bis(2-chloroethyl)ether	ND		0.095	0.029	ug/L		12/21/23 08:20	12/21/23 19:30	1
Bis(2-ethylhexyl) phthalate	ND		2.9	0.70	ug/L		12/21/23 08:20	12/21/23 19:30	1
bis(chloroisopropyl) ether	ND		0.24	0.057	ug/L		12/21/23 08:20	12/21/23 19:30	1
Butyl benzyl phthalate	ND		3.8	0.26	ug/L		12/21/23 08:20	12/21/23 19:30	1
Carbazole	ND		0.57	0.095	ug/L		12/21/23 08:20	12/21/23 19:30	1
Chrysene	ND		0.24	0.086	ug/L		12/21/23 08:20	12/21/23 19:30	1
Dibenz(a,h)anthracene	ND		0.24	0.067	ug/L		12/21/23 08:20	12/21/23 19:30	1
Dibenzofuran	ND		0.38	0.095	ug/L		12/21/23 08:20	12/21/23 19:30	1
Diethyl phthalate	ND		0.95	0.14	ug/L		12/21/23 08:20	12/21/23 19:30	1
Dimethyl phthalate	ND		0.57	0.057	ug/L		12/21/23 08:20	12/21/23 19:30	1
Di-n-butyl phthalate	ND		9.5	2.8	ug/L		12/21/23 08:20	12/21/23 19:30	1
Di-n-octyl phthalate	ND		0.95	0.12	ug/L		12/21/23 08:20	12/21/23 19:30	1
Fluoranthene	ND		0.24	0.057	ug/L		12/21/23 08:20	12/21/23 19:30	1
Fluorene	ND		0.24	0.048	ug/L		12/21/23 08:20	12/21/23 19:30	1
Hexachlorobenzene	ND		0.57	0.076	ug/L		12/21/23 08:20	12/21/23 19:30	1
Hexachlorobutadiene	ND	*1 *-	0.95	0.076	ug/L		12/21/23 08:20	12/21/23 19:30	1
Hexachlorocyclopentadiene	ND	*1 *-	0.95	0.13	ug/L		12/21/23 08:20	12/21/23 19:30	1
Hexachloroethane	ND	*1 *-	0.95	0.048	ug/L		12/21/23 08:20	12/21/23 19:30	1
Indeno[1,2,3-cd]pyrene	ND		0.38	0.12	ug/L		12/21/23 08:20	12/21/23 19:30	1
Isophorone	ND		0.38	0.095	ug/L		12/21/23 08:20	12/21/23 19:30	1
Naphthalene	ND	*-	0.38	0.15	ug/L		12/21/23 08:20	12/21/23 19:30	1
Nitrobenzene	ND		0.95	0.038	ug/L		12/21/23 08:20	12/21/23 19:30	1
N-Nitrosodi-n-propylamine	ND		0.38	0.057	ug/L		12/21/23 08:20	12/21/23 19:30	1
N-Nitrosodiphenylamine	ND		0.95	0.067	ug/L		12/21/23 08:20	12/21/23 19:30	1
Pentachlorophenol	ND		4.8	0.48	ug/L		12/21/23 08:20	12/21/23 19:30	1
Phenanthrene	ND		0.95	0.11	ug/L		12/21/23 08:20	12/21/23 19:30	1
Phenol	ND		0.95	0.15	ug/L		12/21/23 08:20	12/21/23 19:30	1
Pyrene	ND		0.95	0.038	ug/L		12/21/23 08:20	12/21/23 19:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*76*		*50 - 130*	*12/21/23 08:20*	*12/21/23 19:30*	*1*
2-Fluorobiphenyl	*61*		*35 - 120*	*12/21/23 08:20*	*12/21/23 19:30*	*1*
2-Fluorophenol (Surr)	*40*		*21 - 120*	*12/21/23 08:20*	*12/21/23 19:30*	*1*
Nitrobenzene-d5 (Surr)	*65*		*39 - 120*	*12/21/23 08:20*	*12/21/23 19:30*	*1*
Phenol-d5 (Surr)	*23*		*10 - 120*	*12/21/23 08:20*	*12/21/23 19:30*	*1*
Terphenyl-d14 (Surr)	*80*		*63 - 137*	*12/21/23 08:20*	*12/21/23 19:30*	*1*

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND	H *-	0.38	0.086	ug/L		12/27/23 08:30	12/28/23 20:17	1
1,2-Dichlorobenzene	ND	H *-	0.38	0.048	ug/L		12/27/23 08:30	12/28/23 20:17	1

Client Sample ID: MW-2A-121523
Date Collected: 12/15/23 10:00
Date Received: 12/15/23 12:35

Lab Sample ID: 590-22513-1
Matrix: Water

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - RE (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND	H *-	0.38	0.038	ug/L		12/27/23 08:30	12/28/23 20:17	1
1,4-Dichlorobenzene	ND	H *-	0.38	0.038	ug/L		12/27/23 08:30	12/28/23 20:17	1
1-Methylnaphthalene	ND	H	0.95	0.048	ug/L		12/27/23 08:30	12/28/23 20:17	1
2-Methylnaphthalene	ND	H	0.38	0.057	ug/L		12/27/23 08:30	12/28/23 20:17	1
Hexachlorobutadiene	ND	H *- *1	0.95	0.076	ug/L		12/27/23 08:30	12/28/23 20:17	1
Hexachlorocyclopentadiene	ND	H *- *1	0.95	0.13	ug/L		12/27/23 08:30	12/28/23 20:17	1
Hexachloroethane	ND	H *-	0.95	0.048	ug/L		12/27/23 08:30	12/28/23 20:17	1
Naphthalene	ND	H *-	0.38	0.15	ug/L		12/27/23 08:30	12/28/23 20:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*54*		*50 - 130*	*12/27/23 08:30*	*12/28/23 20:17*	*1*
2-Fluorobiphenyl	*45*		*35 - 120*	*12/27/23 08:30*	*12/28/23 20:17*	*1*
2-Fluorophenol (Surr)	*28*		*21 - 120*	*12/27/23 08:30*	*12/28/23 20:17*	*1*
Nitrobenzene-d5 (Surr)	*48*		*39 - 120*	*12/27/23 08:30*	*12/28/23 20:17*	*1*
Phenol-d5 (Surr)	*16*		*10 - 120*	*12/27/23 08:30*	*12/28/23 20:17*	*1*
Terphenyl-d14 (Surr)	*63*		*63 - 137*	*12/27/23 08:30*	*12/28/23 20:17*	*1*

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-T	ND	*1	0.48	0.20	ug/L		12/18/23 21:35	12/21/23 00:17	1
2,4,5-TP (Silvex)	ND		0.48	0.13	ug/L		12/18/23 21:35	12/21/23 00:17	1
2,4-D	ND	*1	4.8	1.9	ug/L		12/18/23 21:35	12/21/23 00:17	1
2,4-DB	ND		4.8	3.3	ug/L		12/18/23 21:35	12/21/23 00:17	1
Dalapon	ND	*1	12	4.5	ug/L		12/18/23 21:35	12/21/23 00:17	1
Dicamba	ND	*1	0.48	0.27	ug/L		12/18/23 21:35	12/21/23 00:17	1
Dichlorprop	ND	*1	4.8	1.9	ug/L		12/18/23 21:35	12/21/23 00:17	1
Dinoseb	ND	*1	2.4	2.1	ug/L		12/18/23 21:35	12/21/23 00:17	1
MCPA	ND	*1	480	330	ug/L		12/18/23 21:35	12/21/23 00:17	1
MCPP	ND		480	290	ug/L		12/18/23 21:35	12/21/23 00:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*81*		*20 - 161*	*12/18/23 21:35*	*12/21/23 00:17*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**59**		0.80	0.42	mg/L			12/15/23 16:15	1
Nitrate as N	ND		0.20	0.057	mg/L			12/15/23 16:15	1
Nitrite as N	ND		0.20	0.069	mg/L			12/15/23 16:15	1
Sulfate	**14**		0.50	0.13	mg/L			12/15/23 16:15	1

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**5.6**	**J**	7.2	1.8	ng/L		01/12/24 04:17	01/16/24 02:09	1
Perfluoropentanoic acid (PFPeA)	**3.1**	**J**	3.6	0.90	ng/L		01/12/24 04:17	01/16/24 02:09	1
Perfluorohexanoic acid (PFHxA)	**1.5**	**J**	1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:09	1
Perfluoroheptanoic acid (PFHpA)	**1.3**	**J**	1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:09	1
Perfluorooctanoic acid (PFOA)	**7.6**		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:09	1
Perfluorononanoic acid (PFNA)	**0.90**	**J**	1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:09	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:09	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:09	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:09	1

Client Sample ID: MW-2A-121523
Date Collected: 12/15/23 10:00
Date Received: 12/15/23 12:35

Lab Sample ID: 590-22513-1
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:09	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:09	1
Perfluorobutanesulfonic acid (PFBS)	**4.2**		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:09	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:09	1
Perfluorohexanesulfonic acid (PFHxS)	**2.6**		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:09	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:09	1
Perfluorooctanesulfonic acid (PFOS)	**11**		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:09	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:09	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:09	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:09	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		7.2	1.8	ng/L		01/12/24 04:17	01/16/24 02:09	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		7.2	1.8	ng/L		01/12/24 04:17	01/16/24 02:09	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:09	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:09	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:09	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:09	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:09	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		18	4.5	ng/L		01/12/24 04:17	01/16/24 02:09	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		18	4.5	ng/L		01/12/24 04:17	01/16/24 02:09	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		7.2	1.8	ng/L		01/12/24 04:17	01/16/24 02:09	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		7.2	1.8	ng/L		01/12/24 04:17	01/16/24 02:09	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		3.6	0.90	ng/L		01/12/24 04:17	01/16/24 02:09	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		3.6	0.90	ng/L		01/12/24 04:17	01/16/24 02:09	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		3.6	0.90	ng/L		01/12/24 04:17	01/16/24 02:09	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		7.2	1.8	ng/L		01/12/24 04:17	01/16/24 02:09	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		7.2	1.8	ng/L		01/12/24 04:17	01/16/24 02:09	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		3.6	0.90	ng/L		01/12/24 04:17	01/16/24 02:09	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		9.0	2.3	ng/L		01/12/24 04:17	01/16/24 02:09	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		45	11	ng/L		01/12/24 04:17	01/16/24 02:09	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		45	11	ng/L		01/12/24 04:17	01/16/24 02:09	1

Client Sample ID: MW-2A-121523

Date Collected: 12/15/23 10:00
Date Received: 12/15/23 12:35

Lab Sample ID: 590-22513-1

Matrix: Water

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*77.7*		*5 - 130*	*01/12/24 04:17*	*01/16/24 02:09*	*1*
13C5 PFPeA	*83.0*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:09*	*1*
13C5 PFHxA	*86.2*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:09*	*1*
13C4 PFHpA	*79.1*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:09*	*1*
13C8 PFOA	*77.7*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:09*	*1*
13C9 PFNA	*75.7*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:09*	*1*
13C6 PFDA	*67.8*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:09*	*1*
13C7 PFUnA	*65.7*		*30 - 130*	*01/12/24 04:17*	*01/16/24 02:09*	*1*
13C2 PFDoA	*54.9*		*10 - 130*	*01/12/24 04:17*	*01/16/24 02:09*	*1*
13C2 PFTeDA	*39.5*		*10 - 130*	*01/12/24 04:17*	*01/16/24 02:09*	*1*
13C3 PFBS	*80.4*		*40 - 135*	*01/12/24 04:17*	*01/16/24 02:09*	*1*
13C3 PFHxS	*80.3*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:09*	*1*
13C8 PFOS	*83.9*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:09*	*1*
13C8 PFOSA	*78.4*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:09*	*1*
d3-NMeFOSAA	*66.6*		*40 - 170*	*01/12/24 04:17*	*01/16/24 02:09*	*1*
d5-NEtFOSAA	*72.2*		*25 - 135*	*01/12/24 04:17*	*01/16/24 02:09*	*1*
13C2 6:2 FTS	*93.2*		*40 - 200*	*01/12/24 04:17*	*01/16/24 02:09*	*1*
13C2 8:2 FTS	*78.2*		*40 - 300*	*01/12/24 04:17*	*01/16/24 02:09*	*1*
13C3 HFPO-DA	*84.9*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:09*	*1*
d7-N-MeFOSE-M	*56.9*		*10 - 130*	*01/12/24 04:17*	*01/16/24 02:09*	*1*
d9-N-EtFOSE-M	*51.5*		*10 - 130*	*01/12/24 04:17*	*01/16/24 02:09*	*1*
d5-NEtPFOSA	*58.5*		*10 - 130*	*01/12/24 04:17*	*01/16/24 02:09*	*1*
d3-NMePFOSA	*64.5*		*10 - 130*	*01/12/24 04:17*	*01/16/24 02:09*	*1*

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		7.2	1.8	ng/L		01/12/24 04:17	01/18/24 13:59	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 4:2 FTS	*98.6*		*40 - 200*	*01/12/24 04:17*	*01/18/24 13:59*	*1*

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**16**		1.0	0.13	mg/L		12/18/23 10:30	12/18/23 15:35	1
Potassium	**7.8**		0.50	0.29	mg/L		12/18/23 10:30	12/18/23 15:35	1
Sodium	**42**	**^1+**	0.50	0.20	mg/L		12/18/23 10:30	12/18/23 15:35	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**41**		2.0	0.20	mg/L		12/18/23 17:27	12/19/23 13:40	1
Magnesium	**17**		1.0	0.13	mg/L		12/18/23 17:27	12/19/23 13:40	1

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0020**	**J**	0.0050	0.0010	mg/L		12/18/23 15:58	12/20/23 18:06	5
Cadmium	ND		0.0020	0.00019	mg/L		12/18/23 15:58	12/20/23 18:06	5
Iron	ND		0.50	0.067	mg/L		12/18/23 15:58	12/20/23 18:06	5
Lead	ND		0.0020	0.00020	mg/L		12/18/23 15:58	12/20/23 18:06	5
Manganese	ND		0.010	0.0023	mg/L		12/18/23 15:58	12/20/23 18:06	5
Zinc	ND		0.035	0.0046	mg/L		12/18/23 15:58	12/20/23 18:06	5

Client Sample ID: MW-2A-121523

Lab Sample ID: 590-22513-1

Date Collected: 12/15/23 10:00

Matrix: Water

Date Received: 12/15/23 12:35

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0024**	**J**	0.0050	0.0010	mg/L		12/20/23 15:52	12/22/23 11:46	5
Cadmium	ND		0.0020	0.00019	mg/L		12/20/23 15:52	12/22/23 11:46	5
Iron	ND		0.50	0.067	mg/L		12/20/23 15:52	12/22/23 11:46	5
Lead	ND		0.0020	0.00020	mg/L		12/20/23 15:52	12/22/23 11:46	5
Manganese	ND		0.010	0.0023	mg/L		12/20/23 15:52	12/22/23 11:46	5
Zinc	ND		0.035	0.0046	mg/L		12/20/23 15:52	12/22/23 11:46	5

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		12/18/23 10:28	12/18/23 15:36	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		12/27/23 10:16	12/28/23 13:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	**0.042**	**J**	0.10	0.029	mg/L			01/09/24 11:26	1
Alkalinity (SM 2320B)	**210**	**B**	20	5.0	mg/L			12/27/23 10:12	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**210**	**B**	20	5.0	mg/L			12/27/23 10:12	1
Total Dissolved Solids (SM 2540C)	**340**		25	13	mg/L			12/18/23 16:57	1
Cyanide, Weak Acid Dissociable (SM 4500 CN I)	ND		0.010	0.0050	mg/L			12/22/23 13:07	1
Total Organic Carbon - Duplicates (SM 5310B)	**4.2**		1.0	0.35	mg/L			12/28/23 06:34	1

Client Sample ID: MW-5A-121523

Lab Sample ID: 590-22513-2

Date Collected: 12/15/23 08:25

Matrix: Water

Date Received: 12/15/23 12:35

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.48	ug/L			12/18/23 17:34	1
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			12/18/23 17:34	1
1,1,2,2-Tetrachloroethane	ND		2.0	0.32	ug/L			12/18/23 17:34	1
1,1,2-Trichloroethane	ND		2.0	0.43	ug/L			12/18/23 17:34	1
1,1-Dichloroethane	ND		1.0	0.29	ug/L			12/18/23 17:34	1
1,1-Dichloroethene	ND		1.0	0.20	ug/L			12/18/23 17:34	1
1,1-Dichloropropene	ND		1.0	0.50	ug/L			12/18/23 17:34	1
1,2,3-Trichlorobenzene	ND		1.0	0.33	ug/L			12/18/23 17:34	1
1,2,3-Trichloropropane	ND		2.0	0.50	ug/L			12/18/23 17:34	1
1,2,4-Trichlorobenzene	ND		1.0	0.50	ug/L			12/18/23 17:34	1
1,2,4-Trimethylbenzene	ND		1.0	0.31	ug/L			12/18/23 17:34	1
1,2-Dibromo-3-Chloropropane	ND		10	1.5	ug/L			12/18/23 17:34	1
1,2-Dibromoethane (EDB)	ND		1.0	0.20	ug/L			12/18/23 17:34	1
1,2-Dichlorobenzene	ND		1.0	0.23	ug/L			12/18/23 17:34	1
1,2-Dichloroethane	ND		1.0	0.31	ug/L			12/18/23 17:34	1
1,2-Dichloropropane	ND		1.0	0.23	ug/L			12/18/23 17:34	1
1,3,5-Trimethylbenzene	ND		1.0	0.32	ug/L			12/18/23 17:34	1
1,3-Dichlorobenzene	ND		1.0	0.14	ug/L			12/18/23 17:34	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22513-1

Client Sample ID: MW-5A-121523
Date Collected: 12/15/23 08:25
Date Received: 12/15/23 12:35

Lab Sample ID: 590-22513-2
Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichloropropane	ND		2.0	0.21	ug/L			12/18/23 17:34	1
1,4-Dichlorobenzene	ND		1.0	0.28	ug/L			12/18/23 17:34	1
2,2-Dichloropropane	ND		2.0	0.66	ug/L			12/18/23 17:34	1
2-Chlorotoluene	ND		1.0	0.36	ug/L			12/18/23 17:34	1
4-Chlorotoluene	ND		1.0	0.26	ug/L			12/18/23 17:34	1
Benzene	ND		0.40	0.093	ug/L			12/18/23 17:34	1
Bromobenzene	ND		1.0	0.28	ug/L			12/18/23 17:34	1
Bromochloromethane	ND		2.0	0.44	ug/L			12/18/23 17:34	1
Bromodichloromethane	ND		1.0	0.29	ug/L			12/18/23 17:34	1
Bromoform	ND		5.0	0.66	ug/L			12/18/23 17:34	1
Bromomethane	ND		5.0	0.76	ug/L			12/18/23 17:34	1
Carbon tetrachloride	ND		1.0	0.40	ug/L			12/18/23 17:34	1
Chlorobenzene	ND		1.0	0.32	ug/L			12/18/23 17:34	1
Chloroethane	ND		2.0	0.40	ug/L			12/18/23 17:34	1
Chloroform	ND		1.0	0.24	ug/L			12/18/23 17:34	1
Chloromethane	ND	*+	3.0	0.50	ug/L			12/18/23 17:34	1
cis-1,2-Dichloroethene	ND		1.0	0.23	ug/L			12/18/23 17:34	1
cis-1,3-Dichloropropene	ND		1.0	0.25	ug/L			12/18/23 17:34	1
Dibromochloromethane	ND		2.0	0.33	ug/L			12/18/23 17:34	1
Dibromomethane	ND		2.0	0.50	ug/L			12/18/23 17:34	1
Dichlorodifluoromethane	ND		2.0	0.64	ug/L			12/18/23 17:34	1
Ethylbenzene	ND		1.0	0.20	ug/L			12/18/23 17:34	1
Hexachlorobutadiene	ND		2.0	0.21	ug/L			12/18/23 17:34	1
Isopropylbenzene	ND		1.0	0.24	ug/L			12/18/23 17:34	1
m,p-Xylene	ND		2.0	0.28	ug/L			12/18/23 17:34	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			12/18/23 17:34	1
Methylene Chloride	ND		5.0	2.2	ug/L			12/18/23 17:34	1
Naphthalene	ND		2.0	0.63	ug/L			12/18/23 17:34	1
n-Butylbenzene	ND		1.0	0.20	ug/L			12/18/23 17:34	1
N-Propylbenzene	ND		1.0	0.25	ug/L			12/18/23 17:34	1
o-Xylene	ND		1.0	0.16	ug/L			12/18/23 17:34	1
p-Isopropyltoluene	ND		1.0	0.27	ug/L			12/18/23 17:34	1
sec-Butylbenzene	ND		1.0	0.22	ug/L			12/18/23 17:34	1
Styrene	ND		1.0	0.24	ug/L			12/18/23 17:34	1
tert-Butylbenzene	ND		1.0	0.12	ug/L			12/18/23 17:34	1
Tetrachloroethene	**0.84**	**J**	1.0	0.22	ug/L			12/21/23 14:39	1
Toluene	ND		1.0	0.31	ug/L			12/18/23 17:34	1
trans-1,2-Dichloroethene	ND		1.0	0.20	ug/L			12/18/23 17:34	1
trans-1,3-Dichloropropene	ND		1.0	0.45	ug/L			12/18/23 17:34	1
Trichloroethene	ND		1.0	0.20	ug/L			12/18/23 17:34	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/18/23 17:34	1
Vinyl chloride	ND		0.40	0.13	ug/L			12/18/23 17:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*		*12/18/23 17:34*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*80 - 120*		*12/21/23 14:39*	*1*
4-Bromofluorobenzene (Surr)	*96*		*76 - 120*		*12/18/23 17:34*	*1*
4-Bromofluorobenzene (Surr)	*94*		*76 - 120*		*12/21/23 14:39*	*1*
Dibromofluoromethane (Surr)	*109*		*80 - 123*		*12/18/23 17:34*	*1*
Dibromofluoromethane (Surr)	*108*		*80 - 123*		*12/21/23 14:39*	*1*

Client Sample ID: MW-5A-121523

Date Collected: 12/15/23 08:25
Date Received: 12/15/23 12:35

Lab Sample ID: 590-22513-2

Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*80 - 120*		*12/18/23 17:34*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*12/21/23 14:39*	*1*

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND	*1 *-	0.38	0.086	ug/L		12/21/23 08:20	12/21/23 19:55	1
1,2-Dichlorobenzene	ND	*1 *-	0.38	0.048	ug/L		12/21/23 08:20	12/21/23 19:55	1
1,3-Dichlorobenzene	ND	*1 *-	0.38	0.038	ug/L		12/21/23 08:20	12/21/23 19:55	1
1,4-Dichlorobenzene	ND	*1 *-	0.38	0.038	ug/L		12/21/23 08:20	12/21/23 19:55	1
1-Methylnaphthalene	ND	*-	0.96	0.048	ug/L		12/21/23 08:20	12/21/23 19:55	1
2,4,5-Trichlorophenol	ND		0.38	0.096	ug/L		12/21/23 08:20	12/21/23 19:55	1
2,4,6-Trichlorophenol	ND		0.57	0.096	ug/L		12/21/23 08:20	12/21/23 19:55	1
2,4-Dichlorophenol	ND		0.96	0.19	ug/L		12/21/23 08:20	12/21/23 19:55	1
2,4-Dimethylphenol	ND		3.8	0.15	ug/L		12/21/23 08:20	12/21/23 19:55	1
2,4-Dinitrophenol	ND		4.8	0.43	ug/L		12/21/23 08:20	12/21/23 19:55	1
2,4-Dinitrotoluene	ND		0.96	0.096	ug/L		12/21/23 08:20	12/21/23 19:55	1
2,6-Dinitrotoluene	ND		0.38	0.096	ug/L		12/21/23 08:20	12/21/23 19:55	1
2-Chloronaphthalene	ND		0.96	0.067	ug/L		12/21/23 08:20	12/21/23 19:55	1
2-Chlorophenol	ND		0.96	0.048	ug/L		12/21/23 08:20	12/21/23 19:55	1
2-Methylnaphthalene	ND	*-	0.38	0.057	ug/L		12/21/23 08:20	12/21/23 19:55	1
2-Methylphenol	ND		0.57	0.048	ug/L		12/21/23 08:20	12/21/23 19:55	1
2-Nitroaniline	ND		0.96	0.096	ug/L		12/21/23 08:20	12/21/23 19:55	1
2-Nitrophenol	ND		0.96	0.067	ug/L		12/21/23 08:20	12/21/23 19:55	1
3 & 4 Methylphenol	ND		0.57	0.096	ug/L		12/21/23 08:20	12/21/23 19:55	1
3,3'-Dichlorobenzidine	ND		0.96	0.11	ug/L		12/21/23 08:20	12/21/23 19:55	1
3-Nitroaniline	ND		2.9	0.15	ug/L		12/21/23 08:20	12/21/23 19:55	1
4,6-Dinitro-2-methylphenol	ND		1.9	0.53	ug/L		12/21/23 08:20	12/21/23 19:55	1
4-Bromophenyl phenyl ether	ND		0.57	0.057	ug/L		12/21/23 08:20	12/21/23 19:55	1
4-Chloro-3-methylphenol	ND		0.57	0.12	ug/L		12/21/23 08:20	12/21/23 19:55	1
4-Chloroaniline	ND		1.9	0.14	ug/L		12/21/23 08:20	12/21/23 19:55	1
4-Chlorophenyl phenyl ether	ND		0.57	0.048	ug/L		12/21/23 08:20	12/21/23 19:55	1
4-Nitroaniline	ND		1.9	0.20	ug/L		12/21/23 08:20	12/21/23 19:55	1
4-Nitrophenol	ND		9.6	1.6	ug/L		12/21/23 08:20	12/21/23 19:55	1
Acenaphthene	ND		0.38	0.048	ug/L		12/21/23 08:20	12/21/23 19:55	1
Acenaphthylene	ND		0.96	0.057	ug/L		12/21/23 08:20	12/21/23 19:55	1
Anthracene	ND		0.96	0.048	ug/L		12/21/23 08:20	12/21/23 19:55	1
Benzo[a]anthracene	ND		0.24	0.048	ug/L		12/21/23 08:20	12/21/23 19:55	1
Benzo[a]pyrene	ND		0.24	0.038	ug/L		12/21/23 08:20	12/21/23 19:55	1
Benzo[b]fluoranthene	ND		0.24	0.038	ug/L		12/21/23 08:20	12/21/23 19:55	1
Benzo[g,h,i]perylene	ND		0.24	0.038	ug/L		12/21/23 08:20	12/21/23 19:55	1
Benzo[k]fluoranthene	ND		0.24	0.048	ug/L		12/21/23 08:20	12/21/23 19:55	1
Benzoic acid	ND		9.6	1.3	ug/L		12/21/23 08:20	12/21/23 19:55	1
Benzyl alcohol	ND		4.8	0.17	ug/L		12/21/23 08:20	12/21/23 19:55	1
Bis(2-chloroethoxy)methane	ND		0.57	0.048	ug/L		12/21/23 08:20	12/21/23 19:55	1
Bis(2-chloroethyl)ether	ND		0.096	0.029	ug/L		12/21/23 08:20	12/21/23 19:55	1
Bis(2-ethylhexyl) phthalate	ND		2.9	0.71	ug/L		12/21/23 08:20	12/21/23 19:55	1
bis(chloroisopropyl) ether	ND		0.24	0.057	ug/L		12/21/23 08:20	12/21/23 19:55	1
Butyl benzyl phthalate	ND		3.8	0.26	ug/L		12/21/23 08:20	12/21/23 19:55	1
Carbazole	ND		0.57	0.096	ug/L		12/21/23 08:20	12/21/23 19:55	1

Client Sample ID: MW-5A-121523
Date Collected: 12/15/23 08:25
Date Received: 12/15/23 12:35

Lab Sample ID: 590-22513-2
Matrix: Water

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	ND		0.24	0.086	ug/L		12/21/23 08:20	12/21/23 19:55	1
Dibenz(a,h)anthracene	ND		0.24	0.067	ug/L		12/21/23 08:20	12/21/23 19:55	1
Dibenzofuran	ND		0.38	0.096	ug/L		12/21/23 08:20	12/21/23 19:55	1
Diethyl phthalate	ND		0.96	0.14	ug/L		12/21/23 08:20	12/21/23 19:55	1
Dimethyl phthalate	ND		0.57	0.057	ug/L		12/21/23 08:20	12/21/23 19:55	1
Di-n-butyl phthalate	ND		9.6	2.8	ug/L		12/21/23 08:20	12/21/23 19:55	1
Di-n-octyl phthalate	ND		0.96	0.12	ug/L		12/21/23 08:20	12/21/23 19:55	1
Fluoranthene	ND		0.24	0.057	ug/L		12/21/23 08:20	12/21/23 19:55	1
Fluorene	ND		0.24	0.048	ug/L		12/21/23 08:20	12/21/23 19:55	1
Hexachlorobenzene	ND		0.57	0.076	ug/L		12/21/23 08:20	12/21/23 19:55	1
Hexachlorobutadiene	ND	*1 *-	0.96	0.076	ug/L		12/21/23 08:20	12/21/23 19:55	1
Hexachlorocyclopentadiene	ND	*1 *-	0.96	0.13	ug/L		12/21/23 08:20	12/21/23 19:55	1
Hexachloroethane	ND	*1 *-	0.96	0.048	ug/L		12/21/23 08:20	12/21/23 19:55	1
Indeno[1,2,3-cd]pyrene	ND		0.38	0.12	ug/L		12/21/23 08:20	12/21/23 19:55	1
Isophorone	ND		0.38	0.096	ug/L		12/21/23 08:20	12/21/23 19:55	1
Naphthalene	ND	*-	0.38	0.15	ug/L		12/21/23 08:20	12/21/23 19:55	1
Nitrobenzene	ND		0.96	0.038	ug/L		12/21/23 08:20	12/21/23 19:55	1
N-Nitrosodi-n-propylamine	ND		0.38	0.057	ug/L		12/21/23 08:20	12/21/23 19:55	1
N-Nitrosodiphenylamine	ND		0.96	0.067	ug/L		12/21/23 08:20	12/21/23 19:55	1
Pentachlorophenol	ND		4.8	0.49	ug/L		12/21/23 08:20	12/21/23 19:55	1
Phenanthrene	ND		0.96	0.11	ug/L		12/21/23 08:20	12/21/23 19:55	1
Phenol	ND		0.96	0.15	ug/L		12/21/23 08:20	12/21/23 19:55	1
Pyrene	ND		0.96	0.038	ug/L		12/21/23 08:20	12/21/23 19:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*71*		*50 - 130*	*12/21/23 08:20*	*12/21/23 19:55*	*1*
2-Fluorobiphenyl	*65*		*35 - 120*	*12/21/23 08:20*	*12/21/23 19:55*	*1*
2-Fluorophenol (Surr)	*44*		*21 - 120*	*12/21/23 08:20*	*12/21/23 19:55*	*1*
Nitrobenzene-d5 (Surr)	*74*		*39 - 120*	*12/21/23 08:20*	*12/21/23 19:55*	*1*
Phenol-d5 (Surr)	*26*		*10 - 120*	*12/21/23 08:20*	*12/21/23 19:55*	*1*
Terphenyl-d14 (Surr)	*76*		*63 - 137*	*12/21/23 08:20*	*12/21/23 19:55*	*1*

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND	H *-	0.39	0.088	ug/L		12/27/23 08:30	12/28/23 20:41	1
1,2-Dichlorobenzene	ND	H *-	0.39	0.049	ug/L		12/27/23 08:30	12/28/23 20:41	1
1,3-Dichlorobenzene	ND	H *-	0.39	0.039	ug/L		12/27/23 08:30	12/28/23 20:41	1
1,4-Dichlorobenzene	ND	H *-	0.39	0.039	ug/L		12/27/23 08:30	12/28/23 20:41	1
1-Methylnaphthalene	ND	H	0.98	0.049	ug/L		12/27/23 08:30	12/28/23 20:41	1
2-Methylnaphthalene	ND	H	0.39	0.059	ug/L		12/27/23 08:30	12/28/23 20:41	1
Hexachloroethane	ND	H *-	0.98	0.049	ug/L		12/27/23 08:30	12/28/23 20:41	1
Naphthalene	ND	H *-	0.39	0.16	ug/L		12/27/23 08:30	12/28/23 20:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*54*		*50 - 130*	*12/27/23 08:30*	*12/28/23 20:41*	*1*
2-Fluorobiphenyl	*49*		*35 - 120*	*12/27/23 08:30*	*12/28/23 20:41*	*1*
2-Fluorophenol (Surr)	*31*		*21 - 120*	*12/27/23 08:30*	*12/28/23 20:41*	*1*
Nitrobenzene-d5 (Surr)	*52*		*39 - 120*	*12/27/23 08:30*	*12/28/23 20:41*	*1*
Phenol-d5 (Surr)	*18*		*10 - 120*	*12/27/23 08:30*	*12/28/23 20:41*	*1*
Terphenyl-d14 (Surr)	*59*	*S1-*	*63 - 137*	*12/27/23 08:30*	*12/28/23 20:41*	*1*

Client Sample ID: MW-5A-121523

Date Collected: 12/15/23 08:25
Date Received: 12/15/23 12:35

Lab Sample ID: 590-22513-2

Matrix: Water

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-T	ND	*1	0.49	0.21	ug/L		12/18/23 21:35	12/21/23 00:39	1
2,4,5-TP (Silvex)	ND		0.49	0.13	ug/L		12/18/23 21:35	12/21/23 00:39	1
2,4-D	ND	*1	4.9	1.9	ug/L		12/18/23 21:35	12/21/23 00:39	1
2,4-DB	ND		4.9	3.4	ug/L		12/18/23 21:35	12/21/23 00:39	1
Dalapon	ND	*1	12	4.6	ug/L		12/18/23 21:35	12/21/23 00:39	1
Dicamba	ND	*1	0.49	0.28	ug/L		12/18/23 21:35	12/21/23 00:39	1
Dichlorprop	ND	*1	4.9	1.9	ug/L		12/18/23 21:35	12/21/23 00:39	1
Dinoseb	ND	*1	2.4	2.1	ug/L		12/18/23 21:35	12/21/23 00:39	1
MCPA	ND	*1	490	340	ug/L		12/18/23 21:35	12/21/23 00:39	1
MCPP	ND		490	300	ug/L		12/18/23 21:35	12/21/23 00:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*74*		*20 - 161*	*12/18/23 21:35*	*12/21/23 00:39*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**33**		0.80	0.42	mg/L			12/15/23 16:24	1
Nitrate as N	**5.7**		0.20	0.057	mg/L			12/15/23 16:24	1
Nitrite as N	ND		0.20	0.069	mg/L			12/15/23 16:24	1
Sulfate	**46**		0.50	0.13	mg/L			12/15/23 16:24	1

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**23**		7.3	1.8	ng/L		01/12/24 04:17	01/16/24 02:25	1
Perfluoropentanoic acid (PFPeA)	**17**		3.6	0.91	ng/L		01/12/24 04:17	01/16/24 02:25	1
Perfluorohexanoic acid (PFHxA)	**27**		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:25	1
Perfluoroheptanoic acid (PFHpA)	**20**		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:25	1
Perfluorooctanoic acid (PFOA)	**53**		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:25	1
Perfluorononanoic acid (PFNA)	**2.1**		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:25	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:25	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:25	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:25	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:25	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:25	1
Perfluorobutanesulfonic acid (PFBS)	**14**		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:25	1
Perfluoropentanesulfonic acid (PFPeS)	**10**		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:25	1
Perfluorohexanesulfonic acid (PFHxS)	**49**		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:25	1
Perfluoroheptanesulfonic acid (PFHpS)	**0.77**	**J**	1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:25	1
Perfluorooctanesulfonic acid (PFOS)	**29**		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:25	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:25	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:25	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:25	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		7.3	1.8	ng/L		01/12/24 04:17	01/16/24 02:25	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		7.3	1.8	ng/L		01/12/24 04:17	01/16/24 02:25	1

Client Sample ID: MW-5A-121523
Date Collected: 12/15/23 08:25
Date Received: 12/15/23 12:35

Lab Sample ID: 590-22513-2
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (PFOSA)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:25	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:25	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:25	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:25	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.8	0.45	ng/L		01/12/24 04:17	01/16/24 02:25	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		18	4.5	ng/L		01/12/24 04:17	01/16/24 02:25	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		18	4.5	ng/L		01/12/24 04:17	01/16/24 02:25	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		7.3	1.8	ng/L		01/12/24 04:17	01/16/24 02:25	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		7.3	1.8	ng/L		01/12/24 04:17	01/16/24 02:25	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		3.6	0.91	ng/L		01/12/24 04:17	01/16/24 02:25	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		3.6	0.91	ng/L		01/12/24 04:17	01/16/24 02:25	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		3.6	0.91	ng/L		01/12/24 04:17	01/16/24 02:25	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		7.3	1.8	ng/L		01/12/24 04:17	01/16/24 02:25	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		7.3	1.8	ng/L		01/12/24 04:17	01/16/24 02:25	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		3.6	0.91	ng/L		01/12/24 04:17	01/16/24 02:25	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		9.1	2.3	ng/L		01/12/24 04:17	01/16/24 02:25	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		45	11	ng/L		01/12/24 04:17	01/16/24 02:25	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		45	11	ng/L		01/12/24 04:17	01/16/24 02:25	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*80.2*		*5 - 130*	*01/12/24 04:17*	*01/16/24 02:25*	*1*
13C5 PFPeA	*83.5*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:25*	*1*
13C5 PFHxA	*90.6*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:25*	*1*
13C4 PFHpA	*87.9*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:25*	*1*
13C8 PFOA	*80.4*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:25*	*1*
13C9 PFNA	*76.8*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:25*	*1*
13C6 PFDA	*77.0*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:25*	*1*
13C7 PFUnA	*71.3*		*30 - 130*	*01/12/24 04:17*	*01/16/24 02:25*	*1*
13C2 PFDoA	*71.6*		*10 - 130*	*01/12/24 04:17*	*01/16/24 02:25*	*1*
13C2 PFTeDA	*54.2*		*10 - 130*	*01/12/24 04:17*	*01/16/24 02:25*	*1*
13C3 PFBS	*82.4*		*40 - 135*	*01/12/24 04:17*	*01/16/24 02:25*	*1*
13C3 PFHxS	*77.1*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:25*	*1*
13C8 PFOS	*85.4*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:25*	*1*
13C8 PFOSA	*86.7*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:25*	*1*
d3-NMeFOSAA	*72.9*		*40 - 170*	*01/12/24 04:17*	*01/16/24 02:25*	*1*
d5-NEtFOSAA	*79.4*		*25 - 135*	*01/12/24 04:17*	*01/16/24 02:25*	*1*
13C2 6:2 FTS	*85.1*		*40 - 200*	*01/12/24 04:17*	*01/16/24 02:25*	*1*

Client Sample ID: MW-5A-121523

Date Collected: 12/15/23 08:25
Date Received: 12/15/23 12:35

Lab Sample ID: 590-22513-2

Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 8:2 FTS	*78.9*		*40 - 300*	*01/12/24 04:17*	*01/16/24 02:25*	*1*
13C3 HFPO-DA	*87.1*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:25*	*1*
d7-N-MeFOSE-M	*63.4*		*10 - 130*	*01/12/24 04:17*	*01/16/24 02:25*	*1*
d9-N-EtFOSE-M	*65.5*		*10 - 130*	*01/12/24 04:17*	*01/16/24 02:25*	*1*
d5-NEtPFOSA	*67.3*		*10 - 130*	*01/12/24 04:17*	*01/16/24 02:25*	*1*
d3-NMePFOSA	*73.3*		*10 - 130*	*01/12/24 04:17*	*01/16/24 02:25*	*1*

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		7.3	1.8	ng/L		01/12/24 04:17	01/18/24 14:16	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 4:2 FTS	*107*		*40 - 200*	*01/12/24 04:17*	*01/18/24 14:16*	*1*

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**16**		1.0	0.13	mg/L		12/18/23 10:30	12/18/23 15:40	1
Potassium	**4.9**		0.50	0.29	mg/L		12/18/23 10:30	12/18/23 15:40	1
Sodium	**28**	**^1+**	0.50	0.20	mg/L		12/18/23 10:30	12/18/23 15:40	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**120**		2.0	0.20	mg/L		12/18/23 17:27	12/19/23 13:44	1
Magnesium	**17**		1.0	0.13	mg/L		12/18/23 17:27	12/19/23 13:44	1

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0011**	**J**	0.0050	0.0010	mg/L		12/18/23 15:58	12/20/23 17:54	5
Cadmium	ND		0.0020	0.00019	mg/L		12/18/23 15:58	12/20/23 17:54	5
Iron	**0.095**	**J**	0.50	0.067	mg/L		12/18/23 15:58	12/20/23 17:54	5
Lead	ND		0.0020	0.00020	mg/L		12/18/23 15:58	12/20/23 17:54	5
Manganese	ND		0.010	0.0023	mg/L		12/18/23 15:58	12/20/23 17:54	5
Zinc	ND		0.035	0.0046	mg/L		12/18/23 15:58	12/20/23 17:54	5

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0014**	**J**	0.0050	0.0010	mg/L		12/20/23 15:52	12/22/23 11:54	5
Cadmium	ND		0.0020	0.00019	mg/L		12/20/23 15:52	12/22/23 11:54	5
Iron	**0.074**	**J**	0.50	0.067	mg/L		12/20/23 15:52	12/22/23 11:54	5
Lead	ND		0.0020	0.00020	mg/L		12/20/23 15:52	12/22/23 11:54	5
Manganese	ND		0.010	0.0023	mg/L		12/20/23 15:52	12/22/23 11:54	5
Zinc	ND		0.035	0.0046	mg/L		12/20/23 15:52	12/22/23 11:54	5

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		12/18/23 10:28	12/18/23 15:39	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		12/27/23 10:16	12/28/23 13:38	1

Client Sample ID: MW-5A-121523

Lab Sample ID: 590-22513-2

Date Collected: 12/15/23 08:25

Matrix: Water

Date Received: 12/15/23 12:35

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	**0.052**	**J**	0.10	0.029	mg/L			01/09/24 11:30	1
Alkalinity (SM 2320B)	**320**	**B**	20	5.0	mg/L			12/27/23 10:12	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**320**	**B**	20	5.0	mg/L			12/27/23 10:12	1
Total Dissolved Solids (SM 2540C)	**520**		25	13	mg/L			12/18/23 16:57	1
Cyanide, Weak Acid Dissociable (SM 4500 CN I)	ND		0.010	0.0050	mg/L			12/22/23 13:09	1
Total Organic Carbon - Duplicates (SM 5310B)	**2.0**		1.0	0.35	mg/L			12/28/23 08:05	1

Client Sample ID: DUP-121523

Lab Sample ID: 590-22513-3

Date Collected: 12/15/23 08:00

Matrix: Water

Date Received: 12/15/23 12:35

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.48	ug/L			12/18/23 17:56	1
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			12/18/23 17:56	1
1,1,2,2-Tetrachloroethane	ND		2.0	0.32	ug/L			12/18/23 17:56	1
1,1,2-Trichloroethane	ND		2.0	0.43	ug/L			12/18/23 17:56	1
1,1-Dichloroethane	ND		1.0	0.29	ug/L			12/18/23 17:56	1
1,1-Dichloroethene	ND		1.0	0.20	ug/L			12/18/23 17:56	1
1,1-Dichloropropene	ND		1.0	0.50	ug/L			12/18/23 17:56	1
1,2,3-Trichlorobenzene	ND		1.0	0.33	ug/L			12/18/23 17:56	1
1,2,3-Trichloropropane	ND		2.0	0.50	ug/L			12/18/23 17:56	1
1,2,4-Trichlorobenzene	ND		1.0	0.50	ug/L			12/18/23 17:56	1
1,2,4-Trimethylbenzene	ND		1.0	0.31	ug/L			12/18/23 17:56	1
1,2-Dibromo-3-Chloropropane	ND		10	1.5	ug/L			12/18/23 17:56	1
1,2-Dibromoethane (EDB)	ND		1.0	0.20	ug/L			12/18/23 17:56	1
1,2-Dichlorobenzene	ND		1.0	0.23	ug/L			12/18/23 17:56	1
1,2-Dichloroethane	ND		1.0	0.31	ug/L			12/18/23 17:56	1
1,2-Dichloropropane	ND		1.0	0.23	ug/L			12/18/23 17:56	1
1,3,5-Trimethylbenzene	ND		1.0	0.32	ug/L			12/18/23 17:56	1
1,3-Dichlorobenzene	ND		1.0	0.14	ug/L			12/18/23 17:56	1
1,3-Dichloropropane	ND		2.0	0.21	ug/L			12/18/23 17:56	1
1,4-Dichlorobenzene	ND		1.0	0.28	ug/L			12/18/23 17:56	1
2,2-Dichloropropane	ND		2.0	0.66	ug/L			12/18/23 17:56	1
2-Chlorotoluene	ND		1.0	0.36	ug/L			12/18/23 17:56	1
4-Chlorotoluene	ND		1.0	0.26	ug/L			12/18/23 17:56	1
Benzene	ND		0.40	0.093	ug/L			12/18/23 17:56	1
Bromobenzene	ND		1.0	0.28	ug/L			12/18/23 17:56	1
Bromochloromethane	ND		2.0	0.44	ug/L			12/18/23 17:56	1
Bromodichloromethane	ND		1.0	0.29	ug/L			12/18/23 17:56	1
Bromoform	ND		5.0	0.66	ug/L			12/18/23 17:56	1
Bromomethane	ND		5.0	0.76	ug/L			12/18/23 17:56	1
Carbon tetrachloride	ND		1.0	0.40	ug/L			12/18/23 17:56	1
Chlorobenzene	ND		1.0	0.32	ug/L			12/18/23 17:56	1
Chloroethane	ND		2.0	0.40	ug/L			12/18/23 17:56	1
Chloroform	ND		1.0	0.24	ug/L			12/18/23 17:56	1
Chloromethane	ND	*+	3.0	0.50	ug/L			12/18/23 17:56	1
cis-1,2-Dichloroethene	ND		1.0	0.23	ug/L			12/18/23 17:56	1

Client Sample ID: DUP-121523
Date Collected: 12/15/23 08:00
Date Received: 12/15/23 12:35

Lab Sample ID: 590-22513-3
Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,3-Dichloropropene	ND		1.0	0.25	ug/L			12/18/23 17:56	1
Dibromochloromethane	ND		2.0	0.33	ug/L			12/18/23 17:56	1
Dibromomethane	ND		2.0	0.50	ug/L			12/18/23 17:56	1
Dichlorodifluoromethane	ND		2.0	0.64	ug/L			12/18/23 17:56	1
Ethylbenzene	ND		1.0	0.20	ug/L			12/18/23 17:56	1
Hexachlorobutadiene	ND		2.0	0.21	ug/L			12/18/23 17:56	1
Isopropylbenzene	ND		1.0	0.24	ug/L			12/18/23 17:56	1
m,p-Xylene	ND		2.0	0.28	ug/L			12/18/23 17:56	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			12/18/23 17:56	1
Methylene Chloride	ND		5.0	2.2	ug/L			12/18/23 17:56	1
Naphthalene	ND		2.0	0.63	ug/L			12/18/23 17:56	1
n-Butylbenzene	ND		1.0	0.20	ug/L			12/18/23 17:56	1
N-Propylbenzene	ND		1.0	0.25	ug/L			12/18/23 17:56	1
o-Xylene	ND		1.0	0.16	ug/L			12/18/23 17:56	1
p-Isopropyltoluene	ND		1.0	0.27	ug/L			12/18/23 17:56	1
sec-Butylbenzene	ND		1.0	0.22	ug/L			12/18/23 17:56	1
Styrene	ND		1.0	0.24	ug/L			12/18/23 17:56	1
tert-Butylbenzene	ND		1.0	0.12	ug/L			12/18/23 17:56	1
Tetrachloroethene	**0.80**	**J**	1.0	0.22	ug/L			12/21/23 15:01	1
Toluene	ND		1.0	0.31	ug/L			12/18/23 17:56	1
trans-1,2-Dichloroethene	ND		1.0	0.20	ug/L			12/18/23 17:56	1
trans-1,3-Dichloropropene	ND		1.0	0.45	ug/L			12/18/23 17:56	1
Trichloroethene	ND		1.0	0.20	ug/L			12/18/23 17:56	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/18/23 17:56	1
Vinyl chloride	ND		0.40	0.13	ug/L			12/18/23 17:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*80 - 120*		*12/18/23 17:56*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*		*12/21/23 15:01*	*1*
4-Bromofluorobenzene (Surr)	*92*		*76 - 120*		*12/18/23 17:56*	*1*
4-Bromofluorobenzene (Surr)	*92*		*76 - 120*		*12/21/23 15:01*	*1*
Dibromofluoromethane (Surr)	*110*		*80 - 123*		*12/18/23 17:56*	*1*
Dibromofluoromethane (Surr)	*110*		*80 - 123*		*12/21/23 15:01*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*12/18/23 17:56*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*12/21/23 15:01*	*1*

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND	*1 *-	0.38	0.086	ug/L		12/21/23 08:20	12/21/23 20:19	1
1,2-Dichlorobenzene	ND	*1 *-	0.38	0.048	ug/L		12/21/23 08:20	12/21/23 20:19	1
1,3-Dichlorobenzene	ND	*1 *-	0.38	0.038	ug/L		12/21/23 08:20	12/21/23 20:19	1
1,4-Dichlorobenzene	ND	*1 *-	0.38	0.038	ug/L		12/21/23 08:20	12/21/23 20:19	1
1-Methylnaphthalene	ND	*-	0.95	0.048	ug/L		12/21/23 08:20	12/21/23 20:19	1
2,4,5-Trichlorophenol	ND		0.38	0.095	ug/L		12/21/23 08:20	12/21/23 20:19	1
2,4,6-Trichlorophenol	ND		0.57	0.095	ug/L		12/21/23 08:20	12/21/23 20:19	1
2,4-Dichlorophenol	ND		0.95	0.19	ug/L		12/21/23 08:20	12/21/23 20:19	1
2,4-Dimethylphenol	ND		3.8	0.15	ug/L		12/21/23 08:20	12/21/23 20:19	1
2,4-Dinitrophenol	ND		4.8	0.43	ug/L		12/21/23 08:20	12/21/23 20:19	1
2,4-Dinitrotoluene	ND		0.95	0.095	ug/L		12/21/23 08:20	12/21/23 20:19	1
2,6-Dinitrotoluene	ND		0.38	0.095	ug/L		12/21/23 08:20	12/21/23 20:19	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22513-1

Client Sample ID: DUP-121523
Date Collected: 12/15/23 08:00
Date Received: 12/15/23 12:35

Lab Sample ID: 590-22513-3
Matrix: Water

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.95	0.067	ug/L		12/21/23 08:20	12/21/23 20:19	1
2-Chlorophenol	ND		0.95	0.048	ug/L		12/21/23 08:20	12/21/23 20:19	1
2-Methylnaphthalene	ND	*-	0.38	0.057	ug/L		12/21/23 08:20	12/21/23 20:19	1
2-Methylphenol	ND		0.57	0.048	ug/L		12/21/23 08:20	12/21/23 20:19	1
2-Nitroaniline	ND		0.95	0.095	ug/L		12/21/23 08:20	12/21/23 20:19	1
2-Nitrophenol	ND		0.95	0.067	ug/L		12/21/23 08:20	12/21/23 20:19	1
3 & 4 Methylphenol	ND		0.57	0.095	ug/L		12/21/23 08:20	12/21/23 20:19	1
3,3'-Dichlorobenzidine	ND		0.95	0.11	ug/L		12/21/23 08:20	12/21/23 20:19	1
3-Nitroaniline	ND		2.9	0.15	ug/L		12/21/23 08:20	12/21/23 20:19	1
4,6-Dinitro-2-methylphenol	ND		1.9	0.52	ug/L		12/21/23 08:20	12/21/23 20:19	1
4-Bromophenyl phenyl ether	ND		0.57	0.057	ug/L		12/21/23 08:20	12/21/23 20:19	1
4-Chloro-3-methylphenol	ND		0.57	0.12	ug/L		12/21/23 08:20	12/21/23 20:19	1
4-Chloroaniline	ND		1.9	0.14	ug/L		12/21/23 08:20	12/21/23 20:19	1
4-Chlorophenyl phenyl ether	ND		0.57	0.048	ug/L		12/21/23 08:20	12/21/23 20:19	1
4-Nitroaniline	ND		1.9	0.20	ug/L		12/21/23 08:20	12/21/23 20:19	1
4-Nitrophenol	ND		9.5	1.6	ug/L		12/21/23 08:20	12/21/23 20:19	1
Acenaphthene	ND		0.38	0.048	ug/L		12/21/23 08:20	12/21/23 20:19	1
Acenaphthylene	ND		0.95	0.057	ug/L		12/21/23 08:20	12/21/23 20:19	1
Anthracene	ND		0.95	0.048	ug/L		12/21/23 08:20	12/21/23 20:19	1
Benzo[a]anthracene	ND		0.24	0.048	ug/L		12/21/23 08:20	12/21/23 20:19	1
Benzo[a]pyrene	ND		0.24	0.038	ug/L		12/21/23 08:20	12/21/23 20:19	1
Benzo[b]fluoranthene	ND		0.24	0.038	ug/L		12/21/23 08:20	12/21/23 20:19	1
Benzo[g,h,i]perylene	ND		0.24	0.038	ug/L		12/21/23 08:20	12/21/23 20:19	1
Benzo[k]fluoranthene	ND		0.24	0.048	ug/L		12/21/23 08:20	12/21/23 20:19	1
Benzoic acid	ND		9.5	1.3	ug/L		12/21/23 08:20	12/21/23 20:19	1
Benzyl alcohol	ND		4.8	0.17	ug/L		12/21/23 08:20	12/21/23 20:19	1
Bis(2-chloroethoxy)methane	ND		0.57	0.048	ug/L		12/21/23 08:20	12/21/23 20:19	1
Bis(2-chloroethyl)ether	ND		0.095	0.029	ug/L		12/21/23 08:20	12/21/23 20:19	1
Bis(2-ethylhexyl) phthalate	ND		2.9	0.70	ug/L		12/21/23 08:20	12/21/23 20:19	1
bis(chloroisopropyl) ether	ND		0.24	0.057	ug/L		12/21/23 08:20	12/21/23 20:19	1
Butyl benzyl phthalate	ND		3.8	0.26	ug/L		12/21/23 08:20	12/21/23 20:19	1
Carbazole	ND		0.57	0.095	ug/L		12/21/23 08:20	12/21/23 20:19	1
Chrysene	ND		0.24	0.086	ug/L		12/21/23 08:20	12/21/23 20:19	1
Dibenz(a,h)anthracene	ND		0.24	0.067	ug/L		12/21/23 08:20	12/21/23 20:19	1
Dibenzofuran	ND		0.38	0.095	ug/L		12/21/23 08:20	12/21/23 20:19	1
Diethyl phthalate	ND		0.95	0.14	ug/L		12/21/23 08:20	12/21/23 20:19	1
Dimethyl phthalate	ND		0.57	0.057	ug/L		12/21/23 08:20	12/21/23 20:19	1
Di-n-butyl phthalate	ND		9.5	2.8	ug/L		12/21/23 08:20	12/21/23 20:19	1
Di-n-octyl phthalate	ND		0.95	0.12	ug/L		12/21/23 08:20	12/21/23 20:19	1
Fluoranthene	ND		0.24	0.057	ug/L		12/21/23 08:20	12/21/23 20:19	1
Fluorene	ND		0.24	0.048	ug/L		12/21/23 08:20	12/21/23 20:19	1
Hexachlorobenzene	ND		0.57	0.076	ug/L		12/21/23 08:20	12/21/23 20:19	1
Hexachlorobutadiene	ND	*1 *-	0.95	0.076	ug/L		12/21/23 08:20	12/21/23 20:19	1
Hexachlorocyclopentadiene	ND	*1 *-	0.95	0.13	ug/L		12/21/23 08:20	12/21/23 20:19	1
Hexachloroethane	ND	*1 *-	0.95	0.048	ug/L		12/21/23 08:20	12/21/23 20:19	1
Indeno[1,2,3-cd]pyrene	ND		0.38	0.12	ug/L		12/21/23 08:20	12/21/23 20:19	1
Isophorone	ND		0.38	0.095	ug/L		12/21/23 08:20	12/21/23 20:19	1
Naphthalene	ND	*-	0.38	0.15	ug/L		12/21/23 08:20	12/21/23 20:19	1
Nitrobenzene	ND		0.95	0.038	ug/L		12/21/23 08:20	12/21/23 20:19	1

Client Sample ID: DUP-121523

Date Collected: 12/15/23 08:00
Date Received: 12/15/23 12:35

Lab Sample ID: 590-22513-3

Matrix: Water

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-Nitrosodi-n-propylamine	ND		0.38	0.057	ug/L		12/21/23 08:20	12/21/23 20:19	1
N-Nitrosodiphenylamine	ND		0.95	0.067	ug/L		12/21/23 08:20	12/21/23 20:19	1
Pentachlorophenol	ND		4.8	0.49	ug/L		12/21/23 08:20	12/21/23 20:19	1
Phenanthrene	ND		0.95	0.11	ug/L		12/21/23 08:20	12/21/23 20:19	1
Phenol	ND		0.95	0.15	ug/L		12/21/23 08:20	12/21/23 20:19	1
Pyrene	ND		0.95	0.038	ug/L		12/21/23 08:20	12/21/23 20:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*73*		*50 - 130*	*12/21/23 08:20*	*12/21/23 20:19*	*1*
2-Fluorobiphenyl	*54*		*35 - 120*	*12/21/23 08:20*	*12/21/23 20:19*	*1*
2-Fluorophenol (Surr)	*40*		*21 - 120*	*12/21/23 08:20*	*12/21/23 20:19*	*1*
Nitrobenzene-d5 (Surr)	*64*		*39 - 120*	*12/21/23 08:20*	*12/21/23 20:19*	*1*
Phenol-d5 (Surr)	*24*		*10 - 120*	*12/21/23 08:20*	*12/21/23 20:19*	*1*
Terphenyl-d14 (Surr)	*73*		*63 - 137*	*12/21/23 08:20*	*12/21/23 20:19*	*1*

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND	H *-	0.38	0.086	ug/L		12/27/23 08:30	12/29/23 11:42	1
1,2-Dichlorobenzene	ND	H *-	0.38	0.048	ug/L		12/27/23 08:30	12/29/23 11:42	1
1,3-Dichlorobenzene	ND	H *-	0.38	0.038	ug/L		12/27/23 08:30	12/29/23 11:42	1
1,4-Dichlorobenzene	ND	H *-	0.38	0.038	ug/L		12/27/23 08:30	12/29/23 11:42	1
1-Methylnaphthalene	ND	H	0.95	0.048	ug/L		12/27/23 08:30	12/29/23 11:42	1
2-Methylnaphthalene	ND	H	0.38	0.057	ug/L		12/27/23 08:30	12/29/23 11:42	1
Hexachlorobutadiene	ND	H *- *1	0.95	0.076	ug/L		12/27/23 08:30	12/29/23 11:42	1
Hexachlorocyclopentadiene	ND	H *- *1	0.95	0.13	ug/L		12/27/23 08:30	12/29/23 11:42	1
Hexachloroethane	ND	H *-	0.95	0.048	ug/L		12/27/23 08:30	12/29/23 11:42	1
Naphthalene	ND	H *-	0.38	0.15	ug/L		12/27/23 08:30	12/29/23 11:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*61*		*50 - 130*	*12/27/23 08:30*	*12/29/23 11:42*	*1*
2-Fluorobiphenyl	*43*		*35 - 120*	*12/27/23 08:30*	*12/29/23 11:42*	*1*
2-Fluorophenol (Surr)	*28*		*21 - 120*	*12/27/23 08:30*	*12/29/23 11:42*	*1*
Nitrobenzene-d5 (Surr)	*45*		*39 - 120*	*12/27/23 08:30*	*12/29/23 11:42*	*1*
Phenol-d5 (Surr)	*16*		*10 - 120*	*12/27/23 08:30*	*12/29/23 11:42*	*1*
Terphenyl-d14 (Surr)	*56*	*S1-*	*63 - 137*	*12/27/23 08:30*	*12/29/23 11:42*	*1*

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-T	ND	*1	0.48	0.20	ug/L		12/18/23 21:35	12/21/23 01:01	1
2,4,5-TP (Silvex)	ND		0.48	0.13	ug/L		12/18/23 21:35	12/21/23 01:01	1
2,4-D	ND	*1	4.8	1.9	ug/L		12/18/23 21:35	12/21/23 01:01	1
2,4-DB	ND		4.8	3.4	ug/L		12/18/23 21:35	12/21/23 01:01	1
Dalapon	ND	*1	12	4.6	ug/L		12/18/23 21:35	12/21/23 01:01	1
Dicamba	ND	*1	0.48	0.28	ug/L		12/18/23 21:35	12/21/23 01:01	1
Dichlorprop	ND	*1	4.8	1.9	ug/L		12/18/23 21:35	12/21/23 01:01	1
Dinoseb	ND	*1	2.4	2.1	ug/L		12/18/23 21:35	12/21/23 01:01	1
MCPA	ND	*1	480	340	ug/L		12/18/23 21:35	12/21/23 01:01	1
MCPP	ND		480	290	ug/L		12/18/23 21:35	12/21/23 01:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*70*		*20 - 161*	*12/18/23 21:35*	*12/21/23 01:01*	*1*

Client Sample ID: DUP-121523
Date Collected: 12/15/23 08:00
Date Received: 12/15/23 12:35

Lab Sample ID: 590-22513-3
Matrix: Water

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**34**		0.80	0.42	mg/L			12/15/23 16:34	1
Nitrate as N	**5.6**		0.20	0.057	mg/L			12/15/23 16:34	1
Nitrite as N	ND		0.20	0.069	mg/L			12/15/23 16:34	1
Sulfate	**47**		0.50	0.13	mg/L			12/15/23 16:34	1

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**22**		7.6	1.9	ng/L		01/12/24 04:17	01/16/24 02:42	1
Perfluoropentanoic acid (PFPeA)	**17**		3.8	0.95	ng/L		01/12/24 04:17	01/16/24 02:42	1
Perfluorohexanoic acid (PFHxA)	**29**		1.9	0.48	ng/L		01/12/24 04:17	01/16/24 02:42	1
Perfluoroheptanoic acid (PFHpA)	**20**		1.9	0.48	ng/L		01/12/24 04:17	01/16/24 02:42	1
Perfluorooctanoic acid (PFOA)	**56**		1.9	0.48	ng/L		01/12/24 04:17	01/16/24 02:42	1
Perfluorononanoic acid (PFNA)	**2.2**		1.9	0.48	ng/L		01/12/24 04:17	01/16/24 02:42	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.48	ng/L		01/12/24 04:17	01/16/24 02:42	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.48	ng/L		01/12/24 04:17	01/16/24 02:42	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.48	ng/L		01/12/24 04:17	01/16/24 02:42	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	0.48	ng/L		01/12/24 04:17	01/16/24 02:42	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.9	0.48	ng/L		01/12/24 04:17	01/16/24 02:42	1
Perfluorobutanesulfonic acid (PFBS)	**14**		1.9	0.48	ng/L		01/12/24 04:17	01/16/24 02:42	1
Perfluoropentanesulfonic acid (PFPeS)	**11**		1.9	0.48	ng/L		01/12/24 04:17	01/16/24 02:42	1
Perfluorohexanesulfonic acid (PFHxS)	**46**		1.9	0.48	ng/L		01/12/24 04:17	01/16/24 02:42	1
Perfluoroheptanesulfonic acid (PFHpS)	**0.70**	**J**	1.9	0.48	ng/L		01/12/24 04:17	01/16/24 02:42	1
Perfluorooctanesulfonic acid (PFOS)	**27**		1.9	0.48	ng/L		01/12/24 04:17	01/16/24 02:42	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.48	ng/L		01/12/24 04:17	01/16/24 02:42	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.48	ng/L		01/12/24 04:17	01/16/24 02:42	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.48	ng/L		01/12/24 04:17	01/16/24 02:42	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		7.6	1.9	ng/L		01/12/24 04:17	01/16/24 02:42	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		7.6	1.9	ng/L		01/12/24 04:17	01/16/24 02:42	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.9	0.48	ng/L		01/12/24 04:17	01/16/24 02:42	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.9	0.48	ng/L		01/12/24 04:17	01/16/24 02:42	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.9	0.48	ng/L		01/12/24 04:17	01/16/24 02:42	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.9	0.48	ng/L		01/12/24 04:17	01/16/24 02:42	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.9	0.48	ng/L		01/12/24 04:17	01/16/24 02:42	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		19	4.8	ng/L		01/12/24 04:17	01/16/24 02:42	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		19	4.8	ng/L		01/12/24 04:17	01/16/24 02:42	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		7.6	1.9	ng/L		01/12/24 04:17	01/16/24 02:42	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		7.6	1.9	ng/L		01/12/24 04:17	01/16/24 02:42	1

Client Sample ID: DUP-121523
Date Collected: 12/15/23 08:00
Date Received: 12/15/23 12:35

Lab Sample ID: 590-22513-3
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		3.8	0.95	ng/L		01/12/24 04:17	01/16/24 02:42	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		3.8	0.95	ng/L		01/12/24 04:17	01/16/24 02:42	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		3.8	0.95	ng/L		01/12/24 04:17	01/16/24 02:42	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		7.6	1.9	ng/L		01/12/24 04:17	01/16/24 02:42	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		7.6	1.9	ng/L		01/12/24 04:17	01/16/24 02:42	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		3.8	0.95	ng/L		01/12/24 04:17	01/16/24 02:42	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		9.5	2.4	ng/L		01/12/24 04:17	01/16/24 02:42	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		48	12	ng/L		01/12/24 04:17	01/16/24 02:42	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		48	12	ng/L		01/12/24 04:17	01/16/24 02:42	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*81.1*		*5 - 130*	*01/12/24 04:17*	*01/16/24 02:42*	*1*
13C5 PFPeA	*89.7*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:42*	*1*
13C5 PFHxA	*90.9*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:42*	*1*
13C4 PFHpA	*91.5*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:42*	*1*
13C8 PFOA	*77.7*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:42*	*1*
13C9 PFNA	*81.6*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:42*	*1*
13C6 PFDA	*84.1*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:42*	*1*
13C7 PFUnA	*87.8*		*30 - 130*	*01/12/24 04:17*	*01/16/24 02:42*	*1*
13C2 PFDoA	*70.7*		*10 - 130*	*01/12/24 04:17*	*01/16/24 02:42*	*1*
13C2 PFTeDA	*59.8*		*10 - 130*	*01/12/24 04:17*	*01/16/24 02:42*	*1*
13C3 PFBS	*82.9*		*40 - 135*	*01/12/24 04:17*	*01/16/24 02:42*	*1*
13C3 PFHxS	*81.4*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:42*	*1*
13C8 PFOS	*87.1*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:42*	*1*
13C8 PFOSA	*88.5*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:42*	*1*
d3-NMeFOSAA	*75.9*		*40 - 170*	*01/12/24 04:17*	*01/16/24 02:42*	*1*
d5-NEtFOSAA	*71.2*		*25 - 135*	*01/12/24 04:17*	*01/16/24 02:42*	*1*
13C2 6:2 FTS	*89.4*		*40 - 200*	*01/12/24 04:17*	*01/16/24 02:42*	*1*
13C2 8:2 FTS	*85.4*		*40 - 300*	*01/12/24 04:17*	*01/16/24 02:42*	*1*
13C3 HFPO-DA	*87.4*		*40 - 130*	*01/12/24 04:17*	*01/16/24 02:42*	*1*
d7-N-MeFOSE-M	*69.3*		*10 - 130*	*01/12/24 04:17*	*01/16/24 02:42*	*1*
d9-N-EtFOSE-M	*63.0*		*10 - 130*	*01/12/24 04:17*	*01/16/24 02:42*	*1*
d5-NEtPFOSA	*71.5*		*10 - 130*	*01/12/24 04:17*	*01/16/24 02:42*	*1*
d3-NMePFOSA	*74.3*		*10 - 130*	*01/12/24 04:17*	*01/16/24 02:42*	*1*

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		7.6	1.9	ng/L		01/12/24 04:17	01/18/24 14:34	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 4:2 FTS	*104*		*40 - 200*	*01/12/24 04:17*	*01/18/24 14:34*	*1*

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22513-1

Client Sample ID: DUP-121523

Date Collected: 12/15/23 08:00
Date Received: 12/15/23 12:35

Lab Sample ID: 590-22513-3

Matrix: Water

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	16		1.0	0.13	mg/L		12/18/23 10:30	12/18/23 15:44	1
Potassium	4.8		0.50	0.29	mg/L		12/18/23 10:30	12/18/23 15:44	1
Sodium	27	^1+	0.50	0.20	mg/L		12/18/23 10:30	12/18/23 15:44	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	110		2.0	0.20	mg/L		12/18/23 17:27	12/19/23 13:48	1
Magnesium	16		1.0	0.13	mg/L		12/18/23 17:27	12/19/23 13:48	1

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0011	J	0.0050	0.0010	mg/L		12/18/23 15:58	12/20/23 17:52	5
Cadmium	ND		0.0020	0.00019	mg/L		12/18/23 15:58	12/20/23 17:52	5
Iron	0.10	J	0.50	0.067	mg/L		12/18/23 15:58	12/20/23 17:52	5
Lead	ND		0.0020	0.00020	mg/L		12/18/23 15:58	12/20/23 17:52	5
Manganese	ND		0.010	0.0023	mg/L		12/18/23 15:58	12/20/23 17:52	5
Zinc	ND		0.035	0.0046	mg/L		12/18/23 15:58	12/20/23 17:52	5

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0014	J	0.0050	0.0010	mg/L		12/20/23 15:52	12/22/23 11:32	5
Cadmium	ND		0.0020	0.00019	mg/L		12/20/23 15:52	12/22/23 11:32	5
Iron	0.078	J	0.50	0.067	mg/L		12/20/23 15:52	12/22/23 11:32	5
Lead	ND		0.0020	0.00020	mg/L		12/20/23 15:52	12/22/23 11:32	5
Manganese	0.0024	J	0.010	0.0023	mg/L		12/20/23 15:52	12/22/23 11:32	5
Zinc	0.040		0.035	0.0046	mg/L		12/20/23 15:52	12/22/23 11:32	5

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		12/18/23 10:28	12/18/23 15:41	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		12/27/23 10:16	12/28/23 13:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	0.037	J	0.10	0.029	mg/L			01/09/24 11:32	1
Alkalinity (SM 2320B)	330	B	20	5.0	mg/L			12/27/23 10:12	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	330	B	20	5.0	mg/L			12/27/23 10:12	1
Total Dissolved Solids (SM 2540C)	530		25	13	mg/L			12/18/23 16:57	1
Cyanide, Weak Acid Dissociable (SM 4500 CN I)	ND		0.010	0.0050	mg/L			12/22/23 13:12	1
Total Organic Carbon - Duplicates (SM 5310B)	2.0		1.0	0.35	mg/L			12/28/23 08:19	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22513-1

Client Sample ID: Trip Blank

Date Collected: 12/15/23 08:00
Date Received: 12/15/23 12:35

Lab Sample ID: 590-22513-4

Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.48	ug/L			12/18/23 18:18	1
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			12/18/23 18:18	1
1,1,2,2-Tetrachloroethane	ND		2.0	0.32	ug/L			12/18/23 18:18	1
1,1,2-Trichloroethane	ND		2.0	0.43	ug/L			12/18/23 18:18	1
1,1-Dichloroethane	ND		1.0	0.29	ug/L			12/18/23 18:18	1
1,1-Dichloroethene	ND		1.0	0.20	ug/L			12/18/23 18:18	1
1,1-Dichloropropene	ND		1.0	0.50	ug/L			12/18/23 18:18	1
1,2,3-Trichlorobenzene	ND		1.0	0.33	ug/L			12/18/23 18:18	1
1,2,3-Trichloropropane	ND		2.0	0.50	ug/L			12/18/23 18:18	1
1,2,4-Trichlorobenzene	ND		1.0	0.50	ug/L			12/18/23 18:18	1
1,2,4-Trimethylbenzene	ND		1.0	0.31	ug/L			12/18/23 18:18	1
1,2-Dibromo-3-Chloropropane	ND		10	1.5	ug/L			12/18/23 18:18	1
1,2-Dibromoethane (EDB)	ND		1.0	0.20	ug/L			12/18/23 18:18	1
1,2-Dichlorobenzene	ND		1.0	0.23	ug/L			12/18/23 18:18	1
1,2-Dichloroethane	ND		1.0	0.31	ug/L			12/18/23 18:18	1
1,2-Dichloropropane	ND		1.0	0.23	ug/L			12/18/23 18:18	1
1,3,5-Trimethylbenzene	ND		1.0	0.32	ug/L			12/18/23 18:18	1
1,3-Dichlorobenzene	ND		1.0	0.14	ug/L			12/18/23 18:18	1
1,3-Dichloropropane	ND		2.0	0.21	ug/L			12/18/23 18:18	1
1,4-Dichlorobenzene	ND		1.0	0.28	ug/L			12/18/23 18:18	1
2,2-Dichloropropane	ND		2.0	0.66	ug/L			12/18/23 18:18	1
2-Chlorotoluene	ND		1.0	0.36	ug/L			12/18/23 18:18	1
4-Chlorotoluene	ND		1.0	0.26	ug/L			12/18/23 18:18	1
Benzene	ND		0.40	0.093	ug/L			12/18/23 18:18	1
Bromobenzene	ND		1.0	0.28	ug/L			12/18/23 18:18	1
Bromochloromethane	ND		2.0	0.44	ug/L			12/18/23 18:18	1
Bromodichloromethane	ND		1.0	0.29	ug/L			12/18/23 18:18	1
Bromoform	ND		5.0	0.66	ug/L			12/18/23 18:18	1
Bromomethane	ND		5.0	0.76	ug/L			12/18/23 18:18	1
Carbon tetrachloride	ND		1.0	0.40	ug/L			12/18/23 18:18	1
Chlorobenzene	ND		1.0	0.32	ug/L			12/18/23 18:18	1
Chloroethane	ND		2.0	0.40	ug/L			12/18/23 18:18	1
Chloroform	ND		1.0	0.24	ug/L			12/18/23 18:18	1
Chloromethane	ND	*+	3.0	0.50	ug/L			12/18/23 18:18	1
cis-1,2-Dichloroethene	ND		1.0	0.23	ug/L			12/18/23 18:18	1
cis-1,3-Dichloropropene	ND		1.0	0.25	ug/L			12/18/23 18:18	1
Dibromochloromethane	ND		2.0	0.33	ug/L			12/18/23 18:18	1
Dibromomethane	ND		2.0	0.50	ug/L			12/18/23 18:18	1
Dichlorodifluoromethane	ND		2.0	0.64	ug/L			12/18/23 18:18	1
Ethylbenzene	ND		1.0	0.20	ug/L			12/18/23 18:18	1
Hexachlorobutadiene	ND		2.0	0.21	ug/L			12/18/23 18:18	1
Isopropylbenzene	ND		1.0	0.24	ug/L			12/18/23 18:18	1
m,p-Xylene	ND		2.0	0.28	ug/L			12/18/23 18:18	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			12/18/23 18:18	1
Methylene Chloride	ND		5.0	2.2	ug/L			12/18/23 18:18	1
Naphthalene	ND		2.0	0.63	ug/L			12/18/23 18:18	1
n-Butylbenzene	ND		1.0	0.20	ug/L			12/18/23 18:18	1
N-Propylbenzene	ND		1.0	0.25	ug/L			12/18/23 18:18	1
o-Xylene	ND		1.0	0.16	ug/L			12/18/23 18:18	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22513-1

Client Sample ID: Trip Blank

Date Collected: 12/15/23 08:00
Date Received: 12/15/23 12:35

Lab Sample ID: 590-22513-4

Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
p-Isopropyltoluene	ND		1.0	0.27	ug/L			12/18/23 18:18	1
sec-Butylbenzene	ND		1.0	0.22	ug/L			12/18/23 18:18	1
Styrene	ND		1.0	0.24	ug/L			12/18/23 18:18	1
tert-Butylbenzene	ND		1.0	0.12	ug/L			12/18/23 18:18	1
Tetrachloroethene	ND		1.0	0.22	ug/L			12/18/23 18:18	1
Toluene	ND		1.0	0.31	ug/L			12/18/23 18:18	1
trans-1,2-Dichloroethene	ND		1.0	0.20	ug/L			12/18/23 18:18	1
trans-1,3-Dichloropropene	ND		1.0	0.45	ug/L			12/18/23 18:18	1
Trichloroethene	ND		1.0	0.20	ug/L			12/18/23 18:18	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/18/23 18:18	1
Vinyl chloride	ND		0.40	0.13	ug/L			12/18/23 18:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*		*12/18/23 18:18*	*1*
4-Bromofluorobenzene (Surr)	*99*		*76 - 120*		*12/18/23 18:18*	*1*
Dibromofluoromethane (Surr)	*110*		*80 - 123*		*12/18/23 18:18*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*12/18/23 18:18*	*1*

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 590-45132/8
Matrix: Water
Analysis Batch: 45132

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.48	ug/L			12/18/23 16:06	1
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			12/18/23 16:06	1
1,1,2,2-Tetrachloroethane	ND		2.0	0.32	ug/L			12/18/23 16:06	1
1,1,2-Trichloroethane	ND		2.0	0.43	ug/L			12/18/23 16:06	1
1,1-Dichloroethane	ND		1.0	0.29	ug/L			12/18/23 16:06	1
1,1-Dichloroethene	ND		1.0	0.20	ug/L			12/18/23 16:06	1
1,1-Dichloropropene	ND		1.0	0.50	ug/L			12/18/23 16:06	1
1,2,3-Trichlorobenzene	ND		1.0	0.33	ug/L			12/18/23 16:06	1
1,2,3-Trichloropropane	ND		2.0	0.50	ug/L			12/18/23 16:06	1
1,2,4-Trichlorobenzene	ND		1.0	0.50	ug/L			12/18/23 16:06	1
1,2,4-Trimethylbenzene	ND		1.0	0.31	ug/L			12/18/23 16:06	1
1,2-Dibromo-3-Chloropropane	ND		10	1.5	ug/L			12/18/23 16:06	1
1,2-Dibromoethane (EDB)	ND		1.0	0.20	ug/L			12/18/23 16:06	1
1,2-Dichlorobenzene	ND		1.0	0.23	ug/L			12/18/23 16:06	1
1,2-Dichloroethane	ND		1.0	0.31	ug/L			12/18/23 16:06	1
1,2-Dichloropropane	ND		1.0	0.23	ug/L			12/18/23 16:06	1
1,3,5-Trimethylbenzene	ND		1.0	0.32	ug/L			12/18/23 16:06	1
1,3-Dichlorobenzene	ND		1.0	0.14	ug/L			12/18/23 16:06	1
1,3-Dichloropropane	ND		2.0	0.21	ug/L			12/18/23 16:06	1
1,4-Dichlorobenzene	ND		1.0	0.28	ug/L			12/18/23 16:06	1
2,2-Dichloropropane	ND		2.0	0.66	ug/L			12/18/23 16:06	1
2-Chlorotoluene	ND		1.0	0.36	ug/L			12/18/23 16:06	1
4-Chlorotoluene	ND		1.0	0.26	ug/L			12/18/23 16:06	1
Benzene	ND		0.40	0.093	ug/L			12/18/23 16:06	1
Bromobenzene	ND		1.0	0.28	ug/L			12/18/23 16:06	1
Bromochloromethane	ND		2.0	0.44	ug/L			12/18/23 16:06	1
Bromodichloromethane	ND		1.0	0.29	ug/L			12/18/23 16:06	1
Bromoform	ND		5.0	0.66	ug/L			12/18/23 16:06	1
Bromomethane	ND		5.0	0.76	ug/L			12/18/23 16:06	1
Carbon tetrachloride	ND		1.0	0.40	ug/L			12/18/23 16:06	1
Chlorobenzene	ND		1.0	0.32	ug/L			12/18/23 16:06	1
Chloroethane	ND		2.0	0.40	ug/L			12/18/23 16:06	1
Chloroform	ND		1.0	0.24	ug/L			12/18/23 16:06	1
Chloromethane	ND		3.0	0.50	ug/L			12/18/23 16:06	1
cis-1,2-Dichloroethene	ND		1.0	0.23	ug/L			12/18/23 16:06	1
cis-1,3-Dichloropropene	ND		1.0	0.25	ug/L			12/18/23 16:06	1
Dibromochloromethane	ND		2.0	0.33	ug/L			12/18/23 16:06	1
Dibromomethane	ND		2.0	0.50	ug/L			12/18/23 16:06	1
Dichlorodifluoromethane	ND		2.0	0.64	ug/L			12/18/23 16:06	1
Ethylbenzene	ND		1.0	0.20	ug/L			12/18/23 16:06	1
Hexachlorobutadiene	ND		2.0	0.21	ug/L			12/18/23 16:06	1
Isopropylbenzene	ND		1.0	0.24	ug/L			12/18/23 16:06	1
m,p-Xylene	ND		2.0	0.28	ug/L			12/18/23 16:06	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			12/18/23 16:06	1
Methylene Chloride	ND		5.0	2.2	ug/L			12/18/23 16:06	1
Naphthalene	ND		2.0	0.63	ug/L			12/18/23 16:06	1
n-Butylbenzene	ND		1.0	0.20	ug/L			12/18/23 16:06	1
N-Propylbenzene	ND		1.0	0.25	ug/L			12/18/23 16:06	1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 590-45132/8
Matrix: Water
Analysis Batch: 45132

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	ND		1.0	0.16	ug/L			12/18/23 16:06	1
p-Isopropyltoluene	ND		1.0	0.27	ug/L			12/18/23 16:06	1
sec-Butylbenzene	ND		1.0	0.22	ug/L			12/18/23 16:06	1
Styrene	ND		1.0	0.24	ug/L			12/18/23 16:06	1
tert-Butylbenzene	ND		1.0	0.12	ug/L			12/18/23 16:06	1
Tetrachloroethene	ND		1.0	0.22	ug/L			12/18/23 16:06	1
Toluene	ND		1.0	0.31	ug/L			12/18/23 16:06	1
trans-1,2-Dichloroethene	ND		1.0	0.20	ug/L			12/18/23 16:06	1
trans-1,3-Dichloropropene	ND		1.0	0.45	ug/L			12/18/23 16:06	1
Trichloroethene	ND		1.0	0.20	ug/L			12/18/23 16:06	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/18/23 16:06	1
Vinyl chloride	ND		0.40	0.13	ug/L			12/18/23 16:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*80 - 120*		*12/18/23 16:06*	*1*
4-Bromofluorobenzene (Surr)	*93*		*76 - 120*		*12/18/23 16:06*	*1*
Dibromofluoromethane (Surr)	*109*		*80 - 123*		*12/18/23 16:06*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*12/18/23 16:06*	*1*

Lab Sample ID: LCS 590-45132/1005
Matrix: Water
Analysis Batch: 45132

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1,2-Tetrachloroethane	10.0	10.9		ug/L		109	80 - 131
1,1,1-Trichloroethane	10.0	12.3		ug/L		123	71 - 138
1,1,2,2-Tetrachloroethane	10.0	9.93		ug/L		99	60 - 150
1,1,2-Trichloroethane	10.0	10.8		ug/L		108	80 - 128
1,1-Dichloroethane	10.0	10.2		ug/L		102	80 - 125
1,1-Dichloroethene	10.0	11.2		ug/L		112	65 - 141
1,1-Dichloropropene	10.0	10.6		ug/L		106	82 - 123
1,2,3-Trichlorobenzene	10.0	10.5		ug/L		105	70 - 137
1,2,3-Trichloropropane	10.0	9.83		ug/L		98	65 - 142
1,2,4-Trichlorobenzene	10.0	10.6		ug/L		106	76 - 131
1,2,4-Trimethylbenzene	10.0	8.95		ug/L		90	78 - 131
1,2-Dibromo-3-Chloropropane	10.0	10.9		ug/L		109	53 - 142
1,2-Dibromoethane (EDB)	10.0	10.4		ug/L		104	80 - 124
1,2-Dichlorobenzene	10.0	10.3		ug/L		103	80 - 120
1,2-Dichloroethane	10.0	10.2		ug/L		102	80 - 120
1,2-Dichloropropane	10.0	9.99		ug/L		100	79 - 122
1,3,5-Trimethylbenzene	10.0	9.04		ug/L		90	76 - 129
1,3-Dichlorobenzene	10.0	10.4		ug/L		104	80 - 122
1,3-Dichloropropane	10.0	10.2		ug/L		102	78 - 129
1,4-Dichlorobenzene	10.0	10.1		ug/L		101	80 - 120
2,2-Dichloropropane	10.0	14.0		ug/L		140	73 - 140
2-Chlorotoluene	10.0	10.1		ug/L		101	74 - 129
4-Chlorotoluene	10.0	9.84		ug/L		98	79 - 125
Benzene	10.0	10.4		ug/L		104	80 - 120

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 590-45132/1005
Matrix: Water
Analysis Batch: 45132

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Bromobenzene	10.0	9.42		ug/L		94	73 - 125
Bromochloromethane	10.0	9.51		ug/L		95	71 - 136
Bromodichloromethane	10.0	10.2		ug/L		102	80 - 120
Bromoform	10.0	11.5		ug/L		115	73 - 139
Bromomethane	10.0	8.06		ug/L		81	66 - 149
Carbon tetrachloride	10.0	12.7		ug/L		127	72 - 138
Chlorobenzene	10.0	10.1		ug/L		101	80 - 124
Chloroethane	10.0	9.49		ug/L		95	64 - 134
Chloroform	10.0	10.8		ug/L		108	80 - 123
Chloromethane	10.0	16.4	*+	ug/L		164	19 - 150
cis-1,2-Dichloroethene	10.0	10.5		ug/L		105	80 - 122
cis-1,3-Dichloropropene	10.0	10.0		ug/L		100	80 - 121
Dibromochloromethane	10.0	10.7		ug/L		107	80 - 130
Dibromomethane	10.0	9.61		ug/L		96	80 - 122
Dichlorodifluoromethane	10.0	9.87		ug/L		99	30 - 150
Ethylbenzene	10.0	10.0		ug/L		100	80 - 122
Hexachlorobutadiene	10.0	11.7		ug/L		117	77 - 132
Isopropylbenzene	10.0	11.1		ug/L		111	80 - 122
m,p-Xylene	10.0	10.6		ug/L		106	80 - 125
Methyl tert-butyl ether	10.0	12.3		ug/L		123	68 - 134
Methylene Chloride	10.0	8.92		ug/L		89	30 - 150
Naphthalene	10.0	10.3		ug/L		103	61 - 140
n-Butylbenzene	10.0	9.61		ug/L		96	75 - 121
N-Propylbenzene	10.0	9.81		ug/L		98	73 - 136
o-Xylene	10.0	10.6		ug/L		106	80 - 130
p-Isopropyltoluene	10.0	10.4		ug/L		104	78 - 128
sec-Butylbenzene	10.0	8.97		ug/L		90	73 - 138
Styrene	10.0	10.1		ug/L		101	79 - 134
tert-Butylbenzene	10.0	9.18		ug/L		92	76 - 131
Tetrachloroethene	10.0	12.7		ug/L		127	80 - 139
Toluene	10.0	9.54		ug/L		95	80 - 129
trans-1,2-Dichloroethene	10.0	9.32		ug/L		93	73 - 137
trans-1,3-Dichloropropene	10.0	10.6		ug/L		106	73 - 138
Trichloroethene	10.0	10.5		ug/L		105	80 - 123
Trichlorofluoromethane	10.0	10.5		ug/L		105	71 - 147
Vinyl chloride	10.0	9.14		ug/L		91	50 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*76 - 120*
Dibromofluoromethane (Surr)	*106*		*80 - 123*
Toluene-d8 (Surr)	*98*		*80 - 120*

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 590-45132/6
Matrix: Water
Analysis Batch: 45132

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane			10.0	10.7		ug/L		107	80 - 131	2	17
1,1,1-Trichloroethane			10.0	11.8		ug/L		118	71 - 138	4	17
1,1,2,2-Tetrachloroethane			10.0	9.82		ug/L		98	60 - 150	1	17
1,1,2-Trichloroethane			10.0	10.5		ug/L		105	80 - 128	3	15
1,1-Dichloroethane			10.0	10.0		ug/L		100	80 - 125	2	20
1,1-Dichloroethene			10.0	10.3		ug/L		103	65 - 141	9	19
1,1-Dichloropropene			10.0	10.1		ug/L		101	82 - 123	4	20
1,2,3-Trichlorobenzene			10.0	10.6		ug/L		106	70 - 137	1	30
1,2,3-Trichloropropane			10.0	9.97		ug/L		100	65 - 142	1	34
1,2,4-Trichlorobenzene			10.0	10.4		ug/L		104	76 - 131	2	24
1,2,4-Trimethylbenzene			10.0	8.55		ug/L		85	78 - 131	5	16
1,2-Dibromo-3-Chloropropane			10.0	9.96	J	ug/L		100	53 - 142	9	29
1,2-Dibromoethane (EDB)			10.0	10.2		ug/L		102	80 - 124	2	14
1,2-Dichlorobenzene			10.0	10.4		ug/L		104	80 - 120	1	14
1,2-Dichloroethane			10.0	10.1		ug/L		101	80 - 120	1	14
1,2-Dichloropropane			10.0	9.77		ug/L		98	79 - 122	2	15
1,3,5-Trimethylbenzene			10.0	8.56		ug/L		86	76 - 129	5	17
1,3-Dichlorobenzene			10.0	10.2		ug/L		102	80 - 122	1	15
1,3-Dichloropropane			10.0	9.86		ug/L		99	78 - 129	3	17
1,4-Dichlorobenzene			10.0	9.82		ug/L		98	80 - 120	3	14
2,2-Dichloropropane			10.0	13.2		ug/L		132	73 - 140	6	18
2-Chlorotoluene			10.0	9.59		ug/L		96	74 - 129	5	19
4-Chlorotoluene			10.0	9.34		ug/L		93	79 - 125	5	16
Benzene			10.0	10.1		ug/L		101	80 - 120	2	15
Bromobenzene			10.0	8.95		ug/L		90	73 - 125	5	16
Bromochloromethane			10.0	9.73		ug/L		97	71 - 136	2	21
Bromodichloromethane			10.0	10.0		ug/L		100	80 - 120	1	16
Bromoform			10.0	11.8		ug/L		118	73 - 139	2	17
Bromomethane			10.0	9.13		ug/L		91	66 - 149	12	24
Carbon tetrachloride			10.0	11.5		ug/L		115	72 - 138	9	28
Chlorobenzene			10.0	9.84		ug/L		98	80 - 124	2	14
Chloroethane			10.0	8.54		ug/L		85	64 - 134	11	24
Chloroform			10.0	10.5		ug/L		105	80 - 123	3	18
Chloromethane			10.0	15.8	*+	ug/L		158	19 - 150	4	35
cis-1,2-Dichloroethene			10.0	10.1		ug/L		101	80 - 122	5	17
cis-1,3-Dichloropropene			10.0	9.98		ug/L		100	80 - 121	0	16
Dibromochloromethane			10.0	10.5		ug/L		105	80 - 130	1	15
Dibromomethane			10.0	9.63		ug/L		96	80 - 122	0	16
Dichlorodifluoromethane			10.0	9.43		ug/L		94	30 - 150	5	22
Ethylbenzene			10.0	9.95		ug/L		100	80 - 122	1	35
Hexachlorobutadiene			10.0	11.8		ug/L		118	77 - 132	1	25
Isopropylbenzene			10.0	10.8		ug/L		108	80 - 122	2	16
m,p-Xylene			10.0	10.3		ug/L		103	80 - 125	3	35
Methyl tert-butyl ether			10.0	12.3		ug/L		123	68 - 134	0	18
Methylene Chloride			10.0	8.27		ug/L		83	30 - 150	8	25
Naphthalene			10.0	10.5		ug/L		105	61 - 140	2	25
n-Butylbenzene			10.0	9.41		ug/L		94	75 - 121	2	16
N-Propylbenzene			10.0	9.37		ug/L		94	73 - 136	5	18

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 590-45132/6
Matrix: Water
Analysis Batch: 45132

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
o-Xylene			10.0	10.4		ug/L		104	80 - 130	2	35
p-Isopropyltoluene			10.0	9.88		ug/L		99	78 - 128	6	17
sec-Butylbenzene			10.0	8.49		ug/L		85	73 - 138	5	17
Styrene			10.0	9.61		ug/L		96	79 - 134	5	17
tert-Butylbenzene			10.0	8.74		ug/L		87	76 - 131	5	18
Tetrachloroethene			10.0	11.7		ug/L		117	80 - 139	8	20
Toluene			10.0	9.05		ug/L		91	80 - 129	5	35
trans-1,2-Dichloroethene			10.0	9.39		ug/L		94	73 - 137	1	18
trans-1,3-Dichloropropene			10.0	10.3		ug/L		103	73 - 138	3	17
Trichloroethene			10.0	10.2		ug/L		102	80 - 123	3	14
Trichlorofluoromethane			10.0	9.54		ug/L		95	71 - 147	10	24
Vinyl chloride			10.0	8.75		ug/L		88	50 - 150	4	26

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*76 - 120*
Dibromofluoromethane (Surr)	*103*		*80 - 123*
Toluene-d8 (Surr)	*98*		*80 - 120*

Lab Sample ID: MB 590-45187/10
Matrix: Water
Analysis Batch: 45187

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.48	ug/L			12/21/23 13:10	1
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			12/21/23 13:10	1
1,1,2,2-Tetrachloroethane	ND		2.0	0.32	ug/L			12/21/23 13:10	1
1,1,2-Trichloroethane	ND		2.0	0.43	ug/L			12/21/23 13:10	1
1,1-Dichloroethane	ND		1.0	0.29	ug/L			12/21/23 13:10	1
1,1-Dichloroethene	ND		1.0	0.20	ug/L			12/21/23 13:10	1
1,1-Dichloropropene	ND		1.0	0.50	ug/L			12/21/23 13:10	1
1,2,3-Trichlorobenzene	ND		1.0	0.33	ug/L			12/21/23 13:10	1
1,2,3-Trichloropropane	ND		2.0	0.50	ug/L			12/21/23 13:10	1
1,2,4-Trichlorobenzene	ND		1.0	0.50	ug/L			12/21/23 13:10	1
1,2,4-Trimethylbenzene	ND		1.0	0.31	ug/L			12/21/23 13:10	1
1,2-Dibromo-3-Chloropropane	ND		10	1.5	ug/L			12/21/23 13:10	1
1,2-Dibromoethane (EDB)	ND		1.0	0.20	ug/L			12/21/23 13:10	1
1,2-Dichlorobenzene	ND		1.0	0.23	ug/L			12/21/23 13:10	1
1,2-Dichloroethane	ND		1.0	0.31	ug/L			12/21/23 13:10	1
1,2-Dichloropropane	ND		1.0	0.23	ug/L			12/21/23 13:10	1
1,3,5-Trimethylbenzene	ND		1.0	0.32	ug/L			12/21/23 13:10	1
1,3-Dichlorobenzene	ND		1.0	0.14	ug/L			12/21/23 13:10	1
1,3-Dichloropropane	ND		2.0	0.21	ug/L			12/21/23 13:10	1
1,4-Dichlorobenzene	ND		1.0	0.28	ug/L			12/21/23 13:10	1
2,2-Dichloropropane	ND		2.0	0.66	ug/L			12/21/23 13:10	1
2-Chlorotoluene	ND		1.0	0.36	ug/L			12/21/23 13:10	1
4-Chlorotoluene	ND		1.0	0.26	ug/L			12/21/23 13:10	1
Benzene	ND		0.40	0.093	ug/L			12/21/23 13:10	1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 590-45187/10
Matrix: Water
Analysis Batch: 45187

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromobenzene	ND		1.0	0.28	ug/L			12/21/23 13:10	1
Bromochloromethane	ND		2.0	0.44	ug/L			12/21/23 13:10	1
Bromodichloromethane	ND		1.0	0.29	ug/L			12/21/23 13:10	1
Bromoform	ND		5.0	0.66	ug/L			12/21/23 13:10	1
Bromomethane	ND		5.0	0.76	ug/L			12/21/23 13:10	1
Carbon tetrachloride	ND		1.0	0.40	ug/L			12/21/23 13:10	1
Chlorobenzene	ND		1.0	0.32	ug/L			12/21/23 13:10	1
Chloroethane	ND		2.0	0.40	ug/L			12/21/23 13:10	1
Chloroform	ND		1.0	0.24	ug/L			12/21/23 13:10	1
Chloromethane	ND		3.0	0.50	ug/L			12/21/23 13:10	1
cis-1,2-Dichloroethene	ND		1.0	0.23	ug/L			12/21/23 13:10	1
cis-1,3-Dichloropropene	ND		1.0	0.25	ug/L			12/21/23 13:10	1
Dibromochloromethane	ND		2.0	0.33	ug/L			12/21/23 13:10	1
Dibromomethane	ND		2.0	0.50	ug/L			12/21/23 13:10	1
Dichlorodifluoromethane	ND		2.0	0.64	ug/L			12/21/23 13:10	1
Ethylbenzene	ND		1.0	0.20	ug/L			12/21/23 13:10	1
Hexachlorobutadiene	ND		2.0	0.21	ug/L			12/21/23 13:10	1
Isopropylbenzene	ND		1.0	0.24	ug/L			12/21/23 13:10	1
m,p-Xylene	ND		2.0	0.28	ug/L			12/21/23 13:10	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			12/21/23 13:10	1
Methylene Chloride	ND		5.0	2.2	ug/L			12/21/23 13:10	1
Naphthalene	ND		2.0	0.63	ug/L			12/21/23 13:10	1
n-Butylbenzene	ND		1.0	0.20	ug/L			12/21/23 13:10	1
N-Propylbenzene	ND		1.0	0.25	ug/L			12/21/23 13:10	1
o-Xylene	ND		1.0	0.16	ug/L			12/21/23 13:10	1
p-Isopropyltoluene	ND		1.0	0.27	ug/L			12/21/23 13:10	1
sec-Butylbenzene	ND		1.0	0.22	ug/L			12/21/23 13:10	1
Styrene	ND		1.0	0.24	ug/L			12/21/23 13:10	1
tert-Butylbenzene	ND		1.0	0.12	ug/L			12/21/23 13:10	1
Tetrachloroethene	ND		1.0	0.22	ug/L			12/21/23 13:10	1
Toluene	ND		1.0	0.31	ug/L			12/21/23 13:10	1
trans-1,2-Dichloroethene	ND		1.0	0.20	ug/L			12/21/23 13:10	1
trans-1,3-Dichloropropene	ND		1.0	0.45	ug/L			12/21/23 13:10	1
Trichloroethene	ND		1.0	0.20	ug/L			12/21/23 13:10	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/21/23 13:10	1
Vinyl chloride	ND		0.40	0.13	ug/L			12/21/23 13:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*		*12/21/23 13:10*	*1*
4-Bromofluorobenzene (Surr)	*99*		*76 - 120*		*12/21/23 13:10*	*1*
Dibromofluoromethane (Surr)	*109*		*80 - 123*		*12/21/23 13:10*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*12/21/23 13:10*	*1*

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 590-45187/1003
Matrix: Water
Analysis Batch: 45187

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1,2-Tetrachloroethane	10.0	11.0		ug/L		110	80 - 131
1,1,1-Trichloroethane	10.0	12.3		ug/L		123	71 - 138
1,1,2,2-Tetrachloroethane	10.0	9.22		ug/L		92	60 - 150
1,1,2-Trichloroethane	10.0	10.5		ug/L		105	80 - 128
1,1-Dichloroethane	10.0	10.8		ug/L		108	80 - 125
1,1-Dichloroethene	10.0	11.2		ug/L		112	65 - 141
1,1-Dichloropropene	10.0	10.4		ug/L		104	82 - 123
1,2,3-Trichlorobenzene	10.0	9.93		ug/L		99	70 - 137
1,2,3-Trichloropropane	10.0	8.81		ug/L		88	65 - 142
1,2,4-Trichlorobenzene	10.0	9.90		ug/L		99	76 - 131
1,2,4-Trimethylbenzene	10.0	8.70		ug/L		87	78 - 131
1,2-Dibromo-3-Chloropropane	10.0	9.84	J	ug/L		98	53 - 142
1,2-Dibromoethane (EDB)	10.0	10.3		ug/L		103	80 - 124
1,2-Dichlorobenzene	10.0	10.2		ug/L		102	80 - 120
1,2-Dichloroethane	10.0	10.1		ug/L		101	80 - 120
1,2-Dichloropropane	10.0	10.0		ug/L		100	79 - 122
1,3,5-Trimethylbenzene	10.0	8.74		ug/L		87	76 - 129
1,3-Dichlorobenzene	10.0	10.2		ug/L		102	80 - 122
1,3-Dichloropropane	10.0	9.96		ug/L		100	78 - 129
1,4-Dichlorobenzene	10.0	9.84		ug/L		98	80 - 120
2,2-Dichloropropane	10.0	15.1	*+	ug/L		151	73 - 140
2-Chlorotoluene	10.0	9.43		ug/L		94	74 - 129
4-Chlorotoluene	10.0	9.39		ug/L		94	79 - 125
Benzene	10.0	10.3		ug/L		103	80 - 120
Bromobenzene	10.0	9.10		ug/L		91	73 - 125
Bromochloromethane	10.0	10.2		ug/L		102	71 - 136
Bromodichloromethane	10.0	10.2		ug/L		102	80 - 120
Bromoform	10.0	11.5		ug/L		115	73 - 139
Bromomethane	10.0	9.82		ug/L		98	66 - 149
Carbon tetrachloride	10.0	12.3		ug/L		123	72 - 138
Chlorobenzene	10.0	10.2		ug/L		102	80 - 124
Chloroethane	10.0	10.5		ug/L		105	64 - 134
Chloroform	10.0	10.8		ug/L		108	80 - 123
Chloromethane	10.0	10.9		ug/L		109	19 - 150
cis-1,2-Dichloroethene	10.0	10.3		ug/L		103	80 - 122
cis-1,3-Dichloropropene	10.0	10.0		ug/L		100	80 - 121
Dibromochloromethane	10.0	10.8		ug/L		108	80 - 130
Dibromomethane	10.0	9.29		ug/L		93	80 - 122
Dichlorodifluoromethane	10.0	11.6		ug/L		116	30 - 150
Ethylbenzene	10.0	10.2		ug/L		102	80 - 122
Hexachlorobutadiene	10.0	10.8		ug/L		108	77 - 132
Isopropylbenzene	10.0	11.2		ug/L		112	80 - 122
m,p-Xylene	10.0	10.5		ug/L		105	80 - 125
Methyl tert-butyl ether	10.0	11.7		ug/L		117	68 - 134
Methylene Chloride	10.0	9.77		ug/L		98	30 - 150
Naphthalene	10.0	9.52		ug/L		95	61 - 140
n-Butylbenzene	10.0	9.35		ug/L		94	75 - 121
N-Propylbenzene	10.0	9.50		ug/L		95	73 - 136

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 590-45187/1003
Matrix: Water
Analysis Batch: 45187

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
o-Xylene			10.0	10.6		ug/L		106	80 - 130		
p-Isopropyltoluene			10.0	9.85		ug/L		98	78 - 128		
sec-Butylbenzene			10.0	8.64		ug/L		86	73 - 138		
Styrene			10.0	9.96		ug/L		100	79 - 134		
tert-Butylbenzene			10.0	8.65		ug/L		87	76 - 131		
Tetrachloroethene			10.0	12.0		ug/L		120	80 - 139		
Toluene			10.0	9.38		ug/L		94	80 - 129		
trans-1,2-Dichloroethene			10.0	10.6		ug/L		106	73 - 137		
trans-1,3-Dichloropropene			10.0	10.3		ug/L		103	73 - 138		
Trichloroethene			10.0	10.4		ug/L		104	80 - 123		
Trichlorofluoromethane			10.0	10.6		ug/L		106	71 - 147		
Vinyl chloride			10.0	10.9		ug/L		109	50 - 150		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*97*		*76 - 120*
Dibromofluoromethane (Surr)	*105*		*80 - 123*
Toluene-d8 (Surr)	*97*		*80 - 120*

Lab Sample ID: LCSD 590-45187/4
Matrix: Water
Analysis Batch: 45187

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane			10.0	10.8		ug/L		108	80 - 131	2	17
1,1,1-Trichloroethane			10.0	11.5		ug/L		115	71 - 138	7	17
1,1,2,2-Tetrachloroethane			10.0	8.76		ug/L		88	60 - 150	5	17
1,1,2-Trichloroethane			10.0	10.2		ug/L		102	80 - 128	3	15
1,1-Dichloroethane			10.0	9.93		ug/L		99	80 - 125	8	20
1,1-Dichloroethene			10.0	10.6		ug/L		106	65 - 141	5	19
1,1-Dichloropropene			10.0	10.2		ug/L		102	82 - 123	2	20
1,2,3-Trichlorobenzene			10.0	11.0		ug/L		110	70 - 137	10	30
1,2,3-Trichloropropane			10.0	8.70		ug/L		87	65 - 142	1	34
1,2,4-Trichlorobenzene			10.0	10.5		ug/L		105	76 - 131	6	24
1,2,4-Trimethylbenzene			10.0	8.50		ug/L		85	78 - 131	2	16
1,2-Dibromo-3-Chloropropane			10.0	10.1		ug/L		101	53 - 142	2	29
1,2-Dibromoethane (EDB)			10.0	10.2		ug/L		102	80 - 124	1	14
1,2-Dichlorobenzene			10.0	9.82		ug/L		98	80 - 120	4	14
1,2-Dichloroethane			10.0	9.97		ug/L		100	80 - 120	1	14
1,2-Dichloropropane			10.0	9.71		ug/L		97	79 - 122	3	15
1,3,5-Trimethylbenzene			10.0	8.30		ug/L		83	76 - 129	5	17
1,3-Dichlorobenzene			10.0	9.80		ug/L		98	80 - 122	4	15
1,3-Dichloropropane			10.0	9.99		ug/L		100	78 - 129	0	17
1,4-Dichlorobenzene			10.0	9.58		ug/L		96	80 - 120	3	14
2,2-Dichloropropane			10.0	13.8		ug/L		138	73 - 140	9	18
2-Chlorotoluene			10.0	9.06		ug/L		91	74 - 129	4	19
4-Chlorotoluene			10.0	9.13		ug/L		91	79 - 125	3	16
Benzene			10.0	9.93		ug/L		99	80 - 120	3	15

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 590-45187/4
Matrix: Water
Analysis Batch: 45187

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Bromobenzene			10.0	8.76		ug/L		88	73 - 125	4	16
Bromochloromethane			10.0	10.2		ug/L		102	71 - 136	0	21
Bromodichloromethane			10.0	10.2		ug/L		102	80 - 120	0	16
Bromoform			10.0	11.3		ug/L		113	73 - 139	1	17
Bromomethane			10.0	9.53		ug/L		95	66 - 149	3	24
Carbon tetrachloride			10.0	11.4		ug/L		114	72 - 138	7	28
Chlorobenzene			10.0	9.91		ug/L		99	80 - 124	3	14
Chloroethane			10.0	10.2		ug/L		102	64 - 134	3	24
Chloroform			10.0	10.5		ug/L		105	80 - 123	3	18
Chloromethane			10.0	8.89		ug/L		89	19 - 150	20	35
cis-1,2-Dichloroethene			10.0	10.0		ug/L		100	80 - 122	3	17
cis-1,3-Dichloropropene			10.0	9.85		ug/L		99	80 - 121	2	16
Dibromochloromethane			10.0	10.4		ug/L		104	80 - 130	4	15
Dibromomethane			10.0	9.46		ug/L		95	80 - 122	2	16
Dichlorodifluoromethane			10.0	12.4		ug/L		124	30 - 150	7	22
Ethylbenzene			10.0	9.95		ug/L		99	80 - 122	3	35
Hexachlorobutadiene			10.0	11.1		ug/L		111	77 - 132	3	25
Isopropylbenzene			10.0	10.7		ug/L		107	80 - 122	4	16
m,p-Xylene			10.0	10.3		ug/L		103	80 - 125	2	35
Methyl tert-butyl ether			10.0	11.8		ug/L		118	68 - 134	0	18
Methylene Chloride			10.0	9.16		ug/L		92	30 - 150	6	25
Naphthalene			10.0	10.0		ug/L		100	61 - 140	5	25
n-Butylbenzene			10.0	8.93		ug/L		89	75 - 121	5	16
N-Propylbenzene			10.0	9.08		ug/L		91	73 - 136	5	18
o-Xylene			10.0	10.3		ug/L		103	80 - 130	3	35
p-Isopropyltoluene			10.0	9.55		ug/L		96	78 - 128	3	17
sec-Butylbenzene			10.0	8.28		ug/L		83	73 - 138	4	17
Styrene			10.0	9.58		ug/L		96	79 - 134	4	17
tert-Butylbenzene			10.0	8.39		ug/L		84	76 - 131	3	18
Tetrachloroethene			10.0	11.7		ug/L		117	80 - 139	2	20
Toluene			10.0	9.12		ug/L		91	80 - 129	3	35
trans-1,2-Dichloroethene			10.0	9.26		ug/L		93	73 - 137	13	18
trans-1,3-Dichloropropene			10.0	10.5		ug/L		105	73 - 138	2	17
Trichloroethene			10.0	9.99		ug/L		100	80 - 123	4	14
Trichlorofluoromethane			10.0	9.57		ug/L		96	71 - 147	11	24
Vinyl chloride			10.0	8.96		ug/L		90	50 - 150	19	26

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*97*		*76 - 120*
Dibromofluoromethane (Surr)	*104*		*80 - 123*
Toluene-d8 (Surr)	*98*		*80 - 120*

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-446826/1-A
Matrix: Water
Analysis Batch: 446882

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 446826

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		0.40	0.090	ug/L		12/21/23 08:20	12/21/23 17:30	1
1,2-Dichlorobenzene	ND		0.40	0.050	ug/L		12/21/23 08:20	12/21/23 17:30	1
1,3-Dichlorobenzene	ND		0.40	0.040	ug/L		12/21/23 08:20	12/21/23 17:30	1
1,4-Dichlorobenzene	ND		0.40	0.040	ug/L		12/21/23 08:20	12/21/23 17:30	1
1-Methylnaphthalene	ND		1.0	0.050	ug/L		12/21/23 08:20	12/21/23 17:30	1
2,4,5-Trichlorophenol	ND		0.40	0.10	ug/L		12/21/23 08:20	12/21/23 17:30	1
2,4,6-Trichlorophenol	ND		0.60	0.10	ug/L		12/21/23 08:20	12/21/23 17:30	1
2,4-Dichlorophenol	ND		1.0	0.20	ug/L		12/21/23 08:20	12/21/23 17:30	1
2,4-Dimethylphenol	ND		4.0	0.16	ug/L		12/21/23 08:20	12/21/23 17:30	1
2,4-Dinitrophenol	ND		5.0	0.45	ug/L		12/21/23 08:20	12/21/23 17:30	1
2,4-Dinitrotoluene	ND		1.0	0.10	ug/L		12/21/23 08:20	12/21/23 17:30	1
2,6-Dinitrotoluene	ND		0.40	0.10	ug/L		12/21/23 08:20	12/21/23 17:30	1
2-Chloronaphthalene	ND		1.0	0.070	ug/L		12/21/23 08:20	12/21/23 17:30	1
2-Chlorophenol	ND		1.0	0.050	ug/L		12/21/23 08:20	12/21/23 17:30	1
2-Methylnaphthalene	ND		0.40	0.060	ug/L		12/21/23 08:20	12/21/23 17:30	1
2-Methylphenol	ND		0.60	0.050	ug/L		12/21/23 08:20	12/21/23 17:30	1
2-Nitroaniline	ND		1.0	0.10	ug/L		12/21/23 08:20	12/21/23 17:30	1
2-Nitrophenol	ND		1.0	0.070	ug/L		12/21/23 08:20	12/21/23 17:30	1
3 & 4 Methylphenol	ND		0.60	0.10	ug/L		12/21/23 08:20	12/21/23 17:30	1
3,3'-Dichlorobenzidine	ND		1.0	0.12	ug/L		12/21/23 08:20	12/21/23 17:30	1
3-Nitroaniline	ND		3.0	0.16	ug/L		12/21/23 08:20	12/21/23 17:30	1
4,6-Dinitro-2-methylphenol	ND		2.0	0.55	ug/L		12/21/23 08:20	12/21/23 17:30	1
4-Bromophenyl phenyl ether	ND		0.60	0.060	ug/L		12/21/23 08:20	12/21/23 17:30	1
4-Chloro-3-methylphenol	ND		0.60	0.13	ug/L		12/21/23 08:20	12/21/23 17:30	1
4-Chloroaniline	ND		2.0	0.15	ug/L		12/21/23 08:20	12/21/23 17:30	1
4-Chlorophenyl phenyl ether	ND		0.60	0.050	ug/L		12/21/23 08:20	12/21/23 17:30	1
4-Nitroaniline	ND		2.0	0.21	ug/L		12/21/23 08:20	12/21/23 17:30	1
4-Nitrophenol	ND		10	1.7	ug/L		12/21/23 08:20	12/21/23 17:30	1
Acenaphthene	ND		0.40	0.050	ug/L		12/21/23 08:20	12/21/23 17:30	1
Acenaphthylene	ND		1.0	0.060	ug/L		12/21/23 08:20	12/21/23 17:30	1
Anthracene	ND		1.0	0.050	ug/L		12/21/23 08:20	12/21/23 17:30	1
Benzo[a]anthracene	ND		0.25	0.050	ug/L		12/21/23 08:20	12/21/23 17:30	1
Benzo[a]pyrene	ND		0.25	0.040	ug/L		12/21/23 08:20	12/21/23 17:30	1
Benzo[b]fluoranthene	ND		0.25	0.040	ug/L		12/21/23 08:20	12/21/23 17:30	1
Benzo[g,h,i]perylene	ND		0.25	0.040	ug/L		12/21/23 08:20	12/21/23 17:30	1
Benzo[k]fluoranthene	ND		0.25	0.050	ug/L		12/21/23 08:20	12/21/23 17:30	1
Benzoic acid	ND		10	1.3	ug/L		12/21/23 08:20	12/21/23 17:30	1
Benzyl alcohol	ND		5.0	0.18	ug/L		12/21/23 08:20	12/21/23 17:30	1
Bis(2-chloroethoxy)methane	ND		0.60	0.050	ug/L		12/21/23 08:20	12/21/23 17:30	1
Bis(2-chloroethyl)ether	ND		0.10	0.030	ug/L		12/21/23 08:20	12/21/23 17:30	1
Bis(2-ethylhexyl) phthalate	ND		3.0	0.74	ug/L		12/21/23 08:20	12/21/23 17:30	1
bis(chloroisopropyl) ether	ND		0.25	0.060	ug/L		12/21/23 08:20	12/21/23 17:30	1
Butyl benzyl phthalate	ND		4.0	0.27	ug/L		12/21/23 08:20	12/21/23 17:30	1
Carbazole	ND		0.60	0.10	ug/L		12/21/23 08:20	12/21/23 17:30	1
Chrysene	ND		0.25	0.090	ug/L		12/21/23 08:20	12/21/23 17:30	1
Dibenz(a,h)anthracene	ND		0.25	0.070	ug/L		12/21/23 08:20	12/21/23 17:30	1
Dibenzofuran	ND		0.40	0.10	ug/L		12/21/23 08:20	12/21/23 17:30	1
Diethyl phthalate	ND		1.0	0.15	ug/L		12/21/23 08:20	12/21/23 17:30	1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 580-446826/1-A
Matrix: Water
Analysis Batch: 446882

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 446826

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dimethyl phthalate	ND		0.60	0.060	ug/L		12/21/23 08:20	12/21/23 17:30	1
Di-n-butyl phthalate	ND		10	3.0	ug/L		12/21/23 08:20	12/21/23 17:30	1
Di-n-octyl phthalate	ND		1.0	0.13	ug/L		12/21/23 08:20	12/21/23 17:30	1
Fluoranthene	ND		0.25	0.060	ug/L		12/21/23 08:20	12/21/23 17:30	1
Fluorene	ND		0.25	0.050	ug/L		12/21/23 08:20	12/21/23 17:30	1
Hexachlorobenzene	ND		0.60	0.080	ug/L		12/21/23 08:20	12/21/23 17:30	1
Hexachlorobutadiene	ND		1.0	0.080	ug/L		12/21/23 08:20	12/21/23 17:30	1
Hexachlorocyclopentadiene	ND		1.0	0.14	ug/L		12/21/23 08:20	12/21/23 17:30	1
Hexachloroethane	ND		1.0	0.050	ug/L		12/21/23 08:20	12/21/23 17:30	1
Indeno[1,2,3-cd]pyrene	ND		0.40	0.13	ug/L		12/21/23 08:20	12/21/23 17:30	1
Isophorone	ND		0.40	0.10	ug/L		12/21/23 08:20	12/21/23 17:30	1
Naphthalene	ND		0.40	0.16	ug/L		12/21/23 08:20	12/21/23 17:30	1
Nitrobenzene	ND		1.0	0.040	ug/L		12/21/23 08:20	12/21/23 17:30	1
N-Nitrosodi-n-propylamine	ND		0.40	0.060	ug/L		12/21/23 08:20	12/21/23 17:30	1
N-Nitrosodiphenylamine	ND		1.0	0.070	ug/L		12/21/23 08:20	12/21/23 17:30	1
Pentachlorophenol	ND		5.0	0.51	ug/L		12/21/23 08:20	12/21/23 17:30	1
Phenanthrene	ND		1.0	0.12	ug/L		12/21/23 08:20	12/21/23 17:30	1
Phenol	ND		1.0	0.16	ug/L		12/21/23 08:20	12/21/23 17:30	1
Pyrene	ND		1.0	0.040	ug/L		12/21/23 08:20	12/21/23 17:30	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*68*		*50 - 130*	*12/21/23 08:20*	*12/21/23 17:30*	*1*
2-Fluorobiphenyl	*54*		*35 - 120*	*12/21/23 08:20*	*12/21/23 17:30*	*1*
2-Fluorophenol (Surr)	*47*		*21 - 120*	*12/21/23 08:20*	*12/21/23 17:30*	*1*
Nitrobenzene-d5 (Surr)	*66*		*39 - 120*	*12/21/23 08:20*	*12/21/23 17:30*	*1*
Phenol-d5 (Surr)	*28*		*10 - 120*	*12/21/23 08:20*	*12/21/23 17:30*	*1*
Terphenyl-d14 (Surr)	*74*		*63 - 137*	*12/21/23 08:20*	*12/21/23 17:30*	*1*

Lab Sample ID: LCS 580-446826/2-A
Matrix: Water
Analysis Batch: 446882

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 446826

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2,4-Trichlorobenzene	4.00	0.640	*-	ug/L		16	21 - 120
1,2-Dichlorobenzene	4.00	0.670	*-	ug/L		17	20 - 120
1,3-Dichlorobenzene	4.00	0.538	*-	ug/L		13	20 - 120
1,4-Dichlorobenzene	4.00	0.596	*-	ug/L		15	20 - 120
1-Methylnaphthalene	4.00	1.41	*-	ug/L		35	36 - 120
2,4,5-Trichlorophenol	4.00	3.33		ug/L		83	45 - 120
2,4,6-Trichlorophenol	4.00	3.13		ug/L		78	43 - 120
2,4-Dichlorophenol	4.00	3.13		ug/L		78	45 - 120
2,4-Dimethylphenol	4.00	2.96	J	ug/L		74	37 - 120
2,4-Dinitrophenol	8.00	5.42		ug/L		68	10 - 146
2,4-Dinitrotoluene	4.00	3.34		ug/L		84	51 - 120
2,6-Dinitrotoluene	4.00	3.40		ug/L		85	52 - 120
2-Chloronaphthalene	4.00	1.52		ug/L		38	35 - 120
2-Chlorophenol	4.00	2.79		ug/L		70	44 - 120
2-Methylnaphthalene	4.00	1.33	*-	ug/L		33	35 - 120

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 580-446826/2-A
Matrix: Water
Analysis Batch: 446882

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 446826

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2-Methylphenol	4.00	2.64		ug/L		66	30 - 120
2-Nitroaniline	4.00	3.45		ug/L		86	43 - 120
2-Nitrophenol	4.00	2.90		ug/L		73	44 - 120
3 & 4 Methylphenol	4.00	2.39		ug/L		60	29 - 120
3,3'-Dichlorobenzidine	8.00	7.51		ug/L		94	33 - 150
3-Nitroaniline	4.00	3.78		ug/L		95	10 - 138
4,6-Dinitro-2-methylphenol	8.00	7.02		ug/L		88	29 - 136
4-Bromophenyl phenyl ether	4.00	3.04		ug/L		76	53 - 120
4-Chloro-3-methylphenol	4.00	3.32		ug/L		83	36 - 120
4-Chloroaniline	4.00	2.48		ug/L		62	10 - 150
4-Chlorophenyl phenyl ether	4.00	2.40		ug/L		60	41 - 120
4-Nitroaniline	4.00	4.77		ug/L		119	38 - 133
4-Nitrophenol	8.00	3.44	J	ug/L		43	10 - 120
Acenaphthene	4.00	2.02		ug/L		51	41 - 120
Acenaphthylene	4.00	2.37		ug/L		59	43 - 120
Anthracene	4.00	3.21		ug/L		80	58 - 120
Benzo[a]anthracene	4.00	3.69		ug/L		92	48 - 131
Benzo[a]pyrene	4.00	3.31		ug/L		83	55 - 125
Benzo[b]fluoranthene	4.00	3.56		ug/L		89	54 - 124
Benzo[g,h,i]perylene	4.00	3.42		ug/L		86	46 - 124
Benzo[k]fluoranthene	4.00	3.23		ug/L		81	52 - 132
Benzoic acid	8.00	5.39	J	ug/L		67	10 - 120
Benzyl alcohol	4.00	2.54	J	ug/L		63	10 - 120
Bis(2-chloroethoxy)methane	4.00	2.83		ug/L		71	38 - 120
Bis(2-chloroethyl)ether	4.00	2.57		ug/L		64	39 - 120
Bis(2-ethylhexyl) phthalate	4.00	3.64		ug/L		91	41 - 150
bis(chloroisopropyl) ether	4.00	2.09		ug/L		52	20 - 139
Butyl benzyl phthalate	4.00	3.74	J	ug/L		93	40 - 150
Carbazole	4.00	3.83		ug/L		96	61 - 150
Chrysene	4.00	3.06		ug/L		77	57 - 125
Dibenz(a,h)anthracene	4.00	3.58		ug/L		90	48 - 126
Dibenzofuran	4.00	2.45		ug/L		61	45 - 120
Diethyl phthalate	4.00	3.43		ug/L		86	60 - 121
Dimethyl phthalate	4.00	3.32		ug/L		83	54 - 120
Di-n-butyl phthalate	4.00	3.54	J	ug/L		89	55 - 150
Di-n-octyl phthalate	4.00	3.93		ug/L		98	48 - 140
Fluoranthene	4.00	3.51		ug/L		88	60 - 121
Fluorene	4.00	2.70		ug/L		67	20 - 120
Hexachlorobenzene	4.00	2.90		ug/L		73	49 - 120
Hexachlorobutadiene	4.00	0.197	J *-	ug/L		5	10 - 130
Hexachlorocyclopentadiene	4.00	0.331	J *-	ug/L		8	10 - 125
Hexachloroethane	4.00	0.235	J *-	ug/L		6	10 - 130
Indeno[1,2,3-cd]pyrene	4.00	3.92		ug/L		98	39 - 124
Isophorone	4.00	2.89		ug/L		72	41 - 120
Naphthalene	4.00	1.35	*-	ug/L		34	42 - 120
Nitrobenzene	4.00	2.57		ug/L		64	38 - 120
N-Nitrosodi-n-propylamine	4.00	2.92		ug/L		73	39 - 120
N-Nitrosodiphenylamine	4.00	3.34		ug/L		84	52 - 120
Pentachlorophenol	8.00	2.61	J	ug/L		33	18 - 135

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 580-446826/2-A
Matrix: Water
Analysis Batch: 446882

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 446826

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Phenanthrene			4.00	3.08		ug/L		77	54 - 120		
Phenol			4.00	1.19		ug/L		30	13 - 120		
Pyrene			4.00	3.50		ug/L		87	57 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*74*		*50 - 130*
2-Fluorobiphenyl	*52*		*35 - 120*
2-Fluorophenol (Surr)	*41*		*21 - 120*
Nitrobenzene-d5 (Surr)	*65*		*39 - 120*
Phenol-d5 (Surr)	*25*		*10 - 120*
Terphenyl-d14 (Surr)	*75*		*63 - 137*

Lab Sample ID: LCSD 580-446826/3-A
Matrix: Water
Analysis Batch: 446882

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 446826

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,2,4-Trichlorobenzene			4.00	1.21	*1	ug/L		30	21 - 120	62	35
1,2-Dichlorobenzene			4.00	1.09	*1	ug/L		27	20 - 120	47	35
1,3-Dichlorobenzene			4.00	0.945	*1	ug/L		24	20 - 120	55	35
1,4-Dichlorobenzene			4.00	1.03	*1	ug/L		26	20 - 120	53	35
1-Methylnaphthalene			4.00	1.89		ug/L		47	36 - 120	29	35
2,4,5-Trichlorophenol			4.00	3.08		ug/L		77	45 - 120	8	35
2,4,6-Trichlorophenol			4.00	3.10		ug/L		77	43 - 120	1	35
2,4-Dichlorophenol			4.00	2.91		ug/L		73	45 - 120	7	35
2,4-Dimethylphenol			4.00	2.76	J	ug/L		69	37 - 120	7	35
2,4-Dinitrophenol			8.00	5.26		ug/L		66	10 - 146	3	35
2,4-Dinitrotoluene			4.00	3.28		ug/L		82	51 - 120	2	35
2,6-Dinitrotoluene			4.00	3.30		ug/L		82	52 - 120	3	35
2-Chloronaphthalene			4.00	2.07		ug/L		52	35 - 120	30	35
2-Chlorophenol			4.00	2.72		ug/L		68	44 - 120	2	35
2-Methylnaphthalene			4.00	1.80		ug/L		45	35 - 120	30	35
2-Methylphenol			4.00	2.49		ug/L		62	30 - 120	6	35
2-Nitroaniline			4.00	3.20		ug/L		80	43 - 120	7	35
2-Nitrophenol			4.00	2.80		ug/L		70	44 - 120	4	35
3 & 4 Methylphenol			4.00	2.34		ug/L		58	29 - 120	2	35
3,3'-Dichlorobenzidine			8.00	7.03		ug/L		88	33 - 150	7	35
3-Nitroaniline			4.00	3.66		ug/L		92	10 - 138	3	35
4,6-Dinitro-2-methylphenol			8.00	6.64		ug/L		83	29 - 136	5	35
4-Bromophenyl phenyl ether			4.00	3.16		ug/L		79	53 - 120	4	35
4-Chloro-3-methylphenol			4.00	3.05		ug/L		76	36 - 120	9	35
4-Chloroaniline			4.00	2.62		ug/L		65	10 - 150	5	35
4-Chlorophenyl phenyl ether			4.00	2.85		ug/L		71	41 - 120	17	35
4-Nitroaniline			4.00	4.52		ug/L		113	38 - 133	5	35
4-Nitrophenol			8.00	3.48	J	ug/L		44	10 - 120	1	35
Acenaphthene			4.00	2.40		ug/L		60	41 - 120	17	35
Acenaphthylene			4.00	2.68		ug/L		67	43 - 120	12	35
Anthracene			4.00	3.15		ug/L		79	58 - 120	2	35

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-446826/3-A
Matrix: Water
Analysis Batch: 446882

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 446826

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzo[a]anthracene			4.00	3.43		ug/L		86	48 - 131	7	35
Benzo[a]pyrene			4.00	3.26		ug/L		82	55 - 125	1	35
Benzo[b]fluoranthene			4.00	3.40		ug/L		85	54 - 124	5	35
Benzo[g,h,i]perylene			4.00	3.35		ug/L		84	46 - 124	2	35
Benzo[k]fluoranthene			4.00	3.12		ug/L		78	52 - 132	4	35
Benzoic acid			8.00	5.11	J	ug/L		64	10 - 120	5	35
Benzyl alcohol			4.00	2.31	J	ug/L		58	10 - 120	9	35
Bis(2-chloroethoxy)methane			4.00	2.67		ug/L		67	38 - 120	6	35
Bis(2-chloroethyl)ether			4.00	2.49		ug/L		62	39 - 120	3	35
Bis(2-ethylhexyl) phthalate			4.00	3.41		ug/L		85	41 - 150	6	35
bis(chloroisopropyl) ether			4.00	2.20		ug/L		55	20 - 139	5	35
Butyl benzyl phthalate			4.00	3.39	J	ug/L		85	40 - 150	10	35
Carbazole			4.00	3.64		ug/L		91	61 - 150	5	35
Chrysene			4.00	2.86		ug/L		72	57 - 125	7	35
Dibenz(a,h)anthracene			4.00	3.37		ug/L		84	48 - 126	6	35
Dibenzofuran			4.00	2.79		ug/L		70	45 - 120	13	35
Diethyl phthalate			4.00	3.31		ug/L		83	60 - 121	3	35
Dimethyl phthalate			4.00	3.23		ug/L		81	54 - 120	3	35
Di-n-butyl phthalate			4.00	3.41	J	ug/L		85	55 - 150	4	35
Di-n-octyl phthalate			4.00	3.81		ug/L		95	48 - 140	3	35
Fluoranthene			4.00	3.39		ug/L		85	60 - 121	3	35
Fluorene			4.00	2.91		ug/L		73	20 - 120	7	35
Hexachlorobenzene			4.00	2.95		ug/L		74	49 - 120	2	35
Hexachlorobutadiene			4.00	0.635	J *1	ug/L		16	10 - 130	105	35
Hexachlorocyclopentadiene			4.00	0.889	J *1	ug/L		22	10 - 125	91	35
Hexachloroethane			4.00	0.653	J *1	ug/L		16	10 - 130	94	35
Indeno[1,2,3-cd]pyrene			4.00	3.82		ug/L		96	39 - 124	3	35
Isophorone			4.00	2.78		ug/L		69	41 - 120	4	35
Naphthalene			4.00	1.73		ug/L		43	42 - 120	25	35
Nitrobenzene			4.00	2.59		ug/L		65	38 - 120	1	35
N-Nitrosodi-n-propylamine			4.00	2.76		ug/L		69	39 - 120	6	35
N-Nitrosodiphenylamine			4.00	3.21		ug/L		80	52 - 120	4	35
Pentachlorophenol			8.00	2.56	J	ug/L		32	18 - 135	2	35
Phenanthrene			4.00	3.02		ug/L		75	54 - 120	2	35
Phenol			4.00	1.12		ug/L		28	13 - 120	6	35
Pyrene			4.00	3.36		ug/L		84	57 - 120	4	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*75*		*50 - 130*
2-Fluorobiphenyl	*52*		*35 - 120*
2-Fluorophenol (Surr)	*41*		*21 - 120*
Nitrobenzene-d5 (Surr)	*60*		*39 - 120*
Phenol-d5 (Surr)	*25*		*10 - 120*
Terphenyl-d14 (Surr)	*72*		*63 - 137*

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 580-447085/1-A
Matrix: Water
Analysis Batch: 447287

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447085

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		0.40	0.090	ug/L		12/27/23 08:30	12/28/23 17:50	1
1,2-Dichlorobenzene	ND		0.40	0.050	ug/L		12/27/23 08:30	12/28/23 17:50	1
1,3-Dichlorobenzene	ND		0.40	0.040	ug/L		12/27/23 08:30	12/28/23 17:50	1
1,4-Dichlorobenzene	ND		0.40	0.040	ug/L		12/27/23 08:30	12/28/23 17:50	1
1-Methylnaphthalene	ND		1.0	0.050	ug/L		12/27/23 08:30	12/28/23 17:50	1
2,4,5-Trichlorophenol	ND		0.40	0.10	ug/L		12/27/23 08:30	12/28/23 17:50	1
2,4,6-Trichlorophenol	ND		0.60	0.10	ug/L		12/27/23 08:30	12/28/23 17:50	1
2,4-Dichlorophenol	ND		1.0	0.20	ug/L		12/27/23 08:30	12/28/23 17:50	1
2,4-Dimethylphenol	ND		4.0	0.16	ug/L		12/27/23 08:30	12/28/23 17:50	1
2,4-Dinitrophenol	ND		5.0	0.45	ug/L		12/27/23 08:30	12/28/23 17:50	1
2,4-Dinitrotoluene	ND		1.0	0.10	ug/L		12/27/23 08:30	12/28/23 17:50	1
2,6-Dinitrotoluene	ND		0.40	0.10	ug/L		12/27/23 08:30	12/28/23 17:50	1
2-Chloronaphthalene	ND		1.0	0.070	ug/L		12/27/23 08:30	12/28/23 17:50	1
2-Chlorophenol	ND		1.0	0.050	ug/L		12/27/23 08:30	12/28/23 17:50	1
2-Methylnaphthalene	ND		0.40	0.060	ug/L		12/27/23 08:30	12/28/23 17:50	1
2-Methylphenol	ND		0.60	0.050	ug/L		12/27/23 08:30	12/28/23 17:50	1
2-Nitroaniline	ND		1.0	0.10	ug/L		12/27/23 08:30	12/28/23 17:50	1
2-Nitrophenol	ND		1.0	0.070	ug/L		12/27/23 08:30	12/28/23 17:50	1
3 & 4 Methylphenol	ND		0.60	0.10	ug/L		12/27/23 08:30	12/28/23 17:50	1
3,3'-Dichlorobenzidine	ND		1.0	0.12	ug/L		12/27/23 08:30	12/28/23 17:50	1
3-Nitroaniline	ND		3.0	0.16	ug/L		12/27/23 08:30	12/28/23 17:50	1
4,6-Dinitro-2-methylphenol	ND		2.0	0.55	ug/L		12/27/23 08:30	12/28/23 17:50	1
4-Bromophenyl phenyl ether	ND		0.60	0.060	ug/L		12/27/23 08:30	12/28/23 17:50	1
4-Chloro-3-methylphenol	ND		0.60	0.13	ug/L		12/27/23 08:30	12/28/23 17:50	1
4-Chloroaniline	ND		2.0	0.15	ug/L		12/27/23 08:30	12/28/23 17:50	1
4-Chlorophenyl phenyl ether	ND		0.60	0.050	ug/L		12/27/23 08:30	12/28/23 17:50	1
4-Nitroaniline	ND		2.0	0.21	ug/L		12/27/23 08:30	12/28/23 17:50	1
4-Nitrophenol	ND		10	1.7	ug/L		12/27/23 08:30	12/28/23 17:50	1
Acenaphthene	ND		0.40	0.050	ug/L		12/27/23 08:30	12/28/23 17:50	1
Acenaphthylene	ND		1.0	0.060	ug/L		12/27/23 08:30	12/28/23 17:50	1
Anthracene	ND		1.0	0.050	ug/L		12/27/23 08:30	12/28/23 17:50	1
Benzo[a]anthracene	ND		0.25	0.050	ug/L		12/27/23 08:30	12/28/23 17:50	1
Benzo[a]pyrene	ND		0.25	0.040	ug/L		12/27/23 08:30	12/28/23 17:50	1
Benzo[b]fluoranthene	ND		0.25	0.040	ug/L		12/27/23 08:30	12/28/23 17:50	1
Benzo[g,h,i]perylene	ND		0.25	0.040	ug/L		12/27/23 08:30	12/28/23 17:50	1
Benzo[k]fluoranthene	ND		0.25	0.050	ug/L		12/27/23 08:30	12/28/23 17:50	1
Benzoic acid	ND		10	1.3	ug/L		12/27/23 08:30	12/28/23 17:50	1
Benzyl alcohol	ND		5.0	0.18	ug/L		12/27/23 08:30	12/28/23 17:50	1
Bis(2-chloroethoxy)methane	ND		0.60	0.050	ug/L		12/27/23 08:30	12/28/23 17:50	1
Bis(2-chloroethyl)ether	ND		0.10	0.030	ug/L		12/27/23 08:30	12/28/23 17:50	1
Bis(2-ethylhexyl) phthalate	ND		3.0	0.74	ug/L		12/27/23 08:30	12/28/23 17:50	1
bis(chloroisopropyl) ether	ND		0.25	0.060	ug/L		12/27/23 08:30	12/28/23 17:50	1
Butyl benzyl phthalate	ND		4.0	0.27	ug/L		12/27/23 08:30	12/28/23 17:50	1
Carbazole	ND		0.60	0.10	ug/L		12/27/23 08:30	12/28/23 17:50	1
Chrysene	ND		0.25	0.090	ug/L		12/27/23 08:30	12/28/23 17:50	1
Dibenz(a,h)anthracene	ND		0.25	0.070	ug/L		12/27/23 08:30	12/28/23 17:50	1
Dibenzofuran	ND		0.40	0.10	ug/L		12/27/23 08:30	12/28/23 17:50	1
Diethyl phthalate	ND		1.0	0.15	ug/L		12/27/23 08:30	12/28/23 17:50	1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 580-447085/1-A
Matrix: Water
Analysis Batch: 447287

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447085

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dimethyl phthalate	ND		0.60	0.060	ug/L		12/27/23 08:30	12/28/23 17:50	1
Di-n-butyl phthalate	ND		10	3.0	ug/L		12/27/23 08:30	12/28/23 17:50	1
Di-n-octyl phthalate	ND		1.0	0.13	ug/L		12/27/23 08:30	12/28/23 17:50	1
Fluoranthene	ND		0.25	0.060	ug/L		12/27/23 08:30	12/28/23 17:50	1
Fluorene	ND		0.25	0.050	ug/L		12/27/23 08:30	12/28/23 17:50	1
Hexachlorobenzene	ND		0.60	0.080	ug/L		12/27/23 08:30	12/28/23 17:50	1
Hexachlorobutadiene	ND		1.0	0.080	ug/L		12/27/23 08:30	12/28/23 17:50	1
Hexachlorocyclopentadiene	ND		1.0	0.14	ug/L		12/27/23 08:30	12/28/23 17:50	1
Hexachloroethane	ND		1.0	0.050	ug/L		12/27/23 08:30	12/28/23 17:50	1
Indeno[1,2,3-cd]pyrene	ND		0.40	0.13	ug/L		12/27/23 08:30	12/28/23 17:50	1
Isophorone	ND		0.40	0.10	ug/L		12/27/23 08:30	12/28/23 17:50	1
Naphthalene	ND		0.40	0.16	ug/L		12/27/23 08:30	12/28/23 17:50	1
Nitrobenzene	ND		1.0	0.040	ug/L		12/27/23 08:30	12/28/23 17:50	1
N-Nitrosodi-n-propylamine	ND		0.40	0.060	ug/L		12/27/23 08:30	12/28/23 17:50	1
N-Nitrosodiphenylamine	ND		1.0	0.070	ug/L		12/27/23 08:30	12/28/23 17:50	1
Pentachlorophenol	ND		5.0	0.51	ug/L		12/27/23 08:30	12/28/23 17:50	1
Phenanthrene	ND		1.0	0.12	ug/L		12/27/23 08:30	12/28/23 17:50	1
Phenol	ND		1.0	0.16	ug/L		12/27/23 08:30	12/28/23 17:50	1
Pyrene	ND		1.0	0.040	ug/L		12/27/23 08:30	12/28/23 17:50	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*36*	*S1-*	*50 - 130*	*12/27/23 08:30*	*12/28/23 17:50*	*1*
2-Fluorobiphenyl	*36*		*35 - 120*	*12/27/23 08:30*	*12/28/23 17:50*	*1*
2-Fluorophenol (Surr)	*21*		*21 - 120*	*12/27/23 08:30*	*12/28/23 17:50*	*1*
Nitrobenzene-d5 (Surr)	*49*		*39 - 120*	*12/27/23 08:30*	*12/28/23 17:50*	*1*
Phenol-d5 (Surr)	*15*		*10 - 120*	*12/27/23 08:30*	*12/28/23 17:50*	*1*
Terphenyl-d14 (Surr)	*61*	*S1-*	*63 - 137*	*12/27/23 08:30*	*12/28/23 17:50*	*1*

Lab Sample ID: MB 580-447085/1-A
Matrix: Water
Analysis Batch: 447355

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447085

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		0.40	0.090	ug/L		12/27/23 08:30	12/29/23 10:29	1
1,2-Dichlorobenzene	ND		0.40	0.050	ug/L		12/27/23 08:30	12/29/23 10:29	1
1,3-Dichlorobenzene	ND		0.40	0.040	ug/L		12/27/23 08:30	12/29/23 10:29	1
1,4-Dichlorobenzene	ND		0.40	0.040	ug/L		12/27/23 08:30	12/29/23 10:29	1
1-Methylnaphthalene	ND		1.0	0.050	ug/L		12/27/23 08:30	12/29/23 10:29	1
2,4,5-Trichlorophenol	ND		0.40	0.10	ug/L		12/27/23 08:30	12/29/23 10:29	1
2,4,6-Trichlorophenol	ND		0.60	0.10	ug/L		12/27/23 08:30	12/29/23 10:29	1
2,4-Dichlorophenol	ND		1.0	0.20	ug/L		12/27/23 08:30	12/29/23 10:29	1
2,4-Dimethylphenol	ND		4.0	0.16	ug/L		12/27/23 08:30	12/29/23 10:29	1
2,4-Dinitrophenol	ND		5.0	0.45	ug/L		12/27/23 08:30	12/29/23 10:29	1
2,4-Dinitrotoluene	ND		1.0	0.10	ug/L		12/27/23 08:30	12/29/23 10:29	1
2,6-Dinitrotoluene	ND		0.40	0.10	ug/L		12/27/23 08:30	12/29/23 10:29	1
2-Chloronaphthalene	ND		1.0	0.070	ug/L		12/27/23 08:30	12/29/23 10:29	1
2-Chlorophenol	ND		1.0	0.050	ug/L		12/27/23 08:30	12/29/23 10:29	1
2-Methylnaphthalene	ND		0.40	0.060	ug/L		12/27/23 08:30	12/29/23 10:29	1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 580-447085/1-A
Matrix: Water
Analysis Batch: 447355

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447085

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		0.60	0.050	ug/L		12/27/23 08:30	12/29/23 10:29	1
2-Nitroaniline	ND		1.0	0.10	ug/L		12/27/23 08:30	12/29/23 10:29	1
2-Nitrophenol	ND		1.0	0.070	ug/L		12/27/23 08:30	12/29/23 10:29	1
3 & 4 Methylphenol	ND		0.60	0.10	ug/L		12/27/23 08:30	12/29/23 10:29	1
3,3'-Dichlorobenzidine	ND		1.0	0.12	ug/L		12/27/23 08:30	12/29/23 10:29	1
3-Nitroaniline	ND		3.0	0.16	ug/L		12/27/23 08:30	12/29/23 10:29	1
4,6-Dinitro-2-methylphenol	ND		2.0	0.55	ug/L		12/27/23 08:30	12/29/23 10:29	1
4-Bromophenyl phenyl ether	ND		0.60	0.060	ug/L		12/27/23 08:30	12/29/23 10:29	1
4-Chloro-3-methylphenol	ND		0.60	0.13	ug/L		12/27/23 08:30	12/29/23 10:29	1
4-Chloroaniline	ND		2.0	0.15	ug/L		12/27/23 08:30	12/29/23 10:29	1
4-Chlorophenyl phenyl ether	ND		0.60	0.050	ug/L		12/27/23 08:30	12/29/23 10:29	1
4-Nitroaniline	ND		2.0	0.21	ug/L		12/27/23 08:30	12/29/23 10:29	1
4-Nitrophenol	ND		10	1.7	ug/L		12/27/23 08:30	12/29/23 10:29	1
Acenaphthene	ND		0.40	0.050	ug/L		12/27/23 08:30	12/29/23 10:29	1
Acenaphthylene	ND		1.0	0.060	ug/L		12/27/23 08:30	12/29/23 10:29	1
Anthracene	ND		1.0	0.050	ug/L		12/27/23 08:30	12/29/23 10:29	1
Benzo[a]anthracene	ND		0.25	0.050	ug/L		12/27/23 08:30	12/29/23 10:29	1
Benzo[a]pyrene	ND		0.25	0.040	ug/L		12/27/23 08:30	12/29/23 10:29	1
Benzo[b]fluoranthene	ND		0.25	0.040	ug/L		12/27/23 08:30	12/29/23 10:29	1
Benzo[g,h,i]perylene	ND		0.25	0.040	ug/L		12/27/23 08:30	12/29/23 10:29	1
Benzo[k]fluoranthene	ND		0.25	0.050	ug/L		12/27/23 08:30	12/29/23 10:29	1
Benzoic acid	ND		10	1.3	ug/L		12/27/23 08:30	12/29/23 10:29	1
Benzyl alcohol	ND		5.0	0.18	ug/L		12/27/23 08:30	12/29/23 10:29	1
Bis(2-chloroethoxy)methane	ND		0.60	0.050	ug/L		12/27/23 08:30	12/29/23 10:29	1
Bis(2-chloroethyl)ether	ND		0.10	0.030	ug/L		12/27/23 08:30	12/29/23 10:29	1
Bis(2-ethylhexyl) phthalate	ND		3.0	0.74	ug/L		12/27/23 08:30	12/29/23 10:29	1
bis(chloroisopropyl) ether	ND		0.25	0.060	ug/L		12/27/23 08:30	12/29/23 10:29	1
Butyl benzyl phthalate	ND		4.0	0.27	ug/L		12/27/23 08:30	12/29/23 10:29	1
Carbazole	ND		0.60	0.10	ug/L		12/27/23 08:30	12/29/23 10:29	1
Chrysene	ND		0.25	0.090	ug/L		12/27/23 08:30	12/29/23 10:29	1
Dibenz(a,h)anthracene	ND		0.25	0.070	ug/L		12/27/23 08:30	12/29/23 10:29	1
Dibenzofuran	ND		0.40	0.10	ug/L		12/27/23 08:30	12/29/23 10:29	1
Diethyl phthalate	ND		1.0	0.15	ug/L		12/27/23 08:30	12/29/23 10:29	1
Dimethyl phthalate	ND		0.60	0.060	ug/L		12/27/23 08:30	12/29/23 10:29	1
Di-n-butyl phthalate	ND		10	3.0	ug/L		12/27/23 08:30	12/29/23 10:29	1
Di-n-octyl phthalate	ND		1.0	0.13	ug/L		12/27/23 08:30	12/29/23 10:29	1
Fluoranthene	ND		0.25	0.060	ug/L		12/27/23 08:30	12/29/23 10:29	1
Fluorene	ND		0.25	0.050	ug/L		12/27/23 08:30	12/29/23 10:29	1
Hexachlorobenzene	ND		0.60	0.080	ug/L		12/27/23 08:30	12/29/23 10:29	1
Hexachlorobutadiene	ND		1.0	0.080	ug/L		12/27/23 08:30	12/29/23 10:29	1
Hexachlorocyclopentadiene	ND		1.0	0.14	ug/L		12/27/23 08:30	12/29/23 10:29	1
Hexachloroethane	ND		1.0	0.050	ug/L		12/27/23 08:30	12/29/23 10:29	1
Indeno[1,2,3-cd]pyrene	ND		0.40	0.13	ug/L		12/27/23 08:30	12/29/23 10:29	1
Isophorone	ND		0.40	0.10	ug/L		12/27/23 08:30	12/29/23 10:29	1
Naphthalene	ND		0.40	0.16	ug/L		12/27/23 08:30	12/29/23 10:29	1
Nitrobenzene	ND		1.0	0.040	ug/L		12/27/23 08:30	12/29/23 10:29	1
N-Nitrosodi-n-propylamine	ND		0.40	0.060	ug/L		12/27/23 08:30	12/29/23 10:29	1
N-Nitrosodiphenylamine	ND		1.0	0.070	ug/L		12/27/23 08:30	12/29/23 10:29	1
Pentachlorophenol	ND		5.0	0.51	ug/L		12/27/23 08:30	12/29/23 10:29	1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 580-447085/1-A
Matrix: Water
Analysis Batch: 447355

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447085

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenanthrene	ND		1.0	0.12	ug/L		12/27/23 08:30	12/29/23 10:29	1
Phenol	ND		1.0	0.16	ug/L		12/27/23 08:30	12/29/23 10:29	1
Pyrene	ND		1.0	0.040	ug/L		12/27/23 08:30	12/29/23 10:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*38*	*S1-*	*50 - 130*	*12/27/23 08:30*	*12/29/23 10:29*	*1*
2-Fluorobiphenyl	*33*	*S1-*	*35 - 120*	*12/27/23 08:30*	*12/29/23 10:29*	*1*
2-Fluorophenol (Surr)	*19*	*S1-*	*21 - 120*	*12/27/23 08:30*	*12/29/23 10:29*	*1*
Nitrobenzene-d5 (Surr)	*46*		*39 - 120*	*12/27/23 08:30*	*12/29/23 10:29*	*1*
Phenol-d5 (Surr)	*14*		*10 - 120*	*12/27/23 08:30*	*12/29/23 10:29*	*1*
Terphenyl-d14 (Surr)	*56*	*S1-*	*63 - 137*	*12/27/23 08:30*	*12/29/23 10:29*	*1*

Lab Sample ID: LCS 580-447085/2-A
Matrix: Water
Analysis Batch: 447287

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447085

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2,4-Trichlorobenzene	4.00	0.922		ug/L		23	21 - 120
1,2-Dichlorobenzene	4.00	0.856		ug/L		21	20 - 120
1,3-Dichlorobenzene	4.00	0.686	*-	ug/L		17	20 - 120
1,4-Dichlorobenzene	4.00	0.768	*-	ug/L		19	20 - 120
1-Methylnaphthalene	4.00	1.85		ug/L		46	36 - 120
2,4,5-Trichlorophenol	4.00	1.37	*-	ug/L		34	45 - 120
2,4,6-Trichlorophenol	4.00	0.999	*-	ug/L		25	43 - 120
2,4-Dichlorophenol	4.00	1.80		ug/L		45	45 - 120
2,4-Dimethylphenol	4.00	2.40	J	ug/L		60	37 - 120
2,4-Dinitrophenol	8.00	ND	*-	ug/L		0	10 - 146
2,4-Dinitrotoluene	4.00	2.18		ug/L		55	51 - 120
2,6-Dinitrotoluene	4.00	3.39		ug/L		85	52 - 120
2-Chloronaphthalene	4.00	2.20		ug/L		55	35 - 120
2-Chlorophenol	4.00	1.49	*-	ug/L		37	44 - 120
2-Methylnaphthalene	4.00	1.82		ug/L		45	35 - 120
2-Methylphenol	4.00	1.85		ug/L		46	30 - 120
2-Nitroaniline	4.00	3.99		ug/L		100	43 - 120
2-Nitrophenol	4.00	0.151	J *-	ug/L		4	44 - 120
3 & 4 Methylphenol	4.00	1.05	*-	ug/L		26	29 - 120
3,3'-Dichlorobenzidine	8.00	9.15		ug/L		114	33 - 150
3-Nitroaniline	4.00	5.21		ug/L		130	10 - 138
4,6-Dinitro-2-methylphenol	8.00	ND	*-	ug/L		0	29 - 136
4-Bromophenyl phenyl ether	4.00	3.85		ug/L		96	53 - 120
4-Chloro-3-methylphenol	4.00	1.20	*-	ug/L		30	36 - 120
4-Chloroaniline	4.00	3.88		ug/L		97	10 - 150
4-Chlorophenyl phenyl ether	4.00	3.54		ug/L		88	41 - 120
4-Nitroaniline	4.00	6.02	*+	ug/L		151	38 - 133
4-Nitrophenol	8.00	ND	*-	ug/L		0	10 - 120
Acenaphthene	4.00	2.70		ug/L		67	41 - 120
Acenaphthylene	4.00	3.05		ug/L		76	43 - 120
Anthracene	4.00	3.86		ug/L		97	58 - 120

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 580-447085/2-A
Matrix: Water
Analysis Batch: 447287

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447085

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	4.21		ug/L		105	48 - 131
Benzo[a]pyrene	4.00	3.94		ug/L		99	55 - 125
Benzo[b]fluoranthene	4.00	4.59		ug/L		115	54 - 124
Benzo[g,h,i]perylene	4.00	4.09		ug/L		102	46 - 124
Benzo[k]fluoranthene	4.00	3.58		ug/L		89	52 - 132
Benzoic acid	8.00	ND	*-	ug/L		0	10 - 120
Benzyl alcohol	4.00	3.22	J	ug/L		81	10 - 120
Bis(2-chloroethoxy)methane	4.00	3.34		ug/L		84	38 - 120
Bis(2-chloroethyl)ether	4.00	3.09		ug/L		77	39 - 120
Bis(2-ethylhexyl) phthalate	4.00	4.05		ug/L		101	41 - 150
bis(chloroisopropyl) ether	4.00	2.40		ug/L		60	20 - 139
Butyl benzyl phthalate	4.00	3.84	J	ug/L		96	40 - 150
Carbazole	4.00	4.82		ug/L		121	61 - 150
Chrysene	4.00	3.59		ug/L		90	57 - 125
Dibenz(a,h)anthracene	4.00	4.20		ug/L		105	48 - 126
Dibenzofuran	4.00	3.25		ug/L		81	45 - 120
Diethyl phthalate	4.00	4.14		ug/L		104	60 - 121
Dimethyl phthalate	4.00	3.97		ug/L		99	54 - 120
Di-n-butyl phthalate	4.00	4.07	J	ug/L		102	55 - 150
Di-n-octyl phthalate	4.00	4.09		ug/L		102	48 - 140
Fluoranthene	4.00	4.15		ug/L		104	60 - 121
Fluorene	4.00	3.50		ug/L		88	20 - 120
Hexachlorobenzene	4.00	3.64		ug/L		91	49 - 120
Hexachlorobutadiene	4.00	0.257	J *-	ug/L		6	10 - 130
Hexachlorocyclopentadiene	4.00	ND	*-	ug/L		2	10 - 125
Hexachloroethane	4.00	0.311	J *-	ug/L		8	10 - 130
Indeno[1,2,3-cd]pyrene	4.00	4.77		ug/L		119	39 - 124
Isophorone	4.00	3.43		ug/L		86	41 - 120
Naphthalene	4.00	1.70		ug/L		43	42 - 120
Nitrobenzene	4.00	3.17		ug/L		79	38 - 120
N-Nitrosodi-n-propylamine	4.00	3.63		ug/L		91	39 - 120
N-Nitrosodiphenylamine	4.00	4.06		ug/L		102	52 - 120
Pentachlorophenol	8.00	0.604	J *-	ug/L		8	18 - 135
Phenanthrene	4.00	3.74		ug/L		94	54 - 120
Phenol	4.00	0.462	J *-	ug/L		12	13 - 120
Pyrene	4.00	4.17		ug/L		104	57 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*10*	*S1-*	*50 - 130*
2-Fluorobiphenyl	*46*		*35 - 120*
2-Fluorophenol (Surr)	*12*	*S1-*	*21 - 120*
Nitrobenzene-d5 (Surr)	*52*		*39 - 120*
Phenol-d5 (Surr)	*6*	*S1-*	*10 - 120*
Terphenyl-d14 (Surr)	*61*	*S1-*	*63 - 137*

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 580-447085/2-A
Matrix: Water
Analysis Batch: 447355

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447085

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2,4-Trichlorobenzene	4.00	0.916		ug/L		23	21 - 120
1,2-Dichlorobenzene	4.00	0.808		ug/L		20	20 - 120
1,3-Dichlorobenzene	4.00	0.628	*-	ug/L		16	20 - 120
1,4-Dichlorobenzene	4.00	0.695	*-	ug/L		17	20 - 120
1-Methylnaphthalene	4.00	1.78		ug/L		44	36 - 120
2,4,5-Trichlorophenol	4.00	0.524	*-	ug/L		13	45 - 120
2,4,6-Trichlorophenol	4.00	0.818	*-	ug/L		20	43 - 120
2,4-Dichlorophenol	4.00	0.513	J *-	ug/L		13	45 - 120
2,4-Dimethylphenol	4.00	1.97	J	ug/L		49	37 - 120
2,4-Dinitrophenol	8.00	ND	*-	ug/L		0	10 - 146
2,4-Dinitrotoluene	4.00	3.25		ug/L		81	51 - 120
2,6-Dinitrotoluene	4.00	3.49		ug/L		87	52 - 120
2-Chloronaphthalene	4.00	1.95		ug/L		49	35 - 120
2-Chlorophenol	4.00	0.381	J *-	ug/L		10	44 - 120
2-Methylnaphthalene	4.00	1.72		ug/L		43	35 - 120
2-Methylphenol	4.00	1.31		ug/L		33	30 - 120
2-Nitroaniline	4.00	3.48		ug/L		87	43 - 120
2-Nitrophenol	4.00	0.166	J *-	ug/L		4	44 - 120
3 & 4 Methylphenol	4.00	0.506	J *-	ug/L		13	29 - 120
3,3'-Dichlorobenzidine	8.00	8.94		ug/L		112	33 - 150
3-Nitroaniline	4.00	4.59		ug/L		115	10 - 138
4,6-Dinitro-2-methylphenol	8.00	ND	*-	ug/L		0	29 - 136
4-Bromophenyl phenyl ether	4.00	3.82		ug/L		96	53 - 120
4-Chloro-3-methylphenol	4.00	0.314	J *-	ug/L		8	36 - 120
4-Chloroaniline	4.00	3.75		ug/L		94	10 - 150
4-Chlorophenyl phenyl ether	4.00	3.22		ug/L		81	41 - 120
4-Nitroaniline	4.00	5.17		ug/L		129	38 - 133
4-Nitrophenol	8.00	ND	*-	ug/L		0	10 - 120
Acenaphthene	4.00	2.42		ug/L		60	41 - 120
Acenaphthylene	4.00	2.70		ug/L		67	43 - 120
Anthracene	4.00	3.65		ug/L		91	58 - 120
Benzo[a]anthracene	4.00	4.12		ug/L		103	48 - 131
Benzo[a]pyrene	4.00	3.79		ug/L		95	55 - 125
Benzo[b]fluoranthene	4.00	4.07		ug/L		102	54 - 124
Benzo[g,h,i]perylene	4.00	3.85		ug/L		96	46 - 124
Benzo[k]fluoranthene	4.00	3.68		ug/L		92	52 - 132
Benzoic acid	8.00	ND	*-	ug/L		0	10 - 120
Benzyl alcohol	4.00	2.81	J	ug/L		70	10 - 120
Bis(2-chloroethoxy)methane	4.00	3.03		ug/L		76	38 - 120
Bis(2-chloroethyl)ether	4.00	2.80		ug/L		70	39 - 120
Bis(2-ethylhexyl) phthalate	4.00	3.99		ug/L		100	41 - 150
bis(chloroisopropyl) ether	4.00	2.13		ug/L		53	20 - 139
Butyl benzyl phthalate	4.00	4.14		ug/L		104	40 - 150
Carbazole	4.00	4.43		ug/L		111	61 - 150
Chrysene	4.00	3.43		ug/L		86	57 - 125
Dibenz(a,h)anthracene	4.00	3.94		ug/L		99	48 - 126
Dibenzofuran	4.00	2.95		ug/L		74	45 - 120
Diethyl phthalate	4.00	3.78		ug/L		94	60 - 121

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 580-447085/2-A
Matrix: Water
Analysis Batch: 447355

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447085

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Dimethyl phthalate			4.00	3.48		ug/L		87	54 - 120		
Di-n-butyl phthalate			4.00	3.85	J	ug/L		96	55 - 150		
Di-n-octyl phthalate			4.00	4.24		ug/L		106	48 - 140		
Fluoranthene			4.00	3.80		ug/L		95	60 - 121		
Fluorene			4.00	3.21		ug/L		80	20 - 120		
Hexachlorobenzene			4.00	3.61		ug/L		90	49 - 120		
Hexachlorobutadiene			4.00	0.284	J *-	ug/L		7	10 - 130		
Hexachlorocyclopentadiene			2.00	ND	*-	ug/L		6	10 - 125		
Hexachloroethane			4.00	0.268	J *-	ug/L		7	10 - 130		
Indeno[1,2,3-cd]pyrene			4.00	4.49		ug/L		112	39 - 124		
Isophorone			4.00	3.16		ug/L		79	41 - 120		
Naphthalene			4.00	1.64	*-	ug/L		41	42 - 120		
Nitrobenzene			4.00	3.04		ug/L		76	38 - 120		
N-Nitrosodi-n-propylamine			4.00	3.25		ug/L		81	39 - 120		
N-Nitrosodiphenylamine			4.00	3.88		ug/L		97	52 - 120		
Pentachlorophenol			8.00	1.10	J *-	ug/L		14	18 - 135		
Phenanthrene			4.00	3.51		ug/L		88	54 - 120		
Phenol			4.00	ND	*-	ug/L		3	13 - 120		
Pyrene			4.00	3.95		ug/L		99	57 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*20*	*S1-*	*50 - 130*
2-Fluorobiphenyl	*42*		*35 - 120*
2-Fluorophenol (Surr)	*3*	*S1-*	*21 - 120*
Nitrobenzene-d5 (Surr)	*50*		*39 - 120*
Phenol-d5 (Surr)	*0*	*S1-*	*10 - 120*
Terphenyl-d14 (Surr)	*58*	*S1-*	*63 - 137*

Lab Sample ID: LCSD 580-447085/3-A
Matrix: Water
Analysis Batch: 447287

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 447085

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,2,4-Trichlorobenzene			4.00	0.743	*-	ug/L		19	21 - 120	21	35
1,2-Dichlorobenzene			4.00	0.716	*-	ug/L		18	20 - 120	18	35
1,3-Dichlorobenzene			4.00	0.556	*-	ug/L		14	20 - 120	21	35
1,4-Dichlorobenzene			4.00	0.617	*-	ug/L		15	20 - 120	22	35
1-Methylnaphthalene			4.00	1.60		ug/L		40	36 - 120	14	35
2,4,5-Trichlorophenol			4.00	4.18	*1	ug/L		104	45 - 120	101	35
2,4,6-Trichlorophenol			4.00	4.28	*1	ug/L		107	43 - 120	124	35
2,4-Dichlorophenol			4.00	4.20	*1	ug/L		105	45 - 120	80	35
2,4-Dimethylphenol			4.00	3.74	J *1	ug/L		94	37 - 120	44	35
2,4-Dinitrophenol			8.00	3.49	J *1	ug/L		44	10 - 146	200	35
2,4-Dinitrotoluene			4.00	4.29	*1	ug/L		107	51 - 120	65	35
2,6-Dinitrotoluene			4.00	4.47		ug/L		112	52 - 120	27	35
2-Chloronaphthalene			4.00	1.71		ug/L		43	35 - 120	25	35
2-Chlorophenol			4.00	3.62	*1	ug/L		90	44 - 120	83	35
2-Methylnaphthalene			4.00	1.45		ug/L		36	35 - 120	22	35

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-447085/3-A
Matrix: Water
Analysis Batch: 447287

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 447085

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2-Methylphenol			4.00	3.19	*1	ug/L		80	30 - 120	53	35
2-Nitroaniline			4.00	4.25		ug/L		106	43 - 120	6	35
2-Nitrophenol			4.00	3.89	*1	ug/L		97	44 - 120	185	35
3 & 4 Methylphenol			4.00	3.03	*1	ug/L		76	29 - 120	97	35
3,3'-Dichlorobenzidine			8.00	9.45		ug/L		118	33 - 150	3	35
3-Nitroaniline			4.00	5.15		ug/L		129	10 - 138	1	35
4,6-Dinitro-2-methylphenol			8.00	4.94	*1	ug/L		62	29 - 136	200	35
4-Bromophenyl phenyl ether			4.00	3.71		ug/L		93	53 - 120	4	35
4-Chloro-3-methylphenol			4.00	4.05	*1	ug/L		101	36 - 120	108	35
4-Chloroaniline			4.00	4.54		ug/L		113	10 - 150	16	35
4-Chlorophenyl phenyl ether			4.00	3.11		ug/L		78	41 - 120	13	35
4-Nitroaniline			4.00	6.43	*+	ug/L		161	38 - 133	7	35
4-Nitrophenol			8.00	4.04	J *1	ug/L		51	10 - 120	200	35
Acenaphthene			4.00	2.38		ug/L		59	41 - 120	13	35
Acenaphthylene			4.00	2.85		ug/L		71	43 - 120	7	35
Anthracene			4.00	4.04		ug/L		101	58 - 120	4	35
Benzo[a]anthracene			4.00	4.55		ug/L		114	48 - 131	8	35
Benzo[a]pyrene			4.00	4.29		ug/L		107	55 - 125	8	35
Benzo[b]fluoranthene			4.00	5.00	*+	ug/L		125	54 - 124	9	35
Benzo[g,h,i]perylene			4.00	4.53		ug/L		113	46 - 124	10	35
Benzo[k]fluoranthene			4.00	3.81		ug/L		95	52 - 132	6	35
Benzoic acid			8.00	3.99	J *1	ug/L		50	10 - 120	200	35
Benzyl alcohol			4.00	3.24	J	ug/L		81	10 - 120	1	35
Bis(2-chloroethoxy)methane			4.00	3.45		ug/L		86	38 - 120	3	35
Bis(2-chloroethyl)ether			4.00	3.07		ug/L		77	39 - 120	1	35
Bis(2-ethylhexyl) phthalate			4.00	4.26		ug/L		107	41 - 150	5	35
bis(chloroisopropyl) ether			4.00	2.24		ug/L		56	20 - 139	7	35
Butyl benzyl phthalate			4.00	4.48		ug/L		112	40 - 150	15	35
Carbazole			4.00	4.87		ug/L		122	61 - 150	1	35
Chrysene			4.00	3.79		ug/L		95	57 - 125	5	35
Dibenz(a,h)anthracene			4.00	4.50		ug/L		112	48 - 126	7	35
Dibenzofuran			4.00	3.01		ug/L		75	45 - 120	8	35
Diethyl phthalate			4.00	4.37		ug/L		109	60 - 121	5	35
Dimethyl phthalate			4.00	4.31		ug/L		108	54 - 120	8	35
Di-n-butyl phthalate			4.00	4.27	J	ug/L		107	55 - 150	5	35
Di-n-octyl phthalate			4.00	4.72		ug/L		118	48 - 140	14	35
Fluoranthene			4.00	4.36		ug/L		109	60 - 121	5	35
Fluorene			4.00	3.39		ug/L		85	20 - 120	3	35
Hexachlorobenzene			4.00	3.91		ug/L		98	49 - 120	7	35
Hexachlorobutadiene			4.00	0.172	J *- *1	ug/L		4	10 - 130	40	35
Hexachlorocyclopentadiene			4.00	0.230	J *- *1	ug/L		6	10 - 125	83	35
Hexachloroethane			4.00	0.228	J *-	ug/L		6	10 - 130	31	35
Indeno[1,2,3-cd]pyrene			4.00	4.84		ug/L		121	39 - 124	1	35
Isophorone			4.00	3.62		ug/L		91	41 - 120	6	35
Naphthalene			4.00	1.52	*-	ug/L		38	42 - 120	11	35
Nitrobenzene			4.00	3.08		ug/L		77	38 - 120	3	35
N-Nitrosodi-n-propylamine			4.00	3.63		ug/L		91	39 - 120	0	35
N-Nitrosodiphenylamine			4.00	4.24		ug/L		106	52 - 120	4	35
Pentachlorophenol			8.00	4.42	J *1	ug/L		55	18 - 135	152	35

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-447085/3-A
Matrix: Water
Analysis Batch: 447287

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 447085

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Phenanthrene			4.00	3.82		ug/L		95	54 - 120	2	35
Phenol			4.00	1.48	*1	ug/L		37	13 - 120	105	35
Pyrene			4.00	4.33		ug/L		108	57 - 120	4	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*74*		*50 - 130*
2-Fluorobiphenyl	*47*		*35 - 120*
2-Fluorophenol (Surr)	*37*		*21 - 120*
Nitrobenzene-d5 (Surr)	*55*		*39 - 120*
Phenol-d5 (Surr)	*23*		*10 - 120*
Terphenyl-d14 (Surr)	*64*		*63 - 137*

Lab Sample ID: LCSD 580-447085/3-A
Matrix: Water
Analysis Batch: 447355

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 447085

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,2,4-Trichlorobenzene			4.00	0.705	*-	ug/L		18	21 - 120	26	35
1,2-Dichlorobenzene			4.00	0.673	*-	ug/L		17	20 - 120	18	35
1,3-Dichlorobenzene			4.00	0.514	*-	ug/L		13	20 - 120	20	35
1,4-Dichlorobenzene			4.00	0.571	*-	ug/L		14	20 - 120	20	35
1-Methylnaphthalene			4.00	1.47		ug/L		37	36 - 120	19	35
2,4,5-Trichlorophenol			4.00	3.97	*1	ug/L		99	45 - 120	153	35
2,4,6-Trichlorophenol			4.00	4.14	*1	ug/L		104	43 - 120	134	35
2,4-Dichlorophenol			4.00	3.89	*1	ug/L		97	45 - 120	153	35
2,4-Dimethylphenol			4.00	3.58	J *1	ug/L		90	37 - 120	58	35
2,4-Dinitrophenol			8.00	9.11	*1	ug/L		114	10 - 146	200	35
2,4-Dinitrotoluene			4.00	3.99		ug/L		100	51 - 120	20	35
2,6-Dinitrotoluene			4.00	4.11		ug/L		103	52 - 120	16	35
2-Chloronaphthalene			4.00	1.61		ug/L		40	35 - 120	19	35
2-Chlorophenol			4.00	3.41	*1	ug/L		85	44 - 120	160	35
2-Methylnaphthalene			4.00	1.41		ug/L		35	35 - 120	20	35
2-Methylphenol			4.00	3.07	*1	ug/L		77	30 - 120	80	35
2-Nitroaniline			4.00	4.05		ug/L		101	43 - 120	15	35
2-Nitrophenol			4.00	3.67	*1	ug/L		92	44 - 120	183	35
3 & 4 Methylphenol			4.00	2.90	*1	ug/L		73	29 - 120	141	35
3,3'-Dichlorobenzidine			8.00	9.16		ug/L		114	33 - 150	2	35
3-Nitroaniline			4.00	4.24		ug/L		106	10 - 138	8	35
4,6-Dinitro-2-methylphenol			8.00	9.41	*1	ug/L		118	29 - 136	200	35
4-Bromophenyl phenyl ether			4.00	3.82		ug/L		95	53 - 120	0	35
4-Chloro-3-methylphenol			4.00	3.68	*1	ug/L		92	36 - 120	169	35
4-Chloroaniline			4.00	3.90		ug/L		98	10 - 150	4	35
4-Chlorophenyl phenyl ether			4.00	2.92		ug/L		73	41 - 120	10	35
4-Nitroaniline			4.00	4.96		ug/L		124	38 - 133	4	35
4-Nitrophenol			8.00	3.84	J *1	ug/L		48	10 - 120	200	35
Acenaphthene			4.00	2.19		ug/L		55	41 - 120	10	35
Acenaphthylene			4.00	2.63		ug/L		66	43 - 120	2	35
Anthracene			4.00	3.88		ug/L		97	58 - 120	6	35

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-447085/3-A
Matrix: Water
Analysis Batch: 447355

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 447085

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzo[a]anthracene	4.00	4.72		ug/L		118	48 - 131	13	35
Benzo[a]pyrene	4.00	4.17		ug/L		104	55 - 125	9	35
Benzo[b]fluoranthene	4.00	4.53		ug/L		113	54 - 124	11	35
Benzo[g,h,i]perylene	4.00	4.31		ug/L		108	46 - 124	11	35
Benzo[k]fluoranthene	4.00	4.04		ug/L		101	52 - 132	9	35
Benzoic acid	8.00	6.02	J *1	ug/L		75	10 - 120	200	35
Benzyl alcohol	4.00	3.22	J	ug/L		81	10 - 120	14	35
Bis(2-chloroethoxy)methane	4.00	3.34		ug/L		84	38 - 120	10	35
Bis(2-chloroethyl)ether	4.00	2.92		ug/L		73	39 - 120	4	35
Bis(2-ethylhexyl) phthalate	4.00	4.27		ug/L		107	41 - 150	7	35
bis(chloroisopropyl) ether	4.00	2.08		ug/L		52	20 - 139	2	35
Butyl benzyl phthalate	4.00	4.47		ug/L		112	40 - 150	8	35
Carbazole	4.00	4.63		ug/L		116	61 - 150	5	35
Chrysene	4.00	3.83		ug/L		96	57 - 125	11	35
Dibenz(a,h)anthracene	4.00	4.29		ug/L		107	48 - 126	9	35
Dibenzofuran	4.00	2.74		ug/L		69	45 - 120	7	35
Diethyl phthalate	4.00	3.99		ug/L		100	60 - 121	5	35
Dimethyl phthalate	4.00	3.93		ug/L		98	54 - 120	12	35
Di-n-butyl phthalate	4.00	4.17	J	ug/L		104	55 - 150	8	35
Di-n-octyl phthalate	4.00	4.67		ug/L		117	48 - 140	10	35
Fluoranthene	4.00	4.20		ug/L		105	60 - 121	10	35
Fluorene	4.00	3.13		ug/L		78	20 - 120	2	35
Hexachlorobenzene	4.00	3.78		ug/L		95	49 - 120	5	35
Hexachlorobutadiene	4.00	0.155	J *- *1	ug/L		4	10 - 130	59	35
Hexachlorocyclopentadiene	2.00	0.299	J *1	ug/L		15	10 - 125	81	35
Hexachloroethane	4.00	0.206	J *-	ug/L		5	10 - 130	26	35
Indeno[1,2,3-cd]pyrene	4.00	4.78		ug/L		119	39 - 124	6	35
Isophorone	4.00	3.44		ug/L		86	41 - 120	8	35
Naphthalene	4.00	1.42	*-	ug/L		36	42 - 120	14	35
Nitrobenzene	4.00	3.02		ug/L		76	38 - 120	0	35
N-Nitrosodi-n-propylamine	4.00	3.32		ug/L		83	39 - 120	2	35
N-Nitrosodiphenylamine	4.00	4.17		ug/L		104	52 - 120	7	35
Pentachlorophenol	8.00	7.05	*1	ug/L		88	18 - 135	146	35
Phenanthrene	4.00	3.66		ug/L		91	54 - 120	4	35
Phenol	4.00	1.28	*1	ug/L		32	13 - 120	161	35
Pyrene	4.00	4.20		ug/L		105	57 - 120	6	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*75*		*50 - 130*
2-Fluorobiphenyl	*42*		*35 - 120*
2-Fluorophenol (Surr)	*34*		*21 - 120*
Nitrobenzene-d5 (Surr)	*52*		*39 - 120*
Phenol-d5 (Surr)	*21*		*10 - 120*
Terphenyl-d14 (Surr)	*60*	*S1-*	*63 - 137*

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 570-394080/1-A
Matrix: Water
Analysis Batch: 394962

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 394080

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-T	ND		0.50	0.21	ug/L		12/18/23 21:35	12/20/23 21:19	1
2,4,5-TP (Silvex)	ND		0.50	0.14	ug/L		12/18/23 21:35	12/20/23 21:19	1
2,4-D	ND		5.0	2.0	ug/L		12/18/23 21:35	12/20/23 21:19	1
2,4-DB	ND		5.0	3.5	ug/L		12/18/23 21:35	12/20/23 21:19	1
Dalapon	ND		13	4.7	ug/L		12/18/23 21:35	12/20/23 21:19	1
Dicamba	ND		0.50	0.29	ug/L		12/18/23 21:35	12/20/23 21:19	1
Dichlorprop	ND		5.0	2.0	ug/L		12/18/23 21:35	12/20/23 21:19	1
Dinoseb	ND		2.5	2.2	ug/L		12/18/23 21:35	12/20/23 21:19	1
MCPA	ND		500	350	ug/L		12/18/23 21:35	12/20/23 21:19	1
MCPP	ND		500	310	ug/L		12/18/23 21:35	12/20/23 21:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*99*		*20 - 161*	*12/18/23 21:35*	*12/20/23 21:19*	*1*

Lab Sample ID: LCS 570-394080/2-A
Matrix: Water
Analysis Batch: 394962

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 394080

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
2,4,5-T			1.00	0.755		ug/L		76	28 - 180		
2,4-D			10.0	9.12		ug/L		91	10 - 180		
2,4-DB			10.0	8.37		ug/L		84	10 - 180		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*82*		*20 - 161*

Lab Sample ID: LCSD 570-394080/3-A
Matrix: Water
Analysis Batch: 394962

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 394080

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4,5-T			1.00	1.23	*1	ug/L		123	28 - 180	48	20
2,4-D			10.0	14.9	*1	ug/L		149	10 - 180	48	20
2,4-DB			10.0	11.7	*1	ug/L		117	10 - 180	33	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*102*		*20 - 161*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 590-45119/1003
Matrix: Water
Analysis Batch: 45119

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.80	0.42	mg/L			12/15/23 13:55	1
Sulfate	ND		0.50	0.13	mg/L			12/15/23 13:55	1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 590-45119/1004
Matrix: Water
Analysis Batch: 45119

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	12.5	12.7		mg/L		102	90 - 110
Sulfate	12.5	12.5		mg/L		100	90 - 110

Lab Sample ID: MB 590-45120/1003
Matrix: Water
Analysis Batch: 45120

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20	0.057	mg/L			12/15/23 13:55	1
Nitrite as N	ND		0.20	0.069	mg/L			12/15/23 13:55	1

Lab Sample ID: LCS 590-45120/1004
Matrix: Water
Analysis Batch: 45120

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	5.00	5.09		mg/L		102	90 - 110
Nitrite as N	5.00	5.03		mg/L		101	90 - 110

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Lab Sample ID: MB 320-732888/1-A
Matrix: Water
Analysis Batch: 733772

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 732888

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		8.0	2.0	ng/L		01/12/24 04:17	01/16/24 01:02	1
Perfluoropentanoic acid (PFPeA)	ND		4.0	1.0	ng/L		01/12/24 04:17	01/16/24 01:02	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.50	ng/L		01/12/24 04:17	01/16/24 01:02	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.50	ng/L		01/12/24 04:17	01/16/24 01:02	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.50	ng/L		01/12/24 04:17	01/16/24 01:02	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.50	ng/L		01/12/24 04:17	01/16/24 01:02	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.50	ng/L		01/12/24 04:17	01/16/24 01:02	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.50	ng/L		01/12/24 04:17	01/16/24 01:02	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.50	ng/L		01/12/24 04:17	01/16/24 01:02	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	0.50	ng/L		01/12/24 04:17	01/16/24 01:02	1
Perfluorotetradecanoic acid (PFTeDA)	ND		2.0	0.50	ng/L		01/12/24 04:17	01/16/24 01:02	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.50	ng/L		01/12/24 04:17	01/16/24 01:02	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.50	ng/L		01/12/24 04:17	01/16/24 01:02	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.50	ng/L		01/12/24 04:17	01/16/24 01:02	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.50	ng/L		01/12/24 04:17	01/16/24 01:02	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.50	ng/L		01/12/24 04:17	01/16/24 01:02	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.50	ng/L		01/12/24 04:17	01/16/24 01:02	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.50	ng/L		01/12/24 04:17	01/16/24 01:02	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.50	ng/L		01/12/24 04:17	01/16/24 01:02	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		8.0	2.0	ng/L		01/12/24 04:17	01/16/24 01:02	1

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: MB 320-732888/1-A
Matrix: Water
Analysis Batch: 733772

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 732888

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		8.0	2.0	ng/L		01/12/24 04:17	01/16/24 01:02	1
Perfluorooctanesulfonamide (PFOSA)	ND		2.0	0.50	ng/L		01/12/24 04:17	01/16/24 01:02	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		2.0	0.50	ng/L		01/12/24 04:17	01/16/24 01:02	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		2.0	0.50	ng/L		01/12/24 04:17	01/16/24 01:02	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.50	ng/L		01/12/24 04:17	01/16/24 01:02	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.50	ng/L		01/12/24 04:17	01/16/24 01:02	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		20	5.0	ng/L		01/12/24 04:17	01/16/24 01:02	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		20	5.0	ng/L		01/12/24 04:17	01/16/24 01:02	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		8.0	2.0	ng/L		01/12/24 04:17	01/16/24 01:02	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		8.0	2.0	ng/L		01/12/24 04:17	01/16/24 01:02	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		4.0	1.0	ng/L		01/12/24 04:17	01/16/24 01:02	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		4.0	1.0	ng/L		01/12/24 04:17	01/16/24 01:02	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		4.0	1.0	ng/L		01/12/24 04:17	01/16/24 01:02	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		8.0	2.0	ng/L		01/12/24 04:17	01/16/24 01:02	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		8.0	2.0	ng/L		01/12/24 04:17	01/16/24 01:02	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		4.0	1.0	ng/L		01/12/24 04:17	01/16/24 01:02	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		10	2.5	ng/L		01/12/24 04:17	01/16/24 01:02	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		50	13	ng/L		01/12/24 04:17	01/16/24 01:02	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		50	13	ng/L		01/12/24 04:17	01/16/24 01:02	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*85.2*		*5 - 130*	*01/12/24 04:17*	*01/16/24 01:02*	*1*
13C5 PFPeA	*84.8*		*40 - 130*	*01/12/24 04:17*	*01/16/24 01:02*	*1*
13C5 PFHxA	*89.2*		*40 - 130*	*01/12/24 04:17*	*01/16/24 01:02*	*1*
13C4 PFHpA	*80.8*		*40 - 130*	*01/12/24 04:17*	*01/16/24 01:02*	*1*
13C8 PFOA	*83.7*		*40 - 130*	*01/12/24 04:17*	*01/16/24 01:02*	*1*
13C9 PFNA	*85.0*		*40 - 130*	*01/12/24 04:17*	*01/16/24 01:02*	*1*
13C6 PFDA	*82.3*		*40 - 130*	*01/12/24 04:17*	*01/16/24 01:02*	*1*
13C7 PFUnA	*82.3*		*30 - 130*	*01/12/24 04:17*	*01/16/24 01:02*	*1*
13C2 PFDoA	*75.2*		*10 - 130*	*01/12/24 04:17*	*01/16/24 01:02*	*1*
13C2 PFTeDA	*51.5*		*10 - 130*	*01/12/24 04:17*	*01/16/24 01:02*	*1*
13C3 PFBS	*80.9*		*40 - 135*	*01/12/24 04:17*	*01/16/24 01:02*	*1*
13C3 PFHxS	*78.7*		*40 - 130*	*01/12/24 04:17*	*01/16/24 01:02*	*1*
13C8 PFOS	*77.2*		*40 - 130*	*01/12/24 04:17*	*01/16/24 01:02*	*1*
13C8 PFOSA	*80.4*		*40 - 130*	*01/12/24 04:17*	*01/16/24 01:02*	*1*

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: MB 320-732888/1-A
Matrix: Water
Analysis Batch: 733772

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 732888

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
d3-NMeFOSAA	68.1		40 - 170	01/12/24 04:17	01/16/24 01:02	1
d5-NEtFOSAA	71.4		25 - 135	01/12/24 04:17	01/16/24 01:02	1
13C2 6:2 FTS	83.6		40 - 200	01/12/24 04:17	01/16/24 01:02	1
13C2 8:2 FTS	84.1		40 - 300	01/12/24 04:17	01/16/24 01:02	1
13C3 HFPO-DA	90.7		40 - 130	01/12/24 04:17	01/16/24 01:02	1
d7-N-MeFOSE-M	67.7		10 - 130	01/12/24 04:17	01/16/24 01:02	1
d9-N-EtFOSE-M	65.0		10 - 130	01/12/24 04:17	01/16/24 01:02	1
d5-NEtPFOSA	68.6		10 - 130	01/12/24 04:17	01/16/24 01:02	1
d3-NMePFOSA	72.4		10 - 130	01/12/24 04:17	01/16/24 01:02	1

Lab Sample ID: LCS 320-732888/3-A
Matrix: Water
Analysis Batch: 733772

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 732888

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	128	129		ng/L		101	70 - 140
Perfluoropentanoic acid (PFPeA)	64.0	65.4		ng/L		102	65 - 135
Perfluorohexanoic acid (PFHxA)	32.0	30.4		ng/L		95	70 - 145
Perfluoroheptanoic acid (PFHpA)	32.0	31.0		ng/L		97	70 - 150
Perfluorooctanoic acid (PFOA)	32.0	30.1		ng/L		94	70 - 150
Perfluorononanoic acid (PFNA)	32.0	29.1		ng/L		91	70 - 150
Perfluorodecanoic acid (PFDA)	32.0	34.3		ng/L		107	70 - 140
Perfluoroundecanoic acid (PFUnA)	32.0	32.0		ng/L		100	70 - 145
Perfluorododecanoic acid (PFDoA)	32.0	29.1		ng/L		91	70 - 140
Perfluorotridecanoic acid (PFTrDA)	32.0	32.9		ng/L		103	65 - 140
Perfluorotetradecanoic acid (PFTeDA)	32.0	31.3		ng/L		98	60 - 140
Perfluorobutanesulfonic acid (PFBS)	28.4	27.4		ng/L		97	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	30.1	28.1		ng/L		93	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	29.2	29.2		ng/L		100	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	30.5	32.0		ng/L		105	70 - 150
Perfluorooctanesulfonic acid (PFOS)	29.8	29.5		ng/L		99	55 - 150
Perfluorononanesulfonic acid (PFNS)	30.7	28.0		ng/L		91	65 - 145
Perfluorodecanesulfonic acid (PFDS)	30.8	32.5		ng/L		105	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	31.0	26.5		ng/L		85	50 - 145
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	122	122		ng/L		100	65 - 155
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	123	136		ng/L		110	60 - 150
Perfluorooctanesulfonamide (PFOSA)	32.0	30.7		ng/L		96	70 - 145

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-732888/3-A
Matrix: Water
Analysis Batch: 733772

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 732888

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
N-methylperfluorooctane sulfonamide (NMeFOSA)	32.0	33.3		ng/L		104	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA)	32.0	33.0		ng/L		103	65 - 145
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	32.0	34.0		ng/L		106	50 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	32.0	31.7		ng/L		99	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	320	334		ng/L		104	70 - 145
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	320	288		ng/L		90	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	128	127		ng/L		99	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	121	121		ng/L		100	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	64.0	49.3		ng/L		77	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	64.0	68.5		ng/L		107	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	64.0	64.2		ng/L		100	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	120	126		ng/L		105	70 - 155
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	121	110		ng/L		91	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	57.1	53.3		ng/L		93	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	160	151		ng/L		94	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	799	738		ng/L		92	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	799	708		ng/L		89	50 - 145

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*83.6*		*5 - 130*
13C5 PFPeA	*87.3*		*40 - 130*
13C5 PFHxA	*88.2*		*40 - 130*
13C4 PFHpA	*88.8*		*40 - 130*
13C8 PFOA	*77.9*		*40 - 130*
13C9 PFNA	*79.7*		*40 - 130*
13C6 PFDA	*84.9*		*40 - 130*
13C7 PFUnA	*75.1*		*30 - 130*
13C2 PFDoA	*81.3*		*10 - 130*
13C2 PFTeDA	*66.7*		*10 - 130*
13C3 PFBS	*90.2*		*40 - 135*
13C3 PFHxS	*84.6*		*40 - 130*
13C8 PFOS	*84.0*		*40 - 130*
13C8 PFOSA	*83.3*		*40 - 130*
d3-NMeFOSAA	*73.0*		*40 - 170*

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-732888/3-A
Matrix: Water
Analysis Batch: 733772

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 732888

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
d5-NEtFOSAA	74.5		25 - 135
13C2 6:2 FTS	89.3		40 - 200
13C2 8:2 FTS	84.9		40 - 300
13C3 HFPO-DA	87.4		40 - 130
d7-N-MeFOSE-M	70.2		10 - 130
d9-N-EtFOSE-M	77.4		10 - 130
d5-NEtPFOSA	70.7		10 - 130
d3-NMePFOSA	75.9		10 - 130

Lab Sample ID: LCSD 320-732888/4-A
Matrix: Water
Analysis Batch: 733772

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 732888

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			128	132		ng/L		103	70 - 140	2	30
Perfluoropentanoic acid (PFPeA)			64.0	65.4		ng/L		102	65 - 135	0	30
Perfluorohexanoic acid (PFHxA)			32.0	26.7		ng/L		84	70 - 145	13	30
Perfluoroheptanoic acid (PFHpA)			32.0	32.1		ng/L		100	70 - 150	4	30
Perfluorooctanoic acid (PFOA)			32.0	30.8		ng/L		96	70 - 150	3	30
Perfluorononanoic acid (PFNA)			32.0	33.6		ng/L		105	70 - 150	15	30
Perfluorodecanoic acid (PFDA)			32.0	32.7		ng/L		102	70 - 140	5	30
Perfluoroundecanoic acid (PFUnA)			32.0	31.9		ng/L		100	70 - 145	0	30
Perfluorododecanoic acid (PFDoA)			32.0	31.6		ng/L		99	70 - 140	8	30
Perfluorotridecanoic acid (PFTrDA)			32.0	31.7		ng/L		99	65 - 140	4	30
Perfluorotetradecanoic acid (PFTeDA)			32.0	39.2		ng/L		123	60 - 140	22	30
Perfluorobutanesulfonic acid (PFBS)			28.4	29.2		ng/L		103	60 - 145	6	30
Perfluoropentanesulfonic acid (PFPeS)			30.1	27.4		ng/L		91	65 - 140	3	30
Perfluorohexanesulfonic acid (PFHxS)			29.2	28.9		ng/L		99	65 - 145	1	30
Perfluoroheptanesulfonic acid (PFHpS)			30.5	29.9		ng/L		98	70 - 150	7	30
Perfluorooctanesulfonic acid (PFOS)			29.8	32.8		ng/L		110	55 - 150	10	30
Perfluorononanesulfonic acid (PFNS)			30.7	30.5		ng/L		99	65 - 145	8	30
Perfluorodecanesulfonic acid (PFDS)			30.8	30.2		ng/L		98	60 - 145	7	30
Perfluorododecanesulfonic acid (PFDoS)			31.0	27.9		ng/L		90	50 - 145	5	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)			122	129		ng/L		106	65 - 155	5	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)			123	117		ng/L		95	60 - 150	15	30
Perfluorooctanesulfonamide (PFOSA)			32.0	30.7		ng/L		96	70 - 145	0	30
N-methylperfluorooctane sulfonamide (NMeFOSA)			32.0	34.8		ng/L		109	60 - 150	4	30

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCSD 320-732888/4-A
Matrix: Water
Analysis Batch: 733772

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 732888

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
N-ethylperfluorooctane sulfonamide (NEtFOSA)			32.0	33.1		ng/L		103	65 - 145	0	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			32.0	32.9		ng/L		103	50 - 140	3	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			32.0	28.8		ng/L		90	70 - 145	10	30
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)			320	380		ng/L		119	70 - 145	13	30
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)			320	328		ng/L		103	70 - 135	13	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			128	134		ng/L		105	70 - 140	5	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			121	118		ng/L		97	65 - 145	3	30
Perfluoro-3-methoxypropanoic acid (PFMPA)			64.0	53.7		ng/L		84	55 - 140	8	30
Perfluoro-4-methoxybutanoic acid (PFMBA)			64.0	67.2		ng/L		105	60 - 150	2	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)			64.0	60.2		ng/L		94	50 - 150	7	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)			120	117		ng/L		98	70 - 155	7	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)			121	101		ng/L		84	55 - 160	9	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			57.1	51.8		ng/L		91	70 - 140	3	30
3-Perfluoropropylpropanoic acid (3:3 FTCA)			160	157		ng/L		98	65 - 130	4	30
3-Perfluoropentylpropanoic acid (5:3 FTCA)			799	677		ng/L		85	70 - 135	9	30
3-Perfluoroheptylpropanoic acid (7:3 FTCA)			799	721		ng/L		90	50 - 145	2	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*81.6*		*5 - 130*
13C5 PFPeA	*79.5*		*40 - 130*
13C5 PFHxA	*85.9*		*40 - 130*
13C4 PFHpA	*77.5*		*40 - 130*
13C8 PFOA	*72.9*		*40 - 130*
13C9 PFNA	*80.7*		*40 - 130*
13C6 PFDA	*76.9*		*40 - 130*
13C7 PFUnA	*75.4*		*30 - 130*
13C2 PFDoA	*70.2*		*10 - 130*
13C2 PFTeDA	*48.7*		*10 - 130*
13C3 PFBS	*76.6*		*40 - 135*
13C3 PFHxS	*76.1*		*40 - 130*
13C8 PFOS	*82.7*		*40 - 130*
13C8 PFOSA	*81.0*		*40 - 130*
d3-NMeFOSAA	*71.8*		*40 - 170*
d5-NEtFOSAA	*82.3*		*25 - 135*
13C2 6:2 FTS	*80.5*		*40 - 200*

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCSD 320-732888/4-A
Matrix: Water
Analysis Batch: 733772

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 732888

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C2 8:2 FTS	82.7		40 - 300
13C3 HFPO-DA	84.2		40 - 130
d7-N-MeFOSE-M	62.9		10 - 130
d9-N-EtFOSE-M	71.2		10 - 130
d5-NEtPFOSA	68.9		10 - 130
d3-NMePFOSA	70.9		10 - 130

Lab Sample ID: LLCS 320-732888/2-A
Matrix: Water
Analysis Batch: 733772

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 732888

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	12.8	13.1		ng/L		102	70 - 140
Perfluoropentanoic acid (PFPeA)	6.40	6.67		ng/L		104	65 - 135
Perfluorohexanoic acid (PFHxA)	3.20	2.79		ng/L		87	70 - 145
Perfluoroheptanoic acid (PFHpA)	3.20	3.39		ng/L		106	70 - 150
Perfluorooctanoic acid (PFOA)	3.20	3.20		ng/L		100	70 - 150
Perfluorononanoic acid (PFNA)	3.20	3.48		ng/L		109	70 - 150
Perfluorodecanoic acid (PFDA)	3.20	3.54		ng/L		111	70 - 140
Perfluoroundecanoic acid (PFUnA)	3.20	3.23		ng/L		101	70 - 145
Perfluorododecanoic acid (PFDoA)	3.20	3.50		ng/L		109	70 - 140
Perfluorotridecanoic acid (PFTrDA)	3.20	2.97		ng/L		93	65 - 140
Perfluorotetradecanoic acid (PFTeDA)	3.20	3.71		ng/L		116	60 - 140
Perfluorobutanesulfonic acid (PFBS)	2.84	2.78		ng/L		98	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	3.01	3.14		ng/L		104	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	2.92	3.15		ng/L		108	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	3.05	3.16		ng/L		104	70 - 150
Perfluorooctanesulfonic acid (PFOS)	2.98	2.76		ng/L		93	55 - 150
Perfluorononanesulfonic acid (PFNS)	3.07	2.69		ng/L		88	65 - 145
Perfluorodecanesulfonic acid (PFDS)	3.08	2.85		ng/L		92	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	3.10	2.35		ng/L		76	50 - 145
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	12.2	13.0		ng/L		107	65 - 155
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	12.3	13.0		ng/L		106	60 - 150
Perfluorooctanesulfonamide (PFOSA)	3.20	3.15		ng/L		98	70 - 145
N-methylperfluorooctane sulfonamide (NMeFOSA)	3.20	3.31		ng/L		103	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA)	3.20	3.15		ng/L		98	65 - 145

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-732888/2-A
Matrix: Water
Analysis Batch: 733772

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 732888

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.20	3.03		ng/L		95	50 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	3.20	2.99		ng/L		93	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	32.0	32.3		ng/L		101	70 - 145
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	32.0	32.3		ng/L		101	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	12.8	12.1		ng/L		94	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	12.1	11.5		ng/L		95	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	6.40	5.22		ng/L		82	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	6.40	7.46		ng/L		117	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	6.40	6.11		ng/L		95	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	12.0	13.0		ng/L		109	70 - 155
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	12.1	10.9		ng/L		91	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	5.71	5.27		ng/L		92	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	16.0	15.2		ng/L		95	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	79.9	70.2		ng/L		88	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	79.9	65.8		ng/L		82	50 - 145

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C4 PFBA	*85.9*		*5 - 130*
13C5 PFPeA	*80.5*		*40 - 130*
13C5 PFHxA	*92.8*		*40 - 130*
13C4 PFHpA	*83.2*		*40 - 130*
13C8 PFOA	*73.5*		*40 - 130*
13C9 PFNA	*78.8*		*40 - 130*
13C6 PFDA	*83.6*		*40 - 130*
13C7 PFUnA	*78.2*		*30 - 130*
13C2 PFDoA	*75.7*		*10 - 130*
13C2 PFTeDA	*59.4*		*10 - 130*
13C3 PFBS	*85.8*		*40 - 135*
13C3 PFHxS	*79.5*		*40 - 130*
13C8 PFOS	*83.5*		*40 - 130*
13C8 PFOSA	*76.2*		*40 - 130*
d3-NMeFOSAA	*67.9*		*40 - 170*
d5-NEtFOSAA	*66.4*		*25 - 135*
13C2 6:2 FTS	*97.5*		*40 - 200*
13C2 8:2 FTS	*83.4*		*40 - 300*
13C3 HFPO-DA	*90.4*		*40 - 130*

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-732888/2-A
Matrix: Water
Analysis Batch: 733772

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 732888

Isotope Dilution	LLCS %Recovery	LLCS Qualifier	Limits
d7-N-MeFOSE-M	62.4		10 - 130
d9-N-EtFOSE-M	61.7		10 - 130
d5-NEtPFOSA	69.5		10 - 130
d3-NMePFOSA	70.1		10 - 130

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Lab Sample ID: MB 320-732888/1-A
Matrix: Water
Analysis Batch: 734424

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 732888

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS) - RA	ND		8.0	2.0	ng/L		01/12/24 04:17	01/18/24 12:48	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 4:2 FTS - RA	115		40 - 200	01/12/24 04:17	01/18/24 12:48	1

Lab Sample ID: LCS 320-732888/3-A
Matrix: Water
Analysis Batch: 734424

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 732888

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS) - RA			120	122		ng/L		102	70 - 145		

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C2 4:2 FTS - RA	103		40 - 200

Lab Sample ID: LCSD 320-732888/4-A
Matrix: Water
Analysis Batch: 734424

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 732888

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS) - RA			120	124		ng/L		104	70 - 145	2	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C2 4:2 FTS - RA	98.7		40 - 200

Lab Sample ID: LLCS 320-732888/2-A
Matrix: Water
Analysis Batch: 734424

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 732888

Analyte			Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits		
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS) - RA			12.0	13.1		ng/L		109	70 - 145		

Isotope Dilution	LLCS %Recovery	LLCS Qualifier	Limits
13C2 4:2 FTS - RA	113		40 - 200

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 590-45128/2-A
Matrix: Water
Analysis Batch: 45138

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 45128

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	ND		1.0	0.13	mg/L		12/18/23 10:30	12/18/23 14:01	1
Potassium	ND		0.50	0.29	mg/L		12/18/23 10:30	12/18/23 14:01	1

Lab Sample ID: LCS 590-45128/1-A
Matrix: Water
Analysis Batch: 45138

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 45128

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Magnesium	25.0	23.7		mg/L		95	80 - 120
Potassium	25.0	23.3		mg/L		93	80 - 135

Lab Sample ID: MB 590-45148/2-B
Matrix: Water
Analysis Batch: 45163

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 45147

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		2.0	0.20	mg/L		12/18/23 17:27	12/19/23 11:02	1
Magnesium	ND		1.0	0.13	mg/L		12/18/23 17:27	12/19/23 11:02	1

Lab Sample ID: LCS 590-45148/1-B
Matrix: Water
Analysis Batch: 45163

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 45147

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	25.0	27.5		mg/L		110	80 - 120
Magnesium	25.0	27.6		mg/L		110	80 - 120

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 580-446548/24-A
Matrix: Water
Analysis Batch: 446858

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 446548

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.0010	mg/L		12/18/23 15:58	12/20/23 17:07	5
Cadmium	ND		0.0020	0.00019	mg/L		12/18/23 15:58	12/20/23 17:07	5
Iron	ND		0.50	0.067	mg/L		12/18/23 15:58	12/20/23 17:07	5
Lead	ND		0.0020	0.00020	mg/L		12/18/23 15:58	12/20/23 17:07	5
Manganese	ND		0.010	0.0023	mg/L		12/18/23 15:58	12/20/23 17:07	5
Zinc	ND		0.035	0.0046	mg/L		12/18/23 15:58	12/20/23 17:07	5

Lab Sample ID: LCS 580-446548/25-A
Matrix: Water
Analysis Batch: 446858

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 446548

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	0.931		mg/L		93	80 - 120
Cadmium	1.00	0.920		mg/L		92	80 - 120
Iron	20.0	19.2		mg/L		96	80 - 120
Lead	1.00	0.957		mg/L		96	80 - 120

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 580-446548/25-A
Matrix: Water
Analysis Batch: 446858

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 446548

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	1.00	0.977		mg/L		98	80 - 120
Zinc	1.00	0.922		mg/L		92	80 - 120

Lab Sample ID: LCSD 580-446548/26-A
Matrix: Water
Analysis Batch: 446858

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 446548

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	1.00	0.947		mg/L		95	80 - 120	2	20
Cadmium	1.00	0.927		mg/L		93	80 - 120	1	20
Iron	20.0	19.6		mg/L		98	80 - 120	2	20
Lead	1.00	0.975		mg/L		98	80 - 120	2	20
Manganese	1.00	0.987		mg/L		99	80 - 120	1	20
Zinc	1.00	0.931		mg/L		93	80 - 120	1	20

Lab Sample ID: MB 580-446663/21-B
Matrix: Water
Analysis Batch: 447094

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 446761

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.0010	mg/L		12/20/23 15:52	12/22/23 09:50	5
Cadmium	ND		0.0020	0.00019	mg/L		12/20/23 15:52	12/22/23 09:50	5
Iron	ND		0.50	0.067	mg/L		12/20/23 15:52	12/22/23 09:50	5
Lead	ND		0.0020	0.00020	mg/L		12/20/23 15:52	12/22/23 09:50	5
Manganese	ND		0.010	0.0023	mg/L		12/20/23 15:52	12/22/23 09:50	5
Zinc	ND		0.035	0.0046	mg/L		12/20/23 15:52	12/22/23 09:50	5

Lab Sample ID: LCS 580-446663/22-B
Matrix: Water
Analysis Batch: 447094

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 446761

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	1.04		mg/L		104	80 - 120
Cadmium	1.00	0.992		mg/L		99	80 - 120
Iron	20.0	19.9		mg/L		100	80 - 120
Lead	1.00	0.985		mg/L		99	80 - 120
Manganese	1.00	0.975		mg/L		98	80 - 120
Zinc	1.00	0.979		mg/L		98	80 - 120

Lab Sample ID: LCSD 580-446663/23-B
Matrix: Water
Analysis Batch: 447094

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 446761

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	1.00	1.07		mg/L		107	80 - 120	3	20
Cadmium	1.00	0.981		mg/L		98	80 - 120	1	20
Iron	20.0	20.2		mg/L		101	80 - 120	1	20
Lead	1.00	0.988		mg/L		99	80 - 120	0	20
Manganese	1.00	0.992		mg/L		99	80 - 120	2	20
Zinc	1.00	1.00		mg/L		100	80 - 120	2	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 590-45127/9-A
Matrix: Water
Analysis Batch: 45139

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 45127

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		12/18/23 10:28	12/18/23 15:06	1

Lab Sample ID: LCS 590-45127/8-A
Matrix: Water
Analysis Batch: 45139

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 45127

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	2.00	1.82		ug/L		91	80 - 120

Lab Sample ID: MB 590-45221/2-A
Matrix: Water
Analysis Batch: 45244

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 45221

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		12/27/23 10:16	12/28/23 13:18	1

Lab Sample ID: LCS 590-45221/1-A
Matrix: Water
Analysis Batch: 45244

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 45221

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	2.00	1.87		ug/L		94	80 - 120

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 280-639548/19
Matrix: Water
Analysis Batch: 639548

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	ND		0.10	0.029	mg/L			01/09/24 11:03	1

Lab Sample ID: LCS 280-639548/17
Matrix: Water
Analysis Batch: 639548

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	2.50	2.49		mg/L		99	90 - 110

Lab Sample ID: LCSD 280-639548/18
Matrix: Water
Analysis Batch: 639548

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia as N	2.50	2.49		mg/L		100	90 - 110	0	10

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 590-45219/1
Matrix: Water
Analysis Batch: 45219

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.00	J	20	5.0	mg/L			12/27/23 10:12	1
Bicarbonate Alkalinity as CaCO3	5.00	J	20	5.0	mg/L			12/27/23 10:12	1

Lab Sample ID: LCS 590-45219/2
Matrix: Water
Analysis Batch: 45219

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Alkalinity			501	500		mg/L		100	90 - 110		

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 590-45141/1
Matrix: Water
Analysis Batch: 45141

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		25	13	mg/L			12/18/23 16:56	1

Lab Sample ID: LCS 590-45141/2
Matrix: Water
Analysis Batch: 45141

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids			503	499		mg/L		99	80 - 120		

Lab Sample ID: 590-22513-3 DU
Matrix: Water
Analysis Batch: 45141

Client Sample ID: DUP-121523
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	530			521		mg/L				1	10

Method: SM 4500 CN I - Cyanide, Weak Acid Dissociable

Lab Sample ID: MB 280-638313/20
Matrix: Water
Analysis Batch: 638313

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Weak Acid Dissociable	ND		0.010	0.0050	mg/L			12/22/23 12:08	1

Lab Sample ID: HLCS 280-638313/19
Matrix: Water
Analysis Batch: 638313

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec Limits		
Cyanide, Weak Acid Dissociable			0.350	0.361		mg/L		103	75 - 120		

Method: SM 4500 CN I - Cyanide, Weak Acid Dissociable (Continued)

Lab Sample ID: LCS 280-638313/17
Matrix: Water
Analysis Batch: 638313

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Weak Acid Dissociable	0.100	0.0983		mg/L		98	75 - 120

Lab Sample ID: LLCS 280-638313/18
Matrix: Water
Analysis Batch: 638313

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Weak Acid Dissociable	0.100	0.0951		mg/L		95	90 - 110

Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 280-638646/36
Matrix: Water
Analysis Batch: 638646

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		1.0	0.35	mg/L			12/27/23 22:29	1

Lab Sample ID: MB 280-638646/69
Matrix: Water
Analysis Batch: 638646

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		1.0	0.35	mg/L			12/28/23 07:05	1

Lab Sample ID: LCS 280-638646/35
Matrix: Water
Analysis Batch: 638646

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon - Duplicates	25.0	26.4		mg/L		106	88 - 112

Lab Sample ID: LCS 280-638646/68
Matrix: Water
Analysis Batch: 638646

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon - Duplicates	25.0	26.5		mg/L		106	88 - 112

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22513-1

Client Sample ID: MW-2A-121523

Date Collected: 12/15/23 10:00
Date Received: 12/15/23 12:35

Lab Sample ID: 590-22513-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	43 mL	43 mL	45132	12/18/23 17:12	JSP	EET SPK
Total/NA	Prep	3510C			1052 mL	2 mL	446826	12/21/23 08:20	SL	EET SEA
Total/NA	Analysis	8270E		1	1 mL	1 mL	446882	12/21/23 19:30	K1K	EET SEA
Total/NA	Prep	3510C	RE		1052.5 mL	2 mL	447085	12/27/23 08:30	SL	EET SEA
Total/NA	Analysis	8270E	RE	1	1 mL	1 mL	447287	12/28/23 20:17	K1K	EET SEA
Total/NA	Prep	8151A			1049.8 mL	5 mL	394080	12/18/23 21:35	C6FB	EET CAL 4
Total/NA	Analysis	8151A		1	1 mL	1 mL	394962	12/21/23 00:17	J7WE	EET CAL 4
Total/NA	Analysis	300.0		1	5 mL	5 mL	45119	12/15/23 16:15	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	45120	12/15/23 16:15	NMI	EET SPK
Total/NA	Prep	1633	RA		552.6 mL	5.0 mL	732888	01/12/24 04:17	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633	RA	1			734424	01/18/24 13:59	S1M	EET SAC
Total/NA	Prep	1633			552.6 mL	5.0 mL	732888	01/12/24 04:17	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633		1	1 mL	1 mL	733772	01/16/24 02:09	RS1	EET SAC
Dissolved	Filtration	FILTRATION			250 mL	250 mL	45148	12/18/23 17:26	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	45147	12/18/23 17:27	AMB	EET SPK
Dissolved	Analysis	6010D		1			45163	12/19/23 13:40	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	45128	12/18/23 10:30	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			45149	12/18/23 15:35	AMB	EET SPK
Dissolved	Filtration	FILTRATION			250 mL	250 mL	446663	12/19/23 16:28	AUA	EET SEA
Dissolved	Prep	3005A			50 mL	50 mL	446761	12/20/23 15:52	JL	EET SEA
Dissolved	Analysis	6020B		5	50 mL	50 mL	447094	12/22/23 11:46	FCW	EET SEA
Total Recoverable	Prep	3005A			50 mL	50 mL	446548	12/18/23 15:58	TMH	EET SEA
Total Recoverable	Analysis	6020B		5	50 mL	50 mL	446858	12/20/23 18:06	TMH	EET SEA
Dissolved	Filtration	FILTRATION			250 mL	250 mL	45148	12/18/23 17:26	AMB	EET SPK
Dissolved	Prep	7470A			50 mL	50 mL	45221	12/27/23 10:16	AMB	EET SPK
Dissolved	Analysis	7470A		1			45244	12/28/23 13:36	AMB	EET SPK
Total/NA	Prep	7470A			50 mL	50 mL	45127	12/18/23 10:28	AMB	EET SPK
Total/NA	Analysis	7470A		1			45139	12/18/23 15:36	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	639548	01/09/24 11:26	MMP	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	45219	12/27/23 10:12	AMB	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	45141	12/18/23 16:57	AMB	EET SPK
Total/NA	Analysis	SM 4500 CN I		1	10 mL	10 mL	638313	12/22/23 13:07	MMP	EET DEN
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	638646	12/28/23 06:34	ABW	EET DEN

Client Sample ID: MW-5A-121523

Date Collected: 12/15/23 08:25
Date Received: 12/15/23 12:35

Lab Sample ID: 590-22513-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	43 mL	43 mL	45132	12/18/23 17:34	JSP	EET SPK
Total/NA	Analysis	8260D		1	43 mL	43 mL	45187	12/21/23 14:39	JSP	EET SPK
Total/NA	Prep	3510C			1046.1 mL	2 mL	446826	12/21/23 08:20	SL	EET SEA
Total/NA	Analysis	8270E		1	1 mL	1 mL	446882	12/21/23 19:55	K1K	EET SEA

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22513-1

Client Sample ID: MW-5A-121523

Date Collected: 12/15/23 08:25
Date Received: 12/15/23 12:35

Lab Sample ID: 590-22513-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C	RE		1019.7 mL	2 mL	447085	12/27/23 08:30	SL	EET SEA
Total/NA	Analysis	8270E	RE	1	1 mL	1 mL	447287	12/28/23 20:41	K1K	EET SEA
Total/NA	Prep	8151A			1020.9 mL	5 mL	394080	12/18/23 21:35	C6FB	EET CAL 4
Total/NA	Analysis	8151A		1	1 mL	1 mL	394962	12/21/23 00:39	J7WE	EET CAL 4
Total/NA	Analysis	300.0		1	5 mL	5 mL	45119	12/15/23 16:24	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	45120	12/15/23 16:24	NMI	EET SPK
Total/NA	Prep	1633	RA		551.5 mL	5.0 mL	732888	01/12/24 04:17	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633	RA	1			734424	01/18/24 14:16	S1M	EET SAC
Total/NA	Prep	1633			551.5 mL	5.0 mL	732888	01/12/24 04:17	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633		1	1 mL	1 mL	733772	01/16/24 02:25	RS1	EET SAC
Dissolved	Filtration	FILTRATION			250 mL	250 mL	45148	12/18/23 17:26	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	45147	12/18/23 17:27	AMB	EET SPK
Dissolved	Analysis	6010D		1			45163	12/19/23 13:44	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	45128	12/18/23 10:30	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			45149	12/18/23 15:40	AMB	EET SPK
Dissolved	Filtration	FILTRATION			250 mL	250 mL	446663	12/19/23 16:28	AUA	EET SEA
Dissolved	Prep	3005A			50 mL	50 mL	446761	12/20/23 15:52	JL	EET SEA
Dissolved	Analysis	6020B		5	50 mL	50 mL	447094	12/22/23 11:54	FCW	EET SEA
Total Recoverable	Prep	3005A			50 mL	50 mL	446548	12/18/23 15:58	TMH	EET SEA
Total Recoverable	Analysis	6020B		5	50 mL	50 mL	446858	12/20/23 17:54	TMH	EET SEA
Dissolved	Filtration	FILTRATION			250 mL	250 mL	45148	12/18/23 17:26	AMB	EET SPK
Dissolved	Prep	7470A			50 mL	50 mL	45221	12/27/23 10:16	AMB	EET SPK
Dissolved	Analysis	7470A		1			45244	12/28/23 13:38	AMB	EET SPK
Total/NA	Prep	7470A			50 mL	50 mL	45127	12/18/23 10:28	AMB	EET SPK
Total/NA	Analysis	7470A		1			45139	12/18/23 15:39	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	639548	01/09/24 11:30	MMP	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	45219	12/27/23 10:12	AMB	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	45141	12/18/23 16:57	AMB	EET SPK
Total/NA	Analysis	SM 4500 CN I		1	10 mL	10 mL	638313	12/22/23 13:09	MMP	EET DEN
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	638646	12/28/23 08:05	ABW	EET DEN

Client Sample ID: DUP-121523

Date Collected: 12/15/23 08:00
Date Received: 12/15/23 12:35

Lab Sample ID: 590-22513-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	43 mL	43 mL	45132	12/18/23 17:56	JSP	EET SPK
Total/NA	Analysis	8260D		1	43 mL	43 mL	45187	12/21/23 15:01	JSP	EET SPK
Total/NA	Prep	3510C			1050.9 mL	2 mL	446826	12/21/23 08:20	SL	EET SEA
Total/NA	Analysis	8270E		1	1 mL	1 mL	446882	12/21/23 20:19	K1K	EET SEA
Total/NA	Prep	3510C	RE		1049.8 mL	2 mL	447085	12/27/23 08:30	SL	EET SEA
Total/NA	Analysis	8270E	RE	1	1 mL	1 mL	447355	12/29/23 11:42	CB	EET SEA
Total/NA	Prep	8151A			1034.9 mL	5 mL	394080	12/18/23 21:35	C6FB	EET CAL 4
Total/NA	Analysis	8151A		1	1 mL	1 mL	394962	12/21/23 01:01	J7WE	EET CAL 4

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22513-1

Client Sample ID: DUP-121523

Date Collected: 12/15/23 08:00
Date Received: 12/15/23 12:35

Lab Sample ID: 590-22513-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	5 mL	5 mL	45119	12/15/23 16:34	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	45120	12/15/23 16:34	NMI	EET SPK
Total/NA	Prep	1633	RA		525.6 mL	5.0 mL	732888	01/12/24 04:17	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633	RA	1			734424	01/18/24 14:34	S1M	EET SAC
Total/NA	Prep	1633			525.6 mL	5.0 mL	732888	01/12/24 04:17	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633		1	1 mL	1 mL	733772	01/16/24 02:42	RS1	EET SAC
Dissolved	Filtration	FILTRATION			250 mL	250 mL	45148	12/18/23 17:26	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	45147	12/18/23 17:27	AMB	EET SPK
Dissolved	Analysis	6010D		1			45163	12/19/23 13:48	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	45128	12/18/23 10:30	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			45149	12/18/23 15:44	AMB	EET SPK
Dissolved	Filtration	FILTRATION			250 mL	250 mL	446663	12/19/23 16:28	AUA	EET SEA
Dissolved	Prep	3005A			50 mL	50 mL	446761	12/20/23 15:52	JL	EET SEA
Dissolved	Analysis	6020B		5	50 mL	50 mL	447094	12/22/23 11:32	FCW	EET SEA
Total Recoverable	Prep	3005A			50 mL	50 mL	446548	12/18/23 15:58	TMH	EET SEA
Total Recoverable	Analysis	6020B		5	50 mL	50 mL	446858	12/20/23 17:52	TMH	EET SEA
Dissolved	Filtration	FILTRATION			250 mL	250 mL	45148	12/18/23 17:26	AMB	EET SPK
Dissolved	Prep	7470A			50 mL	50 mL	45221	12/27/23 10:16	AMB	EET SPK
Dissolved	Analysis	7470A		1			45244	12/28/23 13:59	AMB	EET SPK
Total/NA	Prep	7470A			50 mL	50 mL	45127	12/18/23 10:28	AMB	EET SPK
Total/NA	Analysis	7470A		1			45139	12/18/23 15:41	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	639548	01/09/24 11:32	MMP	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	45219	12/27/23 10:12	AMB	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	45141	12/18/23 16:57	AMB	EET SPK
Total/NA	Analysis	SM 4500 CN I		1	10 mL	10 mL	638313	12/22/23 13:12	MMP	EET DEN
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	638646	12/28/23 08:19	ABW	EET DEN

Client Sample ID: Trip Blank

Date Collected: 12/15/23 08:00
Date Received: 12/15/23 12:35

Lab Sample ID: 590-22513-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	43 mL	43 mL	45132	12/18/23 18:18	JSP	EET SPK

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494
EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600
EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310
EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Accreditation/Certification Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22513-1

Laboratory: Eurofins Spokane

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C569	01-06-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-24
California	Los Angeles County Sanitation Districts	10109	08-01-24
California	State	3082	07-31-24
Kansas	NELAP	E-10420	08-01-24
Nevada	State	CA00111	07-31-24
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	06-08-26
Washington	State	C916-18	10-11-24

Laboratory: Eurofins Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-24
A2LA	ISO/IEC 17025	2907.01	10-31-25
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	02-10-24
Arizona	State	AZ0713	12-20-24
Arkansas DEQ	State	19-047-0	04-21-24
California	State	2513	01-08-25
Connecticut	State	PH-0686	09-30-24
Florida	NELAP	E87667-57	06-30-24
Georgia	State	4025-011	01-08-25
Illinois	NELAP	2000172019-1	04-30-24
Iowa	State	370	12-01-24
Kansas	NELAP	E-10166	04-30-24
Kentucky (WW)	State	KY98047	12-31-24
Louisiana	NELAP	30785	06-30-14 *
Louisiana	NELAP	30785	06-30-23 *
Louisiana (All)	NELAP	30785	06-30-24
Minnesota	NELAP	1788752	12-31-24
Nevada	State	CO000262020-1	07-31-24
New Hampshire	NELAP	2053	04-28-24
New Jersey	NELAP	230001	06-30-24
New York	NELAP	59923	03-31-24
North Dakota	State	R-034	01-08-24 *
Oklahoma	NELAP	8614	08-31-24
Oregon	NELAP	4025-020	01-08-25
Pennsylvania	NELAP	013	07-31-24

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22513-1

Laboratory: Eurofins Denver (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
South Carolina	State	72002001	01-08-24 *
Texas	NELAP	TX104704183-08-TX	09-30-09 *
Texas	NELAP	T104704183-21-19	09-30-24
USDA	US Federal Programs	P330-20-00065	12-19-25
Utah	NELAP	QUAN5	06-30-13 *
Utah	NELAP	CO000262019-11	07-31-24
Virginia	NELAP	460232	06-14-24
Washington	State	C583	08-03-24
West Virginia DEP	State	354	11-30-24
Wisconsin	State	999615430	08-31-24
Wyoming (UST)	A2LA	2907.01	10-31-25

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-27
ANAB	Dept. of Energy	L2468.01	01-20-27
ANAB	ISO/IEC 17025	L2468	01-20-27
Arizona	State	AZ0708	08-11-24
Arkansas DEQ	State	88-0691	05-18-24
California	State	2897	01-22-24
Colorado	State	CA00044	08-31-24
Florida	NELAP	E87570	06-30-24
Georgia	State	4040	01-29-24
Hawaii	State	Eurofins Sacramento	01-29-24
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-24
Louisiana	NELAP	01944	06-30-24
Louisiana (All)	NELAP	01944	06-30-24
Maine	State	CA00004	04-14-24
Michigan	State	9947	01-31-24
Nevada	State	CA00044	07-31-24
New Hampshire	NELAP	2997	04-18-24
New Jersey	NELAP	CA005	06-30-24
New York	NELAP	11666	04-01-24
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-24
Texas	NELAP	T104704399-23-17	05-31-24
US Fish & Wildlife	US Federal Programs	58448	04-30-24
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442023-16	02-29-24
Virginia	NELAP	460278	03-14-24
Washington	State	C581	05-05-24
West Virginia (DW)	State	9930C	01-31-25
Wisconsin	State	998204680	08-31-24
Wyoming	State Program	8TMS-L	01-28-19 *

Laboratory: Eurofins Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22513-1

Laboratory: Eurofins Seattle (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-004	02-19-25
ANAB	Dept. of Defense ELAP	L2236	01-19-25
ANAB	Dept. of Energy	L2236	01-19-25
ANAB	ISO/IEC 17025	L2236	01-19-25
California	State	2954	07-07-24
Florida	NELAP	E87575	06-30-24
Louisiana (All)	NELAP	03073	07-01-24
Maine	State	WA01273	05-02-24
Montana (UST)	State	NA	04-14-27
New Jersey	NELAP	WA014	06-30-24
New York	NELAP	11662	03-31-24
Oregon	NELAP	4167	07-07-24
US Fish & Wildlife	US Federal Programs	A20571	06-30-24
USDA	US Federal Programs	525-23-4-22573	01-04-26
Washington	State	C788	07-13-24
Wisconsin	State	399133460	08-31-24

Method Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22513-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET SPK
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	EET SEA
8151A	Herbicides (GC)	SW846	EET CAL 4
300.0	Anions, Ion Chromatography	EPA	EET SPK
Draft-4 1633	Per- and Polyfluoroalkyl Substances by LC/MS/MS	EPA	EET SAC
6010D	Metals (ICP)	SW846	EET SPK
6020B	Metals (ICP/MS)	SW846	EET SEA
7470A	Mercury (CVAA)	SW846	EET SPK
350.1	Nitrogen, Ammonia	EPA	EET DEN
SM 2320B	Alkalinity	SM	EET SPK
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET SPK
SM 4500 CN I	Cyanide, Weak Acid Dissociable	SM	EET DEN
SM 5310B	Organic Carbon, Total (TOC)	SM	EET DEN
1633	Solid-Phase Extraction (SPE)	EPA	EET SAC
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET SEA
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET SPK
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET SEA
5030C	Purge and Trap	SW846	EET SPK
7470A	Preparation, Mercury	SW846	EET SPK
8151A	Extraction (Herbicides)	SW846	EET CAL 4
FILTRATION	Sample Filtration	None	EET SEA
FILTRATION	Sample Filtration	None	EET SPK

Protocol References:

EPA = US Environmental Protection Agency
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494
EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600
EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310
EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone (509) 924-9200 Phone (509) 924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information	Sampler: Justin Orr	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-9177-2634.1
Client Contact: Justin Orr	Phone: (406) 890 1310	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: GeoEngineers Inc	PWSID:			Job #:
Address: 523 East Second Ave	Due Date Requested: STD			
City: Spokane	TAT Requested (days): STD			
State, Zip: WA, 99202	Compliance Project: Δ Yes Δ No			
Phone:	PO #: Purchase Order not required			
Email: jorr@geoengineers.com	WO #:			
Project Name: Marshall Landfill	Project #: 59002669			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A HCL, B NaOH, C Zn Acetate, D Nitric Acid, E NaHSO4, F MeOH, G Amchlor, H Ascorbic Acid, I Ice, J DI Water, K EDTA, L EDA, M Hexane, N None, O AsNaO2, P Na2O4S, Q Na2SO3, R Na2S2O3, S H2SO4, T TSP Dodecahydrate, U Acetone, V MCAA, W pH 4-5, Y Trizma, Z other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=wastefoil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2320B Alk/Bicarb, 2540C TDS, 300-Cl, NO3, NO2 & SO4	6020B Total As, Cd, Fe, Mn, Pb & Zn	6020B Diss As, Cd, Fe, Mn, Pb & Zn	6010D Total K, Mg & Na, 7470A Total Hg	6010D Dissolved Ca & Mg, 7470 Dissolved Hg	350.1 Ammonia	SM5310B TOC	4500_CN_I_NP Cyanide, Weak Acid Dissociable	8260D Standard Analyte List	8270E Semivolatiles, standard list	8151A Routine Herbicides List (Standard Spike	1633 EPA 1633		Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D	N	D	N	S	S	B	A	N	N	N			
MW-2A-121523	12/15/23	1000	G	Water			X	X	X	X	X	X	X	X	X	X	X	X			
MW 5A-121523	12/15/23	0725	G	Water			X	X	X	X	X	X	X	X	X	X	X	X			
DUP-121523	12/15/23	0800	G	Water			X	X	X	X	X	X	X	X	X	X	X	X			
TB Trip Blank	12/15/23	0800	G	Water											X						
				Water																	
				Water																	
				Water																	

590-22513 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if sam
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II III IV Other (specify)

Special Instructions/QC Requirements.

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		12-15-23 1145	GEI	Morea Schofield	12.15.23 1142	CoEI
2	Morea Schofield	12-15-23 1231	CoEI	OSSM	12/15/23 1235	ESASpokane
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact. Δ Yes Δ No	Custody Seal No.	Cooler Temperature(s) °C and Other Remarks: 4 °C 5 °C IR06C

590-22513 Waybill

5099249200
TRACKING NUMBER: 710195998783
FedEx.
TRK#
0201 7101 9599 8783
SATURDAY 1:30P
PRIORITY OVERNIGHT
X0 DTHA
92780
CA-US
SNA

Eurofins Spokane
11922 East 1st Ave
Spokane WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-8493.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note): State Program Washington		Job #: 590-22513-1
Address: 880 Riverside Parkway	Due Date Requested: 1/2/2024			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Marshall Landfill	Project #: 59002669			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A HCL, B NaOH, C Zn Acetate, D Nitric Acid, E NaHSO4, F MeOH, G Amchlor, H Ascorbic Acid, I Ice, J DI Water, K EDTA, L EDA, M Hexane, N None, O AsNaO2, P Na2O4S, Q Na2SO3, R Na2S2O3, S H2SO4, T TSP Dodecahydrate, U Acetone, V MCAA, W pH 4-5, Y Trizma, Z other (specify)
Other:

Sample Identification Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water S=solid, O=waste/oil BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1633/1633_SPE EPA 1633 Method List	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-2A-121523 (590-22513-1)	12/15/23	10:00 Pacific		Water			X	3	
MW-5A-121523 (590-22513-2)	12/15/23	08:25 Pacific		Water			X	3	
DUP-121523 (590-22513-3)	12/15/23	08:00 Pacific		Water			X	3	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I II, III, IV Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		12/15/23 15:37	EET SPO		12/16/23 900	EET SAC
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No. 320719	Cooler Temperature(s) °C and Other Remarks: 3.4c

Ver: 06/08/2021

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Env

Loc: 590
22513

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-8490.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Southwest,		Accreditations Required (See note): State Program - Washington		Job #: 590-22513-1
Address: 2841 Dow Avenue, Suite 100, ,	Due Date Requested: 1/2/2024			
City: Tustin	TAT Requested (days):			
State, Zip: CA, 92780				
Phone: 714-895-5494(Tel)	PO #:			
Email:	WO #:			
Project Name: Marshall Landfill	Project #: 59002669			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8151A/8151A_AP Routine Herbicides List (Standard Spike	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-2A-121523 (590-22513-1)	12/15/23	10:00 Pacific		Water			X	1	
MW-5A-121523 (590-22513-2)	12/15/23	08:25 Pacific		Water			X	1	
DUP-121523 (590-22513-3)	12/15/23	08:00 Pacific		Water			X	1	

590-22513 Chain of Custody

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	12/15/23 14:40	EET SPO		12/18/23 0905	ET
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: *Melted ice 11-9/11-8 SGL

Ver: 06/08/2021

2/8/2024

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-8491.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Northwest,		Accreditations Required (See note): State Program - Washington		Job #: 590-22513-1
Address: 5755 8th Street East, ,	Due Date Requested: 1/2/2024			
City: Tacoma	TAT Requested (days):			
State, Zip: WA, 98424				
Phone: 253-922-2310(Tel)	PO #:			
Email:	WO #:			
Project Name: Marshall Landfill	Project #: 59002669			
Site:	SSOW#:			

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020B/3005A (MOD) Total As, Cd, Fe, Mn, Pb & Zn	6020B/FILTRATION (MOD) Diss As, Cd, Fe, Mn, Pb & Zn	8270E/3510C Semivolatiles, standard list	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-2A-121523 (590-22513-1)	12/15/23	10:00 Pacific		Water			X	X	X	4	
MW-5A-121523 (590-22513-2)	12/15/23	08:25 Pacific		Water			X	X	X	4	
DUP-121523 (590-22513-3)	12/15/23	08:00 Pacific		Water			X	X	X	4	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	12/15/23 15:01	ESTSPO	[signature]	12/16/23 0910	EETN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: IR12 0.4 10.3

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-22513-1

Login Number: 22513
List Number: 1
Creator: Morris, Mackenzie 1

List Source: Eurofins Spokane

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-22513-1

Login Number: 22513
List Number: 5
Creator: Khana, Piyush

List Source: Eurofins Calscience
List Creation: 12/18/23 12:13 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	2300748
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	Water present in cooler; indicates evidence of melted ice.
Cooler Temperature is acceptable.	False	Cooler temperature outside required temperature criteria.
Cooler Temperature is recorded.	True	11.8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-22513-1

Login Number: 22513
List Number: 3
Creator: Martinez, Anthony

List Source: Eurofins Denver
List Creation: 12/16/23 12:41 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-22513-1

Login Number: 22513
List Number: 4
Creator: Simmons, Jason C

List Source: Eurofins Sacramento
List Creation: 12/16/23 03:40 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	2300719
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.4c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-22513-1

Login Number: 22513
List Number: 2
Creator: Prigge, Madison

List Source: Eurofins Seattle
List Creation: 12/16/23 10:37 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	IR12 0.4/0.3
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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Sacramento Sample Receiving Notes (SSRN)

Tracking # 7019599 8875

Job.____

590-22513 Field Sheet

SO / PO / FO / (SAT) / 2-Day / Ground / UPS / CDO / Courier

GSL / OnTrac / Goldstreak / USPS / Other_____

Use this form to record Sample Custody Seal Cooler Custody Seal, Temperature & corrected Temperature & other observations.
File in the job folder with the COC

Therm ID 206 Corr Factor (+ / -) - °C

Ice 1 Wet 1 Gel _____ Other _____

Cooler Custody Seal 23007419

Cooler ID _____

Temp Observed 3.4 °C Corrected 3.4 °C

From Temp Blank ☐ Sample ☑

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Frozen samples show signs of thaw?	☐	☐	☑

Initials. [signature] Date. 12.16.23

Unpacking/Labeling The Samples	Yes	No	NA
Containers are not broken or leaking?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
COC is complete w/o discrepancies	☑	☐	☐
Sample custody seal?	☐	☐	☑
Sample containers have legible labels?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Is the Field Sampler's name on COC?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials. [signature] Date: 12.16.23

Notes _____

Trizma Lot #(s) _____

Ammonium Acetate Lot #(s) _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☑	☐	☐
NCM Filed?	☐	☐	☑
Samples received within hold time?	☐	☐	☑
Log Release checked in TALS?	☐	☐	☑

Initials. [signature] Date 12 16 23

Isotope Dilution Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-22513-1

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (5-130)	PFPeA (40-130)	13C5PHA (40-130)	C4PFHA (40-130)	C8PFOA (40-130)	C9PFNA (40-130)	C6PFDA (40-130)	13C7PUA (30-130)
590-22513-1	MW-2A-121523	77.7	83.0	86.2	79.1	77.7	75.7	67.8	65.7
590-22513-2	MW-5A-121523	80.2	83.5	90.6	87.9	80.4	76.8	77.0	71.3
590-22513-3	DUP-121523	81.1	89.7	90.9	91.5	77.7	81.6	84.1	87.8
LCS 320-732888/3-A	Lab Control Sample	83.6	87.3	88.2	88.8	77.9	79.7	84.9	75.1
LCSD 320-732888/4-A	Lab Control Sample Dup	81.6	79.5	85.9	77.5	72.9	80.7	76.9	75.4
LLCS 320-732888/2-A	Lab Control Sample	85.9	80.5	92.8	83.2	73.5	78.8	83.6	78.2
MB 320-732888/1-A	Method Blank	85.2	84.8	89.2	80.8	83.7	85.0	82.3	82.3

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (10-130)	PFTDA (10-130)	C3PFBS (40-135)	C3PFHS (40-130)	C8PFOS (40-130)	PFOSA (40-130)	d3NMFOS (40-170)	d5NEFOS (25-135)
590-22513-1	MW-2A-121523	54.9	39.5	80.4	80.3	83.9	78.4	66.6	72.2
590-22513-2	MW-5A-121523	71.6	54.2	82.4	77.1	85.4	86.7	72.9	79.4
590-22513-3	DUP-121523	70.7	59.8	82.9	81.4	87.1	88.5	75.9	71.2
LCS 320-732888/3-A	Lab Control Sample	81.3	66.7	90.2	84.6	84.0	83.3	73.0	74.5
LCSD 320-732888/4-A	Lab Control Sample Dup	70.2	48.7	76.6	76.1	82.7	81.0	71.8	82.3
LLCS 320-732888/2-A	Lab Control Sample	75.7	59.4	85.8	79.5	83.5	76.2	67.9	66.4
MB 320-732888/1-A	Method Blank	75.2	51.5	80.9	78.7	77.2	80.4	68.1	71.4

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M262FTS (40-200)	M282FTS (40-300)	HFPODA (40-130)	NMFM (10-130)	NEFM (10-130)	d5NPFSA (10-130)	d3NMFSA (10-130)	
590-22513-1	MW-2A-121523	93.2	78.2	84.9	56.9	51.5	58.5	64.5	
590-22513-2	MW-5A-121523	85.1	78.9	87.1	63.4	65.5	67.3	73.3	
590-22513-3	DUP-121523	89.4	85.4	87.4	69.3	63.0	71.5	74.3	
LCS 320-732888/3-A	Lab Control Sample	89.3	84.9	87.4	70.2	77.4	70.7	75.9	
LCSD 320-732888/4-A	Lab Control Sample Dup	80.5	82.7	84.2	62.9	71.2	68.9	70.9	
LLCS 320-732888/2-A	Lab Control Sample	97.5	83.4	90.4	62.4	61.7	69.5	70.1	
MB 320-732888/1-A	Method Blank	83.6	84.1	90.7	67.7	65.0	68.6	72.4	

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
13C5PHA = 13C5 PFHxA
C4PFHA = 13C4 PFHpA
C8PFOA = 13C8 PFOA
C9PFNA = 13C9 PFNA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
C8PFOS = 13C8 PFOS
PFOSA = 13C8 PFOSA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
M262FTS = 13C2 6:2 FTS
M282FTS = 13C2 8:2 FTS
HFPODA = 13C3 HFPO-DA
NMFM = d7-N-MeFOSE-M

Isotope Dilution Summary

Client: GeoEngineers Inc
Job ID: 590-22513-1
Project/Site: Marshall Landfill

NEFM = d9-N-EtFOSE-M
d5NPFSA = d5-NEtPFOSA
d3NMFSA = d3-NMePFOSA

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)
Lab Sample ID	**Client Sample ID**	**M242FTS (40-200)**
590-22513-1 - RA	MW-2A-121523	98.6
590-22513-2 - RA	MW-5A-121523	107
590-22513-3 - RA	DUP-121523	104
LCS 320-732888/3-A - RA	Lab Control Sample	103
LCSD 320-732888/4-A - RA	Lab Control Sample Dup	98.7
LLCS 320-732888/2-A - RA	Lab Control Sample	113
MB 320-732888/1-A - RA	Method Blank	115

Surrogate Legend

M242FTS = 13C2 4:2 FTS

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ANALYTICAL REPORT

PREPARED FOR

Attn: Justin Orr
GeoEngineers Inc
523 East Second Ave
Spokane, Washington 99202

Generated 8/28/2024 11:51:11 AM Revision 1

JOB DESCRIPTION

Marshall Landfill/0504-104-01

JOB NUMBER

590-23966-1

Eurofins Spokane
11922 East 1st Ave
Spokane WA 99206

See page two for job notes and contact information.

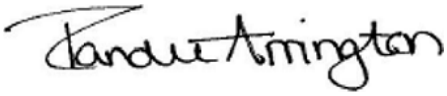
my EOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northwest, LLC Project Manager.

Authorization



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Revision 1

Authorized for release by
Randee Arrington, Business Unit Manager
Randee.Arrington@et.eurofinsus.com
(509)924-9200

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Job Narrative
590-23966-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Revision
The report being provided is a revision of the original report sent on 4/11/2024. The report (revision 1) is being revised due to: revised the client sample IDs for the following samples per the clients request:

MW-15-032524 revised to MW-15A-032524 (590-23966-2)
MW-8B-032624 revised to MW-8A-032624 (590-23966-4)
MW-16-032624 revised to MW-16A-032624 (590-23966-6)

Receipt
The samples were received on 3/28/2024 8:37 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 2.3°C, 2.5°C, 5.4°C and 5.9°C.

Receipt Exceptions
The containers for the methods SM5310B TOC/350.1 Ammonia/8270E 1,4 Dioxin/8260D PCE + 1,11,-TCA for the following sample were received at 12:25 on 03/28/2024: MW-5A-032524 (590-23966-8). The temperature upon receipt was 5.4 Corr IR006.

GC/MS VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS Semi VOA
Method 8270C_SIM_MS_ID: The method blank for preparation batch 580-455296 and analytical batch 580-455319 contained 1,4-Dioxane above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL) in the method blank; therefore, re-extraction and re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
Method 300_ORGFMS: The following sample was received outside of holding time: MW-12A-032524 (590-23966-1).

Method 300_ORGFMS: The following sample was received with less than 3 hours remaining on a test with a holding time of 48 hours or less. As such, the laboratory had insufficient time remaining to perform the analysis within holding time: MW-2A-032524 (590-23966-3).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

PFAS
Method 1633: The following samples in preparation batch 320-752267 were yellow in color following extraction. MW-15-032524 (590-23966-2), MW-2A-032524 (590-23966-3), MW-9A-032524 (590-23966-5), MW-16-032524 (590-23966-6), MW-5A-032524 (590-23966-8) and DUP-032724 (590-23966-9)

Method 1633: The "I" qualifier means the transition mass ratio for the indicated analyte was outside the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, however, analyst judgment was used to positively identify the analyte. The sample was re-analyzed with concurring results, therefore, the best set of data was reported. MW-9A-032524 (590-23966-5)

Method 1633: The CCB for analytical batch 320-752549 contained 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS) above the detection limit. None of the samples associated with this CCB contained the target compound; therefore, re-analysis of sample was not performed:(CCB 320-752549/43).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
Method 6010D - Dissolved: The sample duplicate (DUP) precision for preparation batch 590-46752 and 590-46762 and analytical batch 590-46765 was outside control limits. Sample matrix interference is suspected.

Method 7470A: The method blank for preparation batch 590-46752, 590-46761 and 590-46753 and analytical batch 590-46767 contained Mercury above the method detection limit. This target analyte concentration was less than the reporting limit (RL) in the method blank; therefore, re-extraction and/or re-analysis of samples was not performed.

Method 7470A - Dissolved: The method blank for preparation batch 590-46752, 590-46761 and 590-46753 and analytical batch 590-46767 contained Mercury above the method detection limit. This target analyte concentration was less than the reporting limit (RL) in the method blank; therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
Method 2320B: The method blank for analytical batch 590-46763 contained Alkalinity and Bicarbonate Alkalinity as CaCO3 above the method detection limit (MDL) Associated sample(s) were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the method blank.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Sample Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill/0504-104-01

Job ID: 590-23966-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-23966-1	MW-12A-032524	Water	03/25/24 13:06	03/28/24 08:37
590-23966-2	MW-15A-032524	Water	03/25/24 11:40	03/28/24 08:37
590-23966-3	MW-2A-032524	Water	03/26/24 11:25	03/28/24 08:37
590-23966-4	MW-8A-032524	Water	03/26/24 12:35	03/28/24 08:37
590-23966-5	MW-9A-032524	Water	03/26/24 13:40	03/28/24 08:37
590-23966-6	MW-16A-032524	Water	03/26/24 14:36	03/28/24 08:37
590-23966-7	MW-7B-032524	Water	03/27/24 09:25	03/28/24 08:37
590-23966-8	MW-5A-032524	Water	03/27/24 10:45	03/28/24 08:37
590-23966-9	DUP-032724	Water	03/27/24 12:00	03/28/24 08:37
590-23966-10	FB-032524	Water	03/25/24 11:06	03/28/24 08:37
590-23966-11	TB-2/26	Water	03/26/24 00:00	03/28/24 08:37

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

HPLC/IC

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.
H3	Sample was received and analyzed past holding time. This does not meet regulatory requirements.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

LCMS

Qualifier	Qualifier Description
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
F3	Duplicate RPD exceeds the control limit
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Client Sample ID: MW-12A-032524

Date Collected: 03/25/24 13:06
Date Received: 03/28/24 08:37

Lab Sample ID: 590-23966-1

Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			04/05/24 15:38	1
Tetrachloroethene	ND		1.0	0.22	ug/L			04/05/24 15:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*80 - 120*		*04/05/24 15:38*	*1*
4-Bromofluorobenzene (Surr)	*111*		*76 - 120*		*04/05/24 15:38*	*1*
Dibromofluoromethane (Surr)	*100*		*80 - 123*		*04/05/24 15:38*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*04/05/24 15:38*	*1*

Method: SW846 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.19	0.033	ug/L		04/01/24 09:03	04/01/24 17:20	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*38*	**5-*	*40 - 140*	*04/01/24 09:03*	*04/01/24 17:20*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**6.7**		0.80	0.42	mg/L			03/28/24 11:53	1
Nitrate as N	**8.1**	**H H3**	0.20	0.057	mg/L			03/28/24 11:53	1
Nitrite as N	ND	H H3	0.20	0.069	mg/L			03/28/24 11:53	1
Sulfate	**16**		0.50	0.13	mg/L			03/28/24 11:53	1

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**11**		1.0	0.13	mg/L		04/11/24 12:24	04/11/24 13:43	1
Potassium	**2.6**		0.50	0.29	mg/L		04/11/24 12:24	04/11/24 13:43	1
Sodium	**8.6**		0.50	0.20	mg/L		04/11/24 12:24	04/11/24 13:43	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**29**		2.0	0.20	mg/L		04/11/24 10:49	04/11/24 14:45	1
Magnesium	**10**		1.0	0.13	mg/L		04/11/24 10:49	04/11/24 14:45	1

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.0010	mg/L		04/05/24 16:45	04/08/24 23:54	5
Cadmium	ND		0.0020	0.00019	mg/L		04/05/24 16:45	04/08/24 23:54	5
Iron	ND		0.50	0.067	mg/L		04/05/24 16:45	04/08/24 23:54	5
Lead	ND		0.0020	0.00020	mg/L		04/05/24 16:45	04/08/24 23:54	5
Manganese	ND		0.010	0.0023	mg/L		04/05/24 16:45	04/08/24 23:54	5
Zinc	ND		0.035	0.0046	mg/L		04/05/24 16:45	04/08/24 23:54	5

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.0010	mg/L		04/01/24 17:48	04/04/24 16:44	5
Cadmium	ND		0.0020	0.00019	mg/L		04/01/24 17:48	04/04/24 16:44	5
Iron	ND		0.50	0.067	mg/L		04/01/24 17:48	04/04/24 16:44	5
Lead	ND		0.0020	0.00020	mg/L		04/01/24 17:48	04/04/24 16:44	5
Manganese	ND		0.010	0.0023	mg/L		04/01/24 17:48	04/04/24 16:44	5
Zinc	ND		0.035	0.0046	mg/L		04/01/24 17:48	04/04/24 16:44	5

Client Sample ID: MW-12A-032524

Lab Sample ID: 590-23966-1

Date Collected: 03/25/24 13:06

Matrix: Water

Date Received: 03/28/24 08:37

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.12**	**J B**	0.20	0.090	ug/L		04/11/24 12:21	04/11/24 16:47	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.13**	**J B**	0.20	0.090	ug/L		04/11/24 10:46	04/11/24 17:17	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	ND		0.10	0.029	mg/L			04/09/24 17:59	1
Alkalinity (SM 2320B)	**110**	**B**	20	5.0	mg/L			04/08/24 14:00	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**110**	**B**	20	5.0	mg/L			04/08/24 14:00	1
Total Dissolved Solids (SM 2540C)	**140**		25	13	mg/L			04/01/24 15:21	1
Total Organic Carbon - Duplicates (SM 5310B)	**2.8**		1.0	0.35	mg/L			04/02/24 07:18	1

Client Sample ID: MW-15A-032524

Lab Sample ID: 590-23966-2

Date Collected: 03/25/24 11:40

Matrix: Water

Date Received: 03/28/24 08:37

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**53**		7.3	1.8	ng/L		04/04/24 04:12	04/05/24 10:47	1
Perfluoropentanoic acid (PFPeA)	**28**		3.6	0.91	ng/L		04/04/24 04:12	04/05/24 10:47	1
Perfluorohexanoic acid (PFHxA)	**8.7**		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 10:47	1
Perfluoroheptanoic acid (PFHpA)	**5.2**		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 10:47	1
Perfluorooctanoic acid (PFOA)	**5.8**		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 10:47	1
Perfluorononanoic acid (PFNA)	**1.6**	**J**	1.8	0.46	ng/L		04/04/24 04:12	04/05/24 10:47	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 10:47	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 10:47	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 10:47	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 10:47	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 10:47	1
Perfluorobutanesulfonic acid (PFBS)	**4.0**		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 10:47	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 10:47	1
Perfluorohexanesulfonic acid (PFHxS)	**2.1**		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 10:47	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 10:47	1
Perfluorooctanesulfonic acid (PFOS)	**9.9**		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 10:47	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 10:47	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 10:47	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 10:47	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		7.3	1.8	ng/L		04/04/24 04:12	04/05/24 10:47	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		7.3	1.8	ng/L		04/04/24 04:12	04/05/24 10:47	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		7.3	1.8	ng/L		04/04/24 04:12	04/05/24 10:47	1

Client Sample ID: MW-15A-032524
Lab Sample ID: 590-23966-2
Date Collected: 03/25/24 11:40
Matrix: Water
Date Received: 03/28/24 08:37

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (PFOSA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 10:47	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 10:47	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 10:47	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 10:47	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 10:47	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		18	4.6	ng/L		04/04/24 04:12	04/05/24 10:47	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		18	4.6	ng/L		04/04/24 04:12	04/05/24 10:47	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		7.3	1.8	ng/L		04/04/24 04:12	04/05/24 10:47	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		7.3	1.8	ng/L		04/04/24 04:12	04/05/24 10:47	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		3.6	0.91	ng/L		04/04/24 04:12	04/05/24 10:47	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		3.6	0.91	ng/L		04/04/24 04:12	04/05/24 10:47	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		3.6	0.91	ng/L		04/04/24 04:12	04/05/24 10:47	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		7.3	1.8	ng/L		04/04/24 04:12	04/05/24 10:47	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		7.3	1.8	ng/L		04/04/24 04:12	04/05/24 10:47	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		3.6	0.91	ng/L		04/04/24 04:12	04/05/24 10:47	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		9.1	2.3	ng/L		04/04/24 04:12	04/05/24 10:47	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		46	11	ng/L		04/04/24 04:12	04/05/24 10:47	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		46	11	ng/L		04/04/24 04:12	04/05/24 10:47	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*69.1*		*5 - 130*	*04/04/24 04:12*	*04/05/24 10:47*	*1*
13C5 PFPeA	*78.0*		*40 - 130*	*04/04/24 04:12*	*04/05/24 10:47*	*1*
13C5 PFHxA	*84.4*		*40 - 130*	*04/04/24 04:12*	*04/05/24 10:47*	*1*
13C4 PFHpA	*77.2*		*40 - 130*	*04/04/24 04:12*	*04/05/24 10:47*	*1*
13C8 PFOA	*73.7*		*40 - 130*	*04/04/24 04:12*	*04/05/24 10:47*	*1*
13C9 PFNA	*73.7*		*40 - 130*	*04/04/24 04:12*	*04/05/24 10:47*	*1*
13C6 PFDA	*70.2*		*40 - 130*	*04/04/24 04:12*	*04/05/24 10:47*	*1*
13C7 PFUnA	*60.6*		*30 - 130*	*04/04/24 04:12*	*04/05/24 10:47*	*1*
13C2 PFDoA	*59.2*		*10 - 130*	*04/04/24 04:12*	*04/05/24 10:47*	*1*
13C2 PFTeDA	*53.3*		*10 - 130*	*04/04/24 04:12*	*04/05/24 10:47*	*1*
13C3 PFBS	*70.9*		*40 - 135*	*04/04/24 04:12*	*04/05/24 10:47*	*1*
13C3 PFHxS	*69.7*		*40 - 130*	*04/04/24 04:12*	*04/05/24 10:47*	*1*
13C8 PFOS	*76.6*		*40 - 130*	*04/04/24 04:12*	*04/05/24 10:47*	*1*
13C8 PFOSA	*66.6*		*40 - 130*	*04/04/24 04:12*	*04/05/24 10:47*	*1*
d3-NMeFOSAA	*80.4*		*40 - 170*	*04/04/24 04:12*	*04/05/24 10:47*	*1*
d5-NEtFOSAA	*85.3*		*25 - 135*	*04/04/24 04:12*	*04/05/24 10:47*	*1*
13C2 4:2 FTS	*88.6*		*40 - 200*	*04/04/24 04:12*	*04/05/24 10:47*	*1*

Client Sample ID: MW-15A-032524
Lab Sample ID: 590-23966-2
Date Collected: 03/25/24 11:40
Matrix: Water
Date Received: 03/28/24 08:37

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 6:2 FTS	*77.5*		*40 - 200*	*04/04/24 04:12*	*04/05/24 10:47*	*1*
13C2 8:2 FTS	*79.7*		*40 - 300*	*04/04/24 04:12*	*04/05/24 10:47*	*1*
13C3 HFPO-DA	*83.8*		*40 - 130*	*04/04/24 04:12*	*04/05/24 10:47*	*1*
d7-N-MeFOSE-M	*63.2*		*10 - 130*	*04/04/24 04:12*	*04/05/24 10:47*	*1*
d9-N-EtFOSE-M	*67.4*		*10 - 130*	*04/04/24 04:12*	*04/05/24 10:47*	*1*
d5-NEtPFOSA	*73.1*		*10 - 130*	*04/04/24 04:12*	*04/05/24 10:47*	*1*
d3-NMePFOSA	*68.2*		*10 - 130*	*04/04/24 04:12*	*04/05/24 10:47*	*1*

Client Sample ID: MW-2A-032524
Lab Sample ID: 590-23966-3
Date Collected: 03/26/24 11:25
Matrix: Water
Date Received: 03/28/24 08:37

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			04/05/24 15:59	1
Tetrachloroethene	ND		1.0	0.22	ug/L			04/05/24 15:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*110*		*80 - 120*		*04/05/24 15:59*	*1*
4-Bromofluorobenzene (Surr)	*108*		*76 - 120*		*04/05/24 15:59*	*1*
Dibromofluoromethane (Surr)	*100*		*80 - 123*		*04/05/24 15:59*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*04/05/24 15:59*	*1*

Method: SW846 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.19	0.034	ug/L		04/01/24 09:03	04/01/24 17:33	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*41*		*40 - 140*	*04/01/24 09:03*	*04/01/24 17:33*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**62**		0.80	0.42	mg/L			03/28/24 12:53	1
Nitrate as N	**2.4**	**H**	0.20	0.057	mg/L			03/28/24 12:53	1
Nitrite as N	ND	H	0.20	0.069	mg/L			03/28/24 12:53	1
Sulfate	**21**		0.50	0.13	mg/L			03/28/24 12:53	1

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		7.2	1.8	ng/L		04/04/24 04:12	04/05/24 13:08	1
Perfluoropentanoic acid (PFPeA)	ND		3.6	0.90	ng/L		04/04/24 04:12	04/05/24 13:08	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:08	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:08	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:08	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:08	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:08	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:08	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:08	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:08	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:08	1
Perfluorobutanesulfonic acid (PFBS)	**0.98**	**J**	1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:08	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill/0504-104-01

Job ID: 590-23966-1

Client Sample ID: MW-2A-032524
Date Collected: 03/26/24 11:25
Date Received: 03/28/24 08:37

Lab Sample ID: 590-23966-3
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanesulfonic acid (PFPeS)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:08	1
Perfluorohexanesulfonic acid (PFHxS)	**0.58**	**J**	1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:08	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:08	1
Perfluorooctanesulfonic acid (PFOS)	**2.7**		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:08	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:08	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:08	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:08	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		7.2	1.8	ng/L		04/04/24 04:12	04/05/24 13:08	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		7.2	1.8	ng/L		04/04/24 04:12	04/05/24 13:08	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:08	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:08	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:08	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:08	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:08	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		18	4.5	ng/L		04/04/24 04:12	04/05/24 13:08	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		18	4.5	ng/L		04/04/24 04:12	04/05/24 13:08	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		7.2	1.8	ng/L		04/04/24 04:12	04/05/24 13:08	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		7.2	1.8	ng/L		04/04/24 04:12	04/05/24 13:08	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		3.6	0.90	ng/L		04/04/24 04:12	04/05/24 13:08	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		3.6	0.90	ng/L		04/04/24 04:12	04/05/24 13:08	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		3.6	0.90	ng/L		04/04/24 04:12	04/05/24 13:08	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		7.2	1.8	ng/L		04/04/24 04:12	04/05/24 13:08	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		7.2	1.8	ng/L		04/04/24 04:12	04/05/24 13:08	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		3.6	0.90	ng/L		04/04/24 04:12	04/05/24 13:08	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		9.0	2.3	ng/L		04/04/24 04:12	04/05/24 13:08	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		45	11	ng/L		04/04/24 04:12	04/05/24 13:08	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		45	11	ng/L		04/04/24 04:12	04/05/24 13:08	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*69.4*		*5 - 130*	*04/04/24 04:12*	*04/05/24 13:08*	*1*
13C5 PFPeA	*84.3*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:08*	*1*
13C5 PFHxA	*82.8*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:08*	*1*

Client Sample ID: MW-2A-032524
Date Collected: 03/26/24 11:25
Date Received: 03/28/24 08:37

Lab Sample ID: 590-23966-3
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFHpA	*76.2*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:08*	*1*
13C8 PFOA	*77.2*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:08*	*1*
13C9 PFNA	*70.6*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:08*	*1*
13C6 PFDA	*60.4*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:08*	*1*
13C7 PFUnA	*59.2*		*30 - 130*	*04/04/24 04:12*	*04/05/24 13:08*	*1*
13C2 PFDoA	*51.2*		*10 - 130*	*04/04/24 04:12*	*04/05/24 13:08*	*1*
13C2 PFTeDA	*50.7*		*10 - 130*	*04/04/24 04:12*	*04/05/24 13:08*	*1*
13C3 PFBS	*71.8*		*40 - 135*	*04/04/24 04:12*	*04/05/24 13:08*	*1*
13C3 PFHxS	*67.5*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:08*	*1*
13C8 PFOS	*75.5*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:08*	*1*
13C8 PFOSA	*69.8*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:08*	*1*
d3-NMeFOSAA	*77.4*		*40 - 170*	*04/04/24 04:12*	*04/05/24 13:08*	*1*
d5-NEtFOSAA	*77.3*		*25 - 135*	*04/04/24 04:12*	*04/05/24 13:08*	*1*
13C2 4:2 FTS	*85.6*		*40 - 200*	*04/04/24 04:12*	*04/05/24 13:08*	*1*
13C2 8:2 FTS	*98.3*		*40 - 300*	*04/04/24 04:12*	*04/05/24 13:08*	*1*
13C3 HFPO-DA	*85.2*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:08*	*1*
d7-N-MeFOSE-M	*63.7*		*10 - 130*	*04/04/24 04:12*	*04/05/24 13:08*	*1*
d9-N-EtFOSE-M	*67.8*		*10 - 130*	*04/04/24 04:12*	*04/05/24 13:08*	*1*
d5-NEtPFOSA	*70.5*		*10 - 130*	*04/04/24 04:12*	*04/05/24 13:08*	*1*
d3-NMePFOSA	*65.0*		*10 - 130*	*04/04/24 04:12*	*04/05/24 13:08*	*1*

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		7.2	1.8	ng/L		04/04/24 04:12	04/08/24 18:43	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 6:2 FTS	*76.9*		*40 - 200*	*04/04/24 04:12*	*04/08/24 18:43*	*1*

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**16**		1.0	0.13	mg/L		04/11/24 12:24	04/11/24 13:47	1
Potassium	**6.8**		0.50	0.29	mg/L		04/11/24 12:24	04/11/24 13:47	1
Sodium	**37**		0.50	0.20	mg/L		04/11/24 12:24	04/11/24 13:47	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**32**		2.0	0.20	mg/L		04/11/24 10:49	04/11/24 14:49	1
Magnesium	**13**		1.0	0.13	mg/L		04/11/24 10:49	04/11/24 14:49	1

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0018**	**J**	0.0050	0.0010	mg/L		04/05/24 16:45	04/08/24 23:56	5
Cadmium	ND		0.0020	0.00019	mg/L		04/05/24 16:45	04/08/24 23:56	5
Iron	ND		0.50	0.067	mg/L		04/05/24 16:45	04/08/24 23:56	5
Lead	ND		0.0020	0.00020	mg/L		04/05/24 16:45	04/08/24 23:56	5
Manganese	ND		0.010	0.0023	mg/L		04/05/24 16:45	04/08/24 23:56	5
Zinc	ND		0.035	0.0046	mg/L		04/05/24 16:45	04/08/24 23:56	5

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0019**	**J**	0.0050	0.0010	mg/L		04/01/24 17:48	04/04/24 16:49	5

Client Sample ID: MW-2A-032524

Lab Sample ID: 590-23966-3

Date Collected: 03/26/24 11:25

Matrix: Water

Date Received: 03/28/24 08:37

Method: SW846 6020B - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.0020	0.00019	mg/L		04/01/24 17:48	04/04/24 16:49	5
Iron	ND		0.50	0.067	mg/L		04/01/24 17:48	04/04/24 16:49	5
Lead	ND		0.0020	0.00020	mg/L		04/01/24 17:48	04/04/24 16:49	5
Manganese	**0.013**		0.010	0.0023	mg/L		04/01/24 17:48	04/04/24 16:49	5
Zinc	ND		0.035	0.0046	mg/L		04/01/24 17:48	04/04/24 16:49	5

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.12**	**J B**	0.20	0.090	ug/L		04/11/24 12:21	04/11/24 16:57	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.12**	**J B**	0.20	0.090	ug/L		04/11/24 10:46	04/11/24 17:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	ND		0.10	0.029	mg/L			04/09/24 18:12	1
Alkalinity (SM 2320B)	**200**	**B**	20	5.0	mg/L			04/08/24 14:00	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**200**	**B**	20	5.0	mg/L			04/08/24 14:00	1
Total Dissolved Solids (SM 2540C)	**340**		25	13	mg/L			04/01/24 15:21	1
Total Organic Carbon - Duplicates (SM 5310B)	**3.1**		1.0	0.35	mg/L			04/02/24 07:34	1

Client Sample ID: MW-8A-032524

Lab Sample ID: 590-23966-4

Date Collected: 03/26/24 12:35

Matrix: Water

Date Received: 03/28/24 08:37

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**14**		7.4	1.8	ng/L		04/04/24 04:12	04/05/24 13:25	1
Perfluoropentanoic acid (PFPeA)	**22**		3.7	0.92	ng/L		04/04/24 04:12	04/05/24 13:25	1
Perfluorohexanoic acid (PFHxA)	**7.4**		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 13:25	1
Perfluoroheptanoic acid (PFHpA)	**2.8**		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 13:25	1
Perfluorooctanoic acid (PFOA)	**4.4**		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 13:25	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 13:25	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 13:25	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 13:25	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 13:25	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 13:25	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 13:25	1
Perfluorobutanesulfonic acid (PFBS)	**1.7**	**J**	1.8	0.46	ng/L		04/04/24 04:12	04/05/24 13:25	1
Perfluoropentanesulfonic acid (PFPeS)	**0.61**	**J**	1.8	0.46	ng/L		04/04/24 04:12	04/05/24 13:25	1
Perfluorohexanesulfonic acid (PFHxS)	**2.4**		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 13:25	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 13:25	1
Perfluorooctanesulfonic acid (PFOS)	**3.0**		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 13:25	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 13:25	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill/0504-104-01

Job ID: 590-23966-1

Client Sample ID: MW-8A-032524
Date Collected: 03/26/24 12:35
Date Received: 03/28/24 08:37

Lab Sample ID: 590-23966-4
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 13:25	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 13:25	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		7.4	1.8	ng/L		04/04/24 04:12	04/05/24 13:25	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		7.4	1.8	ng/L		04/04/24 04:12	04/05/24 13:25	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		7.4	1.8	ng/L		04/04/24 04:12	04/05/24 13:25	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 13:25	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 13:25	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 13:25	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 13:25	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 13:25	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		18	4.6	ng/L		04/04/24 04:12	04/05/24 13:25	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		18	4.6	ng/L		04/04/24 04:12	04/05/24 13:25	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		7.4	1.8	ng/L		04/04/24 04:12	04/05/24 13:25	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		7.4	1.8	ng/L		04/04/24 04:12	04/05/24 13:25	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		3.7	0.92	ng/L		04/04/24 04:12	04/05/24 13:25	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		3.7	0.92	ng/L		04/04/24 04:12	04/05/24 13:25	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		3.7	0.92	ng/L		04/04/24 04:12	04/05/24 13:25	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		7.4	1.8	ng/L		04/04/24 04:12	04/05/24 13:25	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		7.4	1.8	ng/L		04/04/24 04:12	04/05/24 13:25	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		3.7	0.92	ng/L		04/04/24 04:12	04/05/24 13:25	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		9.2	2.3	ng/L		04/04/24 04:12	04/05/24 13:25	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		46	11	ng/L		04/04/24 04:12	04/05/24 13:25	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		46	11	ng/L		04/04/24 04:12	04/05/24 13:25	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*66.9*		*5 - 130*	*04/04/24 04:12*	*04/05/24 13:25*	*1*
13C5 PFPeA	*77.8*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:25*	*1*
13C5 PFHxA	*83.3*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:25*	*1*
13C4 PFHpA	*74.1*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:25*	*1*
13C8 PFOA	*74.0*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:25*	*1*
13C9 PFNA	*73.5*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:25*	*1*
13C6 PFDA	*62.6*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:25*	*1*
13C7 PFUnA	*56.4*		*30 - 130*	*04/04/24 04:12*	*04/05/24 13:25*	*1*
13C2 PFDoA	*51.3*		*10 - 130*	*04/04/24 04:12*	*04/05/24 13:25*	*1*

Client Sample ID: MW-8A-032524
Lab Sample ID: 590-23966-4
Date Collected: 03/26/24 12:35
Matrix: Water
Date Received: 03/28/24 08:37

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFTeDA	*51.3*		*10 - 130*	*04/04/24 04:12*	*04/05/24 13:25*	*1*
13C3 PFBS	*70.0*		*40 - 135*	*04/04/24 04:12*	*04/05/24 13:25*	*1*
13C3 PFHxS	*63.4*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:25*	*1*
13C8 PFOS	*72.5*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:25*	*1*
13C8 PFOSA	*66.7*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:25*	*1*
d3-NMeFOSAA	*71.1*		*40 - 170*	*04/04/24 04:12*	*04/05/24 13:25*	*1*
d5-NEtFOSAA	*72.3*		*25 - 135*	*04/04/24 04:12*	*04/05/24 13:25*	*1*
13C2 4:2 FTS	*81.3*		*40 - 200*	*04/04/24 04:12*	*04/05/24 13:25*	*1*
13C2 6:2 FTS	*72.0*		*40 - 200*	*04/04/24 04:12*	*04/05/24 13:25*	*1*
13C2 8:2 FTS	*78.2*		*40 - 300*	*04/04/24 04:12*	*04/05/24 13:25*	*1*
13C3 HFPO-DA	*82.3*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:25*	*1*
d7-N-MeFOSE-M	*61.0*		*10 - 130*	*04/04/24 04:12*	*04/05/24 13:25*	*1*
d9-N-EtFOSE-M	*62.7*		*10 - 130*	*04/04/24 04:12*	*04/05/24 13:25*	*1*
d5-NEtPFOSA	*66.2*		*10 - 130*	*04/04/24 04:12*	*04/05/24 13:25*	*1*
d3-NMePFOSA	*61.6*		*10 - 130*	*04/04/24 04:12*	*04/05/24 13:25*	*1*

Client Sample ID: MW-9A-032524
Lab Sample ID: 590-23966-5
Date Collected: 03/26/24 13:40
Matrix: Water
Date Received: 03/28/24 08:37

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		7.1	1.8	ng/L		04/04/24 04:12	04/05/24 13:43	1
Perfluoropentanoic acid (PFPeA)	ND		3.6	0.89	ng/L		04/04/24 04:12	04/05/24 13:43	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:43	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:43	1
Perfluorooctanoic acid (PFOA)	**0.70**	**J**	1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:43	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:43	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:43	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:43	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:43	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:43	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:43	1
Perfluorobutanesulfonic acid (PFBS)	**3.3**		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:43	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:43	1
Perfluorohexanesulfonic acid (PFHxS)	**1.3**	**J**	1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:43	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:43	1
Perfluorooctanesulfonic acid (PFOS)	**1.9**	**I**	1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:43	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:43	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:43	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:43	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		7.1	1.8	ng/L		04/04/24 04:12	04/05/24 13:43	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		7.1	1.8	ng/L		04/04/24 04:12	04/05/24 13:43	1

Client Sample ID: MW-9A-032524
Date Collected: 03/26/24 13:40
Date Received: 03/28/24 08:37

Lab Sample ID: 590-23966-5
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		7.1	1.8	ng/L		04/04/24 04:12	04/05/24 13:43	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:43	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:43	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:43	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:43	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 13:43	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		18	4.5	ng/L		04/04/24 04:12	04/05/24 13:43	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		18	4.5	ng/L		04/04/24 04:12	04/05/24 13:43	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		7.1	1.8	ng/L		04/04/24 04:12	04/05/24 13:43	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		7.1	1.8	ng/L		04/04/24 04:12	04/05/24 13:43	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		3.6	0.89	ng/L		04/04/24 04:12	04/05/24 13:43	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		3.6	0.89	ng/L		04/04/24 04:12	04/05/24 13:43	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		3.6	0.89	ng/L		04/04/24 04:12	04/05/24 13:43	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		7.1	1.8	ng/L		04/04/24 04:12	04/05/24 13:43	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		7.1	1.8	ng/L		04/04/24 04:12	04/05/24 13:43	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		3.6	0.89	ng/L		04/04/24 04:12	04/05/24 13:43	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		8.9	2.2	ng/L		04/04/24 04:12	04/05/24 13:43	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		45	11	ng/L		04/04/24 04:12	04/05/24 13:43	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		45	11	ng/L		04/04/24 04:12	04/05/24 13:43	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*69.5*		*5 - 130*	*04/04/24 04:12*	*04/05/24 13:43*	*1*
13C5 PFPeA	*81.8*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:43*	*1*
13C5 PFHxA	*84.2*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:43*	*1*
13C4 PFHpA	*81.3*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:43*	*1*
13C8 PFOA	*76.9*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:43*	*1*
13C9 PFNA	*78.2*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:43*	*1*
13C6 PFDA	*64.5*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:43*	*1*
13C7 PFUnA	*63.9*		*30 - 130*	*04/04/24 04:12*	*04/05/24 13:43*	*1*
13C2 PFDoA	*54.2*		*10 - 130*	*04/04/24 04:12*	*04/05/24 13:43*	*1*
13C2 PFTeDA	*51.6*		*10 - 130*	*04/04/24 04:12*	*04/05/24 13:43*	*1*
13C3 PFBS	*74.5*		*40 - 135*	*04/04/24 04:12*	*04/05/24 13:43*	*1*
13C3 PFHxS	*68.9*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:43*	*1*
13C8 PFOS	*77.6*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:43*	*1*
13C8 PFOSA	*69.6*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:43*	*1*
d3-NMeFOSAA	*74.8*		*40 - 170*	*04/04/24 04:12*	*04/05/24 13:43*	*1*
d5-NEtFOSAA	*77.9*		*25 - 135*	*04/04/24 04:12*	*04/05/24 13:43*	*1*

Client Sample ID: MW-9A-032524
Lab Sample ID: 590-23966-5

Date Collected: 03/26/24 13:40
Matrix: Water
Date Received: 03/28/24 08:37

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 4:2 FTS	*91.1*		*40 - 200*	*04/04/24 04:12*	*04/05/24 13:43*	*1*
13C2 6:2 FTS	*79.3*		*40 - 200*	*04/04/24 04:12*	*04/05/24 13:43*	*1*
13C2 8:2 FTS	*94.7*		*40 - 300*	*04/04/24 04:12*	*04/05/24 13:43*	*1*
13C3 HFPO-DA	*83.4*		*40 - 130*	*04/04/24 04:12*	*04/05/24 13:43*	*1*
d7-N-MeFOSE-M	*67.9*		*10 - 130*	*04/04/24 04:12*	*04/05/24 13:43*	*1*
d9-N-EtFOSE-M	*69.3*		*10 - 130*	*04/04/24 04:12*	*04/05/24 13:43*	*1*
d5-NEtPFOSA	*71.0*		*10 - 130*	*04/04/24 04:12*	*04/05/24 13:43*	*1*
d3-NMePFOSA	*65.1*		*10 - 130*	*04/04/24 04:12*	*04/05/24 13:43*	*1*

Client Sample ID: MW-16A-032524
Lab Sample ID: 590-23966-6

Date Collected: 03/26/24 14:36
Matrix: Water
Date Received: 03/28/24 08:37

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.6**	**J**	7.3	1.8	ng/L		04/04/24 04:12	04/05/24 14:01	1
Perfluoropentanoic acid (PFPeA)	**2.1**	**J**	3.7	0.92	ng/L		04/04/24 04:12	04/05/24 14:01	1
Perfluorohexanoic acid (PFHxA)	**1.0**	**J**	1.8	0.46	ng/L		04/04/24 04:12	04/05/24 14:01	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 14:01	1
Perfluorooctanoic acid (PFOA)	**1.5**	**J**	1.8	0.46	ng/L		04/04/24 04:12	04/05/24 14:01	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 14:01	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 14:01	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 14:01	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 14:01	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 14:01	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 14:01	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 14:01	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 14:01	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 14:01	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 14:01	1
Perfluorooctanesulfonic acid (PFOS)	**2.6**		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 14:01	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 14:01	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 14:01	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 14:01	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		7.3	1.8	ng/L		04/04/24 04:12	04/05/24 14:01	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		7.3	1.8	ng/L		04/04/24 04:12	04/05/24 14:01	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		7.3	1.8	ng/L		04/04/24 04:12	04/05/24 14:01	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 14:01	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 14:01	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 14:01	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 14:01	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.8	0.46	ng/L		04/04/24 04:12	04/05/24 14:01	1

Client Sample ID: MW-16A-032524
Date Collected: 03/26/24 14:36
Date Received: 03/28/24 08:37

Lab Sample ID: 590-23966-6
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		18	4.6	ng/L		04/04/24 04:12	04/05/24 14:01	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		18	4.6	ng/L		04/04/24 04:12	04/05/24 14:01	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		7.3	1.8	ng/L		04/04/24 04:12	04/05/24 14:01	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		7.3	1.8	ng/L		04/04/24 04:12	04/05/24 14:01	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		3.7	0.92	ng/L		04/04/24 04:12	04/05/24 14:01	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		3.7	0.92	ng/L		04/04/24 04:12	04/05/24 14:01	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		3.7	0.92	ng/L		04/04/24 04:12	04/05/24 14:01	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		7.3	1.8	ng/L		04/04/24 04:12	04/05/24 14:01	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		7.3	1.8	ng/L		04/04/24 04:12	04/05/24 14:01	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		3.7	0.92	ng/L		04/04/24 04:12	04/05/24 14:01	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		9.2	2.3	ng/L		04/04/24 04:12	04/05/24 14:01	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		46	11	ng/L		04/04/24 04:12	04/05/24 14:01	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		46	11	ng/L		04/04/24 04:12	04/05/24 14:01	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*66.5*		*5 - 130*	*04/04/24 04:12*	*04/05/24 14:01*	*1*
13C5 PFPeA	*79.9*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:01*	*1*
13C5 PFHxA	*80.7*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:01*	*1*
13C4 PFHpA	*71.5*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:01*	*1*
13C8 PFOA	*71.4*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:01*	*1*
13C9 PFNA	*72.2*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:01*	*1*
13C6 PFDA	*64.3*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:01*	*1*
13C7 PFUnA	*54.9*		*30 - 130*	*04/04/24 04:12*	*04/05/24 14:01*	*1*
13C2 PFDoA	*50.0*		*10 - 130*	*04/04/24 04:12*	*04/05/24 14:01*	*1*
13C2 PFTeDA	*49.2*		*10 - 130*	*04/04/24 04:12*	*04/05/24 14:01*	*1*
13C3 PFBS	*71.5*		*40 - 135*	*04/04/24 04:12*	*04/05/24 14:01*	*1*
13C3 PFHxS	*64.6*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:01*	*1*
13C8 PFOS	*74.8*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:01*	*1*
13C8 PFOSA	*66.5*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:01*	*1*
d3-NMeFOSAA	*66.7*		*40 - 170*	*04/04/24 04:12*	*04/05/24 14:01*	*1*
d5-NEtFOSAA	*73.9*		*25 - 135*	*04/04/24 04:12*	*04/05/24 14:01*	*1*
13C2 4:2 FTS	*86.1*		*40 - 200*	*04/04/24 04:12*	*04/05/24 14:01*	*1*
13C2 6:2 FTS	*72.1*		*40 - 200*	*04/04/24 04:12*	*04/05/24 14:01*	*1*
13C2 8:2 FTS	*88.6*		*40 - 300*	*04/04/24 04:12*	*04/05/24 14:01*	*1*
13C3 HFPO-DA	*80.1*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:01*	*1*
d7-N-MeFOSE-M	*61.7*		*10 - 130*	*04/04/24 04:12*	*04/05/24 14:01*	*1*
d9-N-EtFOSE-M	*62.5*		*10 - 130*	*04/04/24 04:12*	*04/05/24 14:01*	*1*
d5-NEtPFOSA	*66.0*		*10 - 130*	*04/04/24 04:12*	*04/05/24 14:01*	*1*
d3-NMePFOSA	*62.8*		*10 - 130*	*04/04/24 04:12*	*04/05/24 14:01*	*1*

Client Sample ID: MW-7B-032524

Date Collected: 03/27/24 09:25
Date Received: 03/28/24 08:37

Lab Sample ID: 590-23966-7

Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			04/05/24 16:20	1
Tetrachloroethene	ND		1.0	0.22	ug/L			04/05/24 16:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*110*		*80 - 120*		*04/05/24 16:20*	*1*
4-Bromofluorobenzene (Surr)	*110*		*76 - 120*		*04/05/24 16:20*	*1*
Dibromofluoromethane (Surr)	*103*		*80 - 123*		*04/05/24 16:20*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*04/05/24 16:20*	*1*

Method: SW846 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	**0.060**	**J B**	0.18	0.033	ug/L		04/01/24 09:03	04/01/24 17:47	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*35*	**5-*	*40 - 140*	*04/01/24 09:03*	*04/01/24 17:47*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**0.70**	**J**	0.80	0.42	mg/L			03/28/24 13:03	1
Nitrate as N	ND		0.20	0.057	mg/L			03/28/24 13:03	1
Nitrite as N	ND		0.20	0.069	mg/L			03/28/24 13:03	1
Sulfate	**3.9**		0.50	0.13	mg/L			03/28/24 13:03	1

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**4.3**	**J**	8.4	2.1	ng/L		04/04/24 04:12	04/05/24 14:18	1
Perfluoropentanoic acid (PFPeA)	**3.6**	**J**	4.2	1.0	ng/L		04/04/24 04:12	04/05/24 14:18	1
Perfluorohexanoic acid (PFHxA)	**1.4**	**J**	2.1	0.52	ng/L		04/04/24 04:12	04/05/24 14:18	1
Perfluoroheptanoic acid (PFHpA)	**0.77**	**J**	2.1	0.52	ng/L		04/04/24 04:12	04/05/24 14:18	1
Perfluorooctanoic acid (PFOA)	ND		2.1	0.52	ng/L		04/04/24 04:12	04/05/24 14:18	1
Perfluorononanoic acid (PFNA)	ND		2.1	0.52	ng/L		04/04/24 04:12	04/05/24 14:18	1
Perfluorodecanoic acid (PFDA)	ND		2.1	0.52	ng/L		04/04/24 04:12	04/05/24 14:18	1
Perfluoroundecanoic acid (PFUnA)	ND		2.1	0.52	ng/L		04/04/24 04:12	04/05/24 14:18	1
Perfluorododecanoic acid (PFDoA)	ND		2.1	0.52	ng/L		04/04/24 04:12	04/05/24 14:18	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.1	0.52	ng/L		04/04/24 04:12	04/05/24 14:18	1
Perfluorotetradecanoic acid (PFTeDA)	ND		2.1	0.52	ng/L		04/04/24 04:12	04/05/24 14:18	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.1	0.52	ng/L		04/04/24 04:12	04/05/24 14:18	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.1	0.52	ng/L		04/04/24 04:12	04/05/24 14:18	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.1	0.52	ng/L		04/04/24 04:12	04/05/24 14:18	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.1	0.52	ng/L		04/04/24 04:12	04/05/24 14:18	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.1	0.52	ng/L		04/04/24 04:12	04/05/24 14:18	1
Perfluorononanesulfonic acid (PFNS)	ND		2.1	0.52	ng/L		04/04/24 04:12	04/05/24 14:18	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.1	0.52	ng/L		04/04/24 04:12	04/05/24 14:18	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.1	0.52	ng/L		04/04/24 04:12	04/05/24 14:18	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		8.4	2.1	ng/L		04/04/24 04:12	04/05/24 14:18	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		8.4	2.1	ng/L		04/04/24 04:12	04/05/24 14:18	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		8.4	2.1	ng/L		04/04/24 04:12	04/05/24 14:18	1

Client Sample ID: MW-7B-032524
Date Collected: 03/27/24 09:25
Date Received: 03/28/24 08:37

Lab Sample ID: 590-23966-7
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (PFOSA)	**1.5**	**J**	2.1	0.52	ng/L		04/04/24 04:12	04/05/24 14:18	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		2.1	0.52	ng/L		04/04/24 04:12	04/05/24 14:18	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		2.1	0.52	ng/L		04/04/24 04:12	04/05/24 14:18	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.1	0.52	ng/L		04/04/24 04:12	04/05/24 14:18	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.1	0.52	ng/L		04/04/24 04:12	04/05/24 14:18	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		21	5.2	ng/L		04/04/24 04:12	04/05/24 14:18	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		21	5.2	ng/L		04/04/24 04:12	04/05/24 14:18	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		8.4	2.1	ng/L		04/04/24 04:12	04/05/24 14:18	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		8.4	2.1	ng/L		04/04/24 04:12	04/05/24 14:18	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		4.2	1.0	ng/L		04/04/24 04:12	04/05/24 14:18	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		4.2	1.0	ng/L		04/04/24 04:12	04/05/24 14:18	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		4.2	1.0	ng/L		04/04/24 04:12	04/05/24 14:18	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		8.4	2.1	ng/L		04/04/24 04:12	04/05/24 14:18	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		8.4	2.1	ng/L		04/04/24 04:12	04/05/24 14:18	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		4.2	1.0	ng/L		04/04/24 04:12	04/05/24 14:18	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		10	2.6	ng/L		04/04/24 04:12	04/05/24 14:18	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		52	13	ng/L		04/04/24 04:12	04/05/24 14:18	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		52	13	ng/L		04/04/24 04:12	04/05/24 14:18	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*65.5*		*5 - 130*	*04/04/24 04:12*	*04/05/24 14:18*	*1*
13C5 PFPeA	*76.6*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:18*	*1*
13C5 PFHxA	*80.6*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:18*	*1*
13C4 PFHpA	*73.0*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:18*	*1*
13C8 PFOA	*69.5*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:18*	*1*
13C9 PFNA	*73.2*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:18*	*1*
13C6 PFDA	*51.0*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:18*	*1*
13C7 PFUnA	*50.3*		*30 - 130*	*04/04/24 04:12*	*04/05/24 14:18*	*1*
13C2 PFDoA	*46.4*		*10 - 130*	*04/04/24 04:12*	*04/05/24 14:18*	*1*
13C2 PFTeDA	*48.7*		*10 - 130*	*04/04/24 04:12*	*04/05/24 14:18*	*1*
13C3 PFBS	*69.4*		*40 - 135*	*04/04/24 04:12*	*04/05/24 14:18*	*1*
13C3 PFHxS	*65.9*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:18*	*1*
13C8 PFOS	*72.4*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:18*	*1*
13C8 PFOSA	*64.5*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:18*	*1*
d3-NMeFOSAA	*70.9*		*40 - 170*	*04/04/24 04:12*	*04/05/24 14:18*	*1*
d5-NEtFOSAA	*71.3*		*25 - 135*	*04/04/24 04:12*	*04/05/24 14:18*	*1*
13C2 4:2 FTS	*85.0*		*40 - 200*	*04/04/24 04:12*	*04/05/24 14:18*	*1*

Client Sample ID: MW-7B-032524

Date Collected: 03/27/24 09:25
Date Received: 03/28/24 08:37

Lab Sample ID: 590-23966-7

Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 6:2 FTS	*71.0*		*40 - 200*	*04/04/24 04:12*	*04/05/24 14:18*	*1*
13C2 8:2 FTS	*86.6*		*40 - 300*	*04/04/24 04:12*	*04/05/24 14:18*	*1*
13C3 HFPO-DA	*79.0*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:18*	*1*
d7-N-MeFOSE-M	*48.8*		*10 - 130*	*04/04/24 04:12*	*04/05/24 14:18*	*1*
d9-N-EtFOSE-M	*56.6*		*10 - 130*	*04/04/24 04:12*	*04/05/24 14:18*	*1*
d5-NEtPFOSA	*67.3*		*10 - 130*	*04/04/24 04:12*	*04/05/24 14:18*	*1*
d3-NMePFOSA	*59.2*		*10 - 130*	*04/04/24 04:12*	*04/05/24 14:18*	*1*

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**11**		1.0	0.13	mg/L		04/11/24 12:24	04/11/24 14:11	1
Potassium	**1.6**		0.50	0.29	mg/L		04/11/24 12:24	04/11/24 14:11	1
Sodium	**4.0**		0.50	0.20	mg/L		04/11/24 12:24	04/11/24 14:11	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**34**		2.0	0.20	mg/L		04/11/24 10:49	04/11/24 17:44	1
Magnesium	**10**		1.0	0.13	mg/L		04/11/24 10:49	04/11/24 15:26	1

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.0010	mg/L		04/05/24 16:45	04/08/24 23:59	5
Cadmium	ND		0.0020	0.00019	mg/L		04/05/24 16:45	04/08/24 23:59	5
Iron	**0.13**	**J**	0.50	0.067	mg/L		04/05/24 16:45	04/08/24 23:59	5
Lead	**0.00088**	**J**	0.0020	0.00020	mg/L		04/05/24 16:45	04/08/24 23:59	5
Manganese	**0.0050**	**J**	0.010	0.0023	mg/L		04/05/24 16:45	04/08/24 23:59	5
Zinc	**0.0055**	**J**	0.035	0.0046	mg/L		04/05/24 16:45	04/08/24 23:59	5

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.0010	mg/L		04/01/24 17:48	04/04/24 16:52	5
Cadmium	ND		0.0020	0.00019	mg/L		04/01/24 17:48	04/04/24 16:52	5
Iron	ND		0.50	0.067	mg/L		04/01/24 17:48	04/04/24 16:52	5
Lead	ND		0.0020	0.00020	mg/L		04/01/24 17:48	04/04/24 16:52	5
Manganese	**0.0078**	**J**	0.010	0.0023	mg/L		04/01/24 17:48	04/04/24 16:52	5
Zinc	**0.0046**	**J**	0.035	0.0046	mg/L		04/01/24 17:48	04/04/24 16:52	5

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.12**	**J B**	0.20	0.090	ug/L		04/11/24 12:21	04/11/24 16:59	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.13**	**J B**	0.20	0.090	ug/L		04/11/24 10:46	04/11/24 17:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	ND		0.10	0.029	mg/L			04/09/24 18:14	1
Alkalinity (SM 2320B)	**160**	**B**	20	5.0	mg/L			04/08/24 14:00	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**160**	**B**	20	5.0	mg/L			04/08/24 14:00	1

Client Sample ID: MW-7B-032524

Lab Sample ID: 590-23966-7
Matrix: Water
Date Collected: 03/27/24 09:25
Date Received: 03/28/24 08:37

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	230		25	13	mg/L			04/03/24 15:26	1
Total Organic Carbon - Duplicates (SM 5310B)	0.78	J	1.0	0.35	mg/L			04/02/24 07:50	1

Client Sample ID: MW-5A-032524

Lab Sample ID: 590-23966-8
Matrix: Water
Date Collected: 03/27/24 10:45
Date Received: 03/28/24 08:37

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			04/05/24 16:41	1
Tetrachloroethene	ND		1.0	0.22	ug/L			04/05/24 16:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*80 - 120*		*04/05/24 16:41*	*1*
4-Bromofluorobenzene (Surr)	*108*		*76 - 120*		*04/05/24 16:41*	*1*
Dibromofluoromethane (Surr)	*106*		*80 - 123*		*04/05/24 16:41*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*04/05/24 16:41*	*1*

Method: SW846 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.19	0.034	ug/L		04/01/24 09:03	04/01/24 18:01	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*36*	*5-*	*40 - 140*	*04/01/24 09:03*	*04/01/24 18:01*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	54		0.80	0.42	mg/L			03/28/24 13:13	1
Nitrate as N	1.4		0.20	0.057	mg/L			03/28/24 13:13	1
Nitrite as N	ND		0.20	0.069	mg/L			03/28/24 13:13	1
Sulfate	14		0.50	0.13	mg/L			03/28/24 13:13	1

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	19		7.2	1.8	ng/L		04/04/24 04:12	04/05/24 14:36	1
Perfluoropentanoic acid (PFPeA)	13		3.6	0.89	ng/L		04/04/24 04:12	04/05/24 14:36	1
Perfluorohexanoic acid (PFHxA)	24		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 14:36	1
Perfluoroheptanoic acid (PFHpA)	21		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 14:36	1
Perfluorooctanoic acid (PFOA)	39		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 14:36	1
Perfluorononanoic acid (PFNA)	1.0	J	1.8	0.45	ng/L		04/04/24 04:12	04/05/24 14:36	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 14:36	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 14:36	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 14:36	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 14:36	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 14:36	1
Perfluorobutanesulfonic acid (PFBS)	7.8		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 14:36	1
Perfluoropentanesulfonic acid (PFPeS)	2.5		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 14:36	1
Perfluorohexanesulfonic acid (PFHxS)	9.3		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 14:36	1

Client Sample ID: MW-5A-032524
Date Collected: 03/27/24 10:45
Date Received: 03/28/24 08:37

Lab Sample ID: 590-23966-8
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 14:36	1
Perfluorooctanesulfonic acid (PFOS)	**15**		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 14:36	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 14:36	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 14:36	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 14:36	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		7.2	1.8	ng/L		04/04/24 04:12	04/05/24 14:36	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		7.2	1.8	ng/L		04/04/24 04:12	04/05/24 14:36	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		7.2	1.8	ng/L		04/04/24 04:12	04/05/24 14:36	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 14:36	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 14:36	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 14:36	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 14:36	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 14:36	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		18	4.5	ng/L		04/04/24 04:12	04/05/24 14:36	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		18	4.5	ng/L		04/04/24 04:12	04/05/24 14:36	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		7.2	1.8	ng/L		04/04/24 04:12	04/05/24 14:36	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		7.2	1.8	ng/L		04/04/24 04:12	04/05/24 14:36	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		3.6	0.89	ng/L		04/04/24 04:12	04/05/24 14:36	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		3.6	0.89	ng/L		04/04/24 04:12	04/05/24 14:36	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		3.6	0.89	ng/L		04/04/24 04:12	04/05/24 14:36	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		7.2	1.8	ng/L		04/04/24 04:12	04/05/24 14:36	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		7.2	1.8	ng/L		04/04/24 04:12	04/05/24 14:36	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		3.6	0.89	ng/L		04/04/24 04:12	04/05/24 14:36	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		8.9	2.2	ng/L		04/04/24 04:12	04/05/24 14:36	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		45	11	ng/L		04/04/24 04:12	04/05/24 14:36	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		45	11	ng/L		04/04/24 04:12	04/05/24 14:36	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*67.9*		*5 - 130*	*04/04/24 04:12*	*04/05/24 14:36*	*1*
13C5 PFPeA	*80.1*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:36*	*1*
13C5 PFHxA	*82.2*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:36*	*1*
13C4 PFHpA	*74.0*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:36*	*1*
13C8 PFOA	*73.8*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:36*	*1*

Client Sample ID: MW-5A-032524

Date Collected: 03/27/24 10:45
Date Received: 03/28/24 08:37

Lab Sample ID: 590-23966-8

Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C9 PFNA	*69.1*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:36*	*1*
13C6 PFDA	*55.3*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:36*	*1*
13C7 PFUnA	*55.3*		*30 - 130*	*04/04/24 04:12*	*04/05/24 14:36*	*1*
13C2 PFDoA	*47.3*		*10 - 130*	*04/04/24 04:12*	*04/05/24 14:36*	*1*
13C2 PFTeDA	*47.6*		*10 - 130*	*04/04/24 04:12*	*04/05/24 14:36*	*1*
13C3 PFBS	*73.2*		*40 - 135*	*04/04/24 04:12*	*04/05/24 14:36*	*1*
13C3 PFHxS	*67.6*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:36*	*1*
13C8 PFOS	*74.2*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:36*	*1*
13C8 PFOSA	*68.6*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:36*	*1*
d3-NMeFOSAA	*69.4*		*40 - 170*	*04/04/24 04:12*	*04/05/24 14:36*	*1*
d5-NEtFOSAA	*71.9*		*25 - 135*	*04/04/24 04:12*	*04/05/24 14:36*	*1*
13C2 4:2 FTS	*86.9*		*40 - 200*	*04/04/24 04:12*	*04/05/24 14:36*	*1*
13C2 6:2 FTS	*75.3*		*40 - 200*	*04/04/24 04:12*	*04/05/24 14:36*	*1*
13C2 8:2 FTS	*92.7*		*40 - 300*	*04/04/24 04:12*	*04/05/24 14:36*	*1*
13C3 HFPO-DA	*84.3*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:36*	*1*
d7-N-MeFOSE-M	*68.8*		*10 - 130*	*04/04/24 04:12*	*04/05/24 14:36*	*1*
d9-N-EtFOSE-M	*70.8*		*10 - 130*	*04/04/24 04:12*	*04/05/24 14:36*	*1*
d5-NEtPFOSA	*71.6*		*10 - 130*	*04/04/24 04:12*	*04/05/24 14:36*	*1*
d3-NMePFOSA	*67.0*		*10 - 130*	*04/04/24 04:12*	*04/05/24 14:36*	*1*

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**11**		1.0	0.13	mg/L		04/11/24 12:24	04/11/24 14:28	1
Potassium	**3.8**		0.50	0.29	mg/L		04/11/24 12:24	04/11/24 14:28	1
Sodium	**27**		0.50	0.20	mg/L		04/11/24 12:24	04/11/24 14:28	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**71**		2.0	0.20	mg/L		04/11/24 10:49	04/11/24 17:48	1
Magnesium	**10**		1.0	0.13	mg/L		04/11/24 10:49	04/11/24 15:30	1

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0012**	**J**	0.0050	0.0010	mg/L		04/05/24 16:45	04/09/24 00:02	5
Cadmium	ND		0.0020	0.00019	mg/L		04/05/24 16:45	04/09/24 00:02	5
Iron	ND		0.50	0.067	mg/L		04/05/24 16:45	04/09/24 00:02	5
Lead	ND		0.0020	0.00020	mg/L		04/05/24 16:45	04/09/24 00:02	5
Manganese	ND		0.010	0.0023	mg/L		04/05/24 16:45	04/09/24 00:02	5
Zinc	ND		0.035	0.0046	mg/L		04/05/24 16:45	04/09/24 00:02	5

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0012**	**J**	0.0050	0.0010	mg/L		04/01/24 17:48	04/04/24 16:38	5
Cadmium	ND		0.0020	0.00019	mg/L		04/01/24 17:48	04/04/24 16:38	5
Iron	ND		0.50	0.067	mg/L		04/01/24 17:48	04/04/24 16:38	5
Lead	ND		0.0020	0.00020	mg/L		04/01/24 17:48	04/04/24 16:38	5
Manganese	ND		0.010	0.0023	mg/L		04/01/24 17:48	04/04/24 16:38	5
Zinc	**0.0060**	**J**	0.035	0.0046	mg/L		04/01/24 17:48	04/04/24 16:38	5

Client Sample ID: MW-5A-032524
Lab Sample ID: 590-23966-8
Date Collected: 03/27/24 10:45
Matrix: Water
Date Received: 03/28/24 08:37

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.13**	**J B**	0.20	0.090	ug/L		04/11/24 12:21	04/11/24 17:02	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.13**	**J B**	0.20	0.090	ug/L		04/11/24 10:46	04/11/24 17:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	ND		0.10	0.029	mg/L			04/09/24 18:23	1
Alkalinity (SM 2320B)	**340**	**B**	20	5.0	mg/L			04/08/24 14:00	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**340**	**B**	20	5.0	mg/L			04/08/24 14:00	1
Total Dissolved Solids (SM 2540C)	**540**		25	13	mg/L			04/03/24 15:26	1
Total Organic Carbon - Duplicates (SM 5310B)	**2.5**		1.0	0.35	mg/L			04/02/24 08:05	1

Client Sample ID: DUP-032724
Lab Sample ID: 590-23966-9
Date Collected: 03/27/24 12:00
Matrix: Water
Date Received: 03/28/24 08:37

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			04/05/24 17:01	1
Tetrachloroethene	ND		1.0	0.22	ug/L			04/05/24 17:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*115*		*80 - 120*		*04/05/24 17:01*	*1*
4-Bromofluorobenzene (Surr)	*108*		*76 - 120*		*04/05/24 17:01*	*1*
Dibromofluoromethane (Surr)	*105*		*80 - 123*		*04/05/24 17:01*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*04/05/24 17:01*	*1*

Method: SW846 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.21	0.037	ug/L		04/01/24 09:03	04/01/24 18:15	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*35*	**5-*	*40 - 140*	*04/01/24 09:03*	*04/01/24 18:15*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**57**		0.80	0.42	mg/L			03/28/24 13:23	1
Nitrate as N	**1.9**		0.20	0.057	mg/L			03/28/24 13:23	1
Nitrite as N	**0.43**		0.20	0.069	mg/L			03/28/24 13:23	1
Sulfate	**14**		0.50	0.13	mg/L			03/28/24 13:23	1

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**19**		7.4	1.9	ng/L		04/04/24 04:12	04/05/24 14:54	1
Perfluoropentanoic acid (PFPeA)	**13**		3.7	0.93	ng/L		04/04/24 04:12	04/05/24 14:54	1
Perfluorohexanoic acid (PFHxA)	**23**		1.9	0.46	ng/L		04/04/24 04:12	04/05/24 14:54	1
Perfluoroheptanoic acid (PFHpA)	**19**		1.9	0.46	ng/L		04/04/24 04:12	04/05/24 14:54	1
Perfluorooctanoic acid (PFOA)	**38**		1.9	0.46	ng/L		04/04/24 04:12	04/05/24 14:54	1
Perfluorononanoic acid (PFNA)	**1.1**	**J**	1.9	0.46	ng/L		04/04/24 04:12	04/05/24 14:54	1

Client Sample ID: DUP-032724
Date Collected: 03/27/24 12:00
Date Received: 03/28/24 08:37

Lab Sample ID: 590-23966-9
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanoic acid (PFDA)	ND		1.9	0.46	ng/L		04/04/24 04:12	04/05/24 14:54	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.46	ng/L		04/04/24 04:12	04/05/24 14:54	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.46	ng/L		04/04/24 04:12	04/05/24 14:54	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	0.46	ng/L		04/04/24 04:12	04/05/24 14:54	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.9	0.46	ng/L		04/04/24 04:12	04/05/24 14:54	1
Perfluorobutanesulfonic acid (PFBS)	**8.3**		1.9	0.46	ng/L		04/04/24 04:12	04/05/24 14:54	1
Perfluoropentanesulfonic acid (PFPeS)	**2.3**		1.9	0.46	ng/L		04/04/24 04:12	04/05/24 14:54	1
Perfluorohexanesulfonic acid (PFHxS)	**8.8**		1.9	0.46	ng/L		04/04/24 04:12	04/05/24 14:54	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.46	ng/L		04/04/24 04:12	04/05/24 14:54	1
Perfluorooctanesulfonic acid (PFOS)	**15**		1.9	0.46	ng/L		04/04/24 04:12	04/05/24 14:54	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.46	ng/L		04/04/24 04:12	04/05/24 14:54	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.46	ng/L		04/04/24 04:12	04/05/24 14:54	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.46	ng/L		04/04/24 04:12	04/05/24 14:54	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		7.4	1.9	ng/L		04/04/24 04:12	04/05/24 14:54	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		7.4	1.9	ng/L		04/04/24 04:12	04/05/24 14:54	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		7.4	1.9	ng/L		04/04/24 04:12	04/05/24 14:54	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.9	0.46	ng/L		04/04/24 04:12	04/05/24 14:54	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.9	0.46	ng/L		04/04/24 04:12	04/05/24 14:54	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.9	0.46	ng/L		04/04/24 04:12	04/05/24 14:54	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.9	0.46	ng/L		04/04/24 04:12	04/05/24 14:54	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.9	0.46	ng/L		04/04/24 04:12	04/05/24 14:54	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		19	4.6	ng/L		04/04/24 04:12	04/05/24 14:54	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		19	4.6	ng/L		04/04/24 04:12	04/05/24 14:54	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		7.4	1.9	ng/L		04/04/24 04:12	04/05/24 14:54	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		7.4	1.9	ng/L		04/04/24 04:12	04/05/24 14:54	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		3.7	0.93	ng/L		04/04/24 04:12	04/05/24 14:54	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		3.7	0.93	ng/L		04/04/24 04:12	04/05/24 14:54	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		3.7	0.93	ng/L		04/04/24 04:12	04/05/24 14:54	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		7.4	1.9	ng/L		04/04/24 04:12	04/05/24 14:54	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		7.4	1.9	ng/L		04/04/24 04:12	04/05/24 14:54	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		3.7	0.93	ng/L		04/04/24 04:12	04/05/24 14:54	1

Client Sample ID: DUP-032724
Date Collected: 03/27/24 12:00
Date Received: 03/28/24 08:37

Lab Sample ID: 590-23966-9
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		9.3	2.3	ng/L		04/04/24 04:12	04/05/24 14:54	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		46	12	ng/L		04/04/24 04:12	04/05/24 14:54	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		46	12	ng/L		04/04/24 04:12	04/05/24 14:54	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*66.6*		*5 - 130*	*04/04/24 04:12*	*04/05/24 14:54*	*1*
13C5 PFPeA	*78.1*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:54*	*1*
13C5 PFHxA	*85.5*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:54*	*1*
13C4 PFHpA	*77.8*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:54*	*1*
13C8 PFOA	*71.2*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:54*	*1*
13C9 PFNA	*77.0*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:54*	*1*
13C6 PFDA	*68.1*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:54*	*1*
13C7 PFUnA	*70.1*		*30 - 130*	*04/04/24 04:12*	*04/05/24 14:54*	*1*
13C2 PFDoA	*58.5*		*10 - 130*	*04/04/24 04:12*	*04/05/24 14:54*	*1*
13C2 PFTeDA	*59.7*		*10 - 130*	*04/04/24 04:12*	*04/05/24 14:54*	*1*
13C3 PFBS	*68.9*		*40 - 135*	*04/04/24 04:12*	*04/05/24 14:54*	*1*
13C3 PFHxS	*66.7*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:54*	*1*
13C8 PFOS	*76.6*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:54*	*1*
13C8 PFOSA	*69.0*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:54*	*1*
d3-NMeFOSAA	*74.7*		*40 - 170*	*04/04/24 04:12*	*04/05/24 14:54*	*1*
d5-NEtFOSAA	*75.2*		*25 - 135*	*04/04/24 04:12*	*04/05/24 14:54*	*1*
13C2 4:2 FTS	*82.2*		*40 - 200*	*04/04/24 04:12*	*04/05/24 14:54*	*1*
13C2 6:2 FTS	*72.3*		*40 - 200*	*04/04/24 04:12*	*04/05/24 14:54*	*1*
13C2 8:2 FTS	*95.0*		*40 - 300*	*04/04/24 04:12*	*04/05/24 14:54*	*1*
13C3 HFPO-DA	*83.4*		*40 - 130*	*04/04/24 04:12*	*04/05/24 14:54*	*1*
d7-N-MeFOSE-M	*72.2*		*10 - 130*	*04/04/24 04:12*	*04/05/24 14:54*	*1*
d9-N-EtFOSE-M	*73.9*		*10 - 130*	*04/04/24 04:12*	*04/05/24 14:54*	*1*
d5-NEtPFOSA	*78.1*		*10 - 130*	*04/04/24 04:12*	*04/05/24 14:54*	*1*
d3-NMePFOSA	*70.5*		*10 - 130*	*04/04/24 04:12*	*04/05/24 14:54*	*1*

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**11**		1.0	0.13	mg/L		04/11/24 12:24	04/11/24 14:32	1
Potassium	**3.8**		0.50	0.29	mg/L		04/11/24 12:24	04/11/24 14:32	1
Sodium	**27**		0.50	0.20	mg/L		04/11/24 12:24	04/11/24 14:32	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**72**		2.0	0.20	mg/L		04/11/24 10:49	04/11/24 17:52	1
Magnesium	**10**		1.0	0.13	mg/L		04/11/24 10:49	04/11/24 15:34	1

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0014**	**J**	0.0050	0.0010	mg/L		04/05/24 16:45	04/09/24 00:05	5
Cadmium	ND		0.0020	0.00019	mg/L		04/05/24 16:45	04/09/24 00:05	5
Iron	ND		0.50	0.067	mg/L		04/05/24 16:45	04/09/24 00:05	5
Lead	ND		0.0020	0.00020	mg/L		04/05/24 16:45	04/09/24 00:05	5
Manganese	ND		0.010	0.0023	mg/L		04/05/24 16:45	04/09/24 00:05	5
Zinc	ND		0.035	0.0046	mg/L		04/05/24 16:45	04/09/24 00:05	5

Client Sample ID: DUP-032724

Lab Sample ID: 590-23966-9

Date Collected: 03/27/24 12:00

Matrix: Water

Date Received: 03/28/24 08:37

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0013**	**J**	0.0050	0.0010	mg/L		04/01/24 17:48	04/04/24 16:41	5
Cadmium	ND		0.0020	0.00019	mg/L		04/01/24 17:48	04/04/24 16:41	5
Iron	ND		0.50	0.067	mg/L		04/01/24 17:48	04/04/24 16:41	5
Lead	ND		0.0020	0.00020	mg/L		04/01/24 17:48	04/04/24 16:41	5
Manganese	ND		0.010	0.0023	mg/L		04/01/24 17:48	04/04/24 16:41	5
Zinc	ND		0.035	0.0046	mg/L		04/01/24 17:48	04/04/24 16:41	5

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.13**	**J B**	0.20	0.090	ug/L		04/11/24 12:21	04/11/24 17:09	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.13**	**J B**	0.20	0.090	ug/L		04/11/24 10:46	04/11/24 17:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	ND		0.10	0.029	mg/L			04/09/24 18:25	1
Alkalinity (SM 2320B)	**330**	**B**	20	5.0	mg/L			04/08/24 14:00	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**330**	**B**	20	5.0	mg/L			04/08/24 14:00	1
Total Dissolved Solids (SM 2540C)	**520**		25	13	mg/L			04/03/24 15:26	1
Total Organic Carbon - Duplicates (SM 5310B)	**2.3**		1.0	0.35	mg/L			04/02/24 08:52	1

Client Sample ID: FB-032524

Lab Sample ID: 590-23966-10

Date Collected: 03/25/24 11:06

Matrix: Water

Date Received: 03/28/24 08:37

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		7.2	1.8	ng/L		04/04/24 04:12	04/05/24 15:46	1
Perfluoropentanoic acid (PFPeA)	ND		3.6	0.90	ng/L		04/04/24 04:12	04/05/24 15:46	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 15:46	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 15:46	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 15:46	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 15:46	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 15:46	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 15:46	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 15:46	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 15:46	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 15:46	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 15:46	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 15:46	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 15:46	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 15:46	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 15:46	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 15:46	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 15:46	1

Client Sample ID: FB-032524
Date Collected: 03/25/24 11:06
Date Received: 03/28/24 08:37

Lab Sample ID: 590-23966-10
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 15:46	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		7.2	1.8	ng/L		04/04/24 04:12	04/05/24 15:46	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		7.2	1.8	ng/L		04/04/24 04:12	04/05/24 15:46	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		7.2	1.8	ng/L		04/04/24 04:12	04/05/24 15:46	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 15:46	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 15:46	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 15:46	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 15:46	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.8	0.45	ng/L		04/04/24 04:12	04/05/24 15:46	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		18	4.5	ng/L		04/04/24 04:12	04/05/24 15:46	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		18	4.5	ng/L		04/04/24 04:12	04/05/24 15:46	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		7.2	1.8	ng/L		04/04/24 04:12	04/05/24 15:46	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		7.2	1.8	ng/L		04/04/24 04:12	04/05/24 15:46	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		3.6	0.90	ng/L		04/04/24 04:12	04/05/24 15:46	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		3.6	0.90	ng/L		04/04/24 04:12	04/05/24 15:46	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		3.6	0.90	ng/L		04/04/24 04:12	04/05/24 15:46	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		7.2	1.8	ng/L		04/04/24 04:12	04/05/24 15:46	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		7.2	1.8	ng/L		04/04/24 04:12	04/05/24 15:46	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		3.6	0.90	ng/L		04/04/24 04:12	04/05/24 15:46	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		9.0	2.3	ng/L		04/04/24 04:12	04/05/24 15:46	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		45	11	ng/L		04/04/24 04:12	04/05/24 15:46	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		45	11	ng/L		04/04/24 04:12	04/05/24 15:46	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*66.1*		*5 - 130*	*04/04/24 04:12*	*04/05/24 15:46*	*1*
13C5 PFPeA	*73.4*		*40 - 130*	*04/04/24 04:12*	*04/05/24 15:46*	*1*
13C5 PFHxA	*78.9*		*40 - 130*	*04/04/24 04:12*	*04/05/24 15:46*	*1*
13C4 PFHpA	*73.7*		*40 - 130*	*04/04/24 04:12*	*04/05/24 15:46*	*1*
13C8 PFOA	*68.7*		*40 - 130*	*04/04/24 04:12*	*04/05/24 15:46*	*1*
13C9 PFNA	*68.0*		*40 - 130*	*04/04/24 04:12*	*04/05/24 15:46*	*1*
13C6 PFDA	*61.8*		*40 - 130*	*04/04/24 04:12*	*04/05/24 15:46*	*1*
13C7 PFUnA	*59.5*		*30 - 130*	*04/04/24 04:12*	*04/05/24 15:46*	*1*
13C2 PFDoA	*49.8*		*10 - 130*	*04/04/24 04:12*	*04/05/24 15:46*	*1*
13C2 PFTeDA	*50.3*		*10 - 130*	*04/04/24 04:12*	*04/05/24 15:46*	*1*

Client Sample ID: FB-032524
Lab Sample ID: 590-23966-10

Date Collected: 03/25/24 11:06
Matrix: Water
Date Received: 03/28/24 08:37

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 PFBS	*67.8*		*40 - 135*	*04/04/24 04:12*	*04/05/24 15:46*	*1*
13C3 PFHxS	*64.1*		*40 - 130*	*04/04/24 04:12*	*04/05/24 15:46*	*1*
13C8 PFOS	*72.9*		*40 - 130*	*04/04/24 04:12*	*04/05/24 15:46*	*1*
13C8 PFOSA	*62.0*		*40 - 130*	*04/04/24 04:12*	*04/05/24 15:46*	*1*
d3-NMeFOSAA	*72.2*		*40 - 170*	*04/04/24 04:12*	*04/05/24 15:46*	*1*
d5-NEtFOSAA	*68.8*		*25 - 135*	*04/04/24 04:12*	*04/05/24 15:46*	*1*
13C2 4:2 FTS	*80.4*		*40 - 200*	*04/04/24 04:12*	*04/05/24 15:46*	*1*
13C2 6:2 FTS	*74.1*		*40 - 200*	*04/04/24 04:12*	*04/05/24 15:46*	*1*
13C2 8:2 FTS	*83.8*		*40 - 300*	*04/04/24 04:12*	*04/05/24 15:46*	*1*
13C3 HFPO-DA	*82.8*		*40 - 130*	*04/04/24 04:12*	*04/05/24 15:46*	*1*
d7-N-MeFOSE-M	*63.2*		*10 - 130*	*04/04/24 04:12*	*04/05/24 15:46*	*1*
d9-N-EtFOSE-M	*64.3*		*10 - 130*	*04/04/24 04:12*	*04/05/24 15:46*	*1*
d5-NEtPFOSA	*69.2*		*10 - 130*	*04/04/24 04:12*	*04/05/24 15:46*	*1*
d3-NMePFOSA	*59.5*		*10 - 130*	*04/04/24 04:12*	*04/05/24 15:46*	*1*

Client Sample ID: TB-2/26
Lab Sample ID: 590-23966-11

Date Collected: 03/26/24 00:00
Matrix: Water
Date Received: 03/28/24 08:37

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			04/05/24 17:43	1
Tetrachloroethene	ND		1.0	0.22	ug/L			04/05/24 17:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*116*		*80 - 120*		*04/05/24 17:43*	*1*
4-Bromofluorobenzene (Surr)	*109*		*76 - 120*		*04/05/24 17:43*	*1*
Dibromofluoromethane (Surr)	*107*		*80 - 123*		*04/05/24 17:43*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*04/05/24 17:43*	*1*

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 590-46631/10
Matrix: Water
Analysis Batch: 46631

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			04/05/24 13:52	1
Tetrachloroethene	ND		1.0	0.22	ug/L			04/05/24 13:52	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*80 - 120*		*04/05/24 13:52*	*1*
4-Bromofluorobenzene (Surr)	*111*		*76 - 120*		*04/05/24 13:52*	*1*
Dibromofluoromethane (Surr)	*100*		*80 - 123*		*04/05/24 13:52*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*04/05/24 13:52*	*1*

Lab Sample ID: LCS 590-46631/1005
Matrix: Water
Analysis Batch: 46631

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,1,1-Trichloroethane			10.0	10.5		ug/L		105	71 - 138		
Tetrachloroethene			10.0	8.39		ug/L		84	80 - 139		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*106*		*80 - 120*
4-Bromofluorobenzene (Surr)	*108*		*76 - 120*
Dibromofluoromethane (Surr)	*96*		*80 - 123*
Toluene-d8 (Surr)	*98*		*80 - 120*

Lab Sample ID: LCSD 590-46631/6
Matrix: Water
Analysis Batch: 46631

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane			10.0	10.4		ug/L		104	71 - 138	1	17
Tetrachloroethene			10.0	8.34		ug/L		83	80 - 139	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*108*		*80 - 120*
4-Bromofluorobenzene (Surr)	*104*		*76 - 120*
Dibromofluoromethane (Surr)	*93*		*80 - 123*
Toluene-d8 (Surr)	*97*		*80 - 120*

Method: 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Lab Sample ID: MB 580-455296/1-A
Matrix: Water
Analysis Batch: 455319

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 455296

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.0816	J	0.20	0.036	ug/L		04/01/24 09:03	04/01/24 15:56	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*45*		*40 - 140*	*04/01/24 09:03*	*04/01/24 15:56*	*1*

Method: 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Lab Sample ID: LCS 580-455296/2-A
Matrix: Water
Analysis Batch: 455319

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 455296

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,4-Dioxane			8.00	7.66		ug/L		96	78 - 130		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,4-Dioxane-d8	*49*		*40 - 140*

Lab Sample ID: LCSD 580-455296/3-A
Matrix: Water
Analysis Batch: 455319

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 455296

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,4-Dioxane			8.00	7.86		ug/L		98	78 - 130	3	13

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,4-Dioxane-d8	*45*		*40 - 140*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 590-46500/1003
Matrix: Water
Analysis Batch: 46500

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20	0.057	mg/L			03/28/24 08:43	1
Nitrite as N	ND		0.20	0.069	mg/L			03/28/24 08:43	1

Lab Sample ID: LCS 590-46500/1004
Matrix: Water
Analysis Batch: 46500

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate as N			5.00	5.29		mg/L		106	90 - 110		
Nitrite as N			5.00	5.24		mg/L		105	90 - 110		

Lab Sample ID: MB 590-46501/1003
Matrix: Water
Analysis Batch: 46501

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.80	0.42	mg/L			03/28/24 08:43	1
Sulfate	ND		0.50	0.13	mg/L			03/28/24 08:43	1

Lab Sample ID: LCS 590-46501/1004
Matrix: Water
Analysis Batch: 46501

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			12.5	13.3		mg/L		107	90 - 110		
Sulfate			12.5	12.9		mg/L		103	90 - 110		

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Lab Sample ID: MB 320-752267/1-A
Matrix: Water
Analysis Batch: 752549

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 752267

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		8.0	2.0	ng/L		12/06/23 04:39	04/05/24 08:26	1
Perfluoropentanoic acid (PFPeA)	ND		4.0	1.0	ng/L		12/06/23 04:39	04/05/24 08:26	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.50	ng/L		12/06/23 04:39	04/05/24 08:26	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.50	ng/L		12/06/23 04:39	04/05/24 08:26	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.50	ng/L		12/06/23 04:39	04/05/24 08:26	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.50	ng/L		12/06/23 04:39	04/05/24 08:26	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.50	ng/L		12/06/23 04:39	04/05/24 08:26	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.50	ng/L		12/06/23 04:39	04/05/24 08:26	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.50	ng/L		12/06/23 04:39	04/05/24 08:26	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	0.50	ng/L		12/06/23 04:39	04/05/24 08:26	1
Perfluorotetradecanoic acid (PFTeDA)	ND		2.0	0.50	ng/L		12/06/23 04:39	04/05/24 08:26	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.50	ng/L		12/06/23 04:39	04/05/24 08:26	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.50	ng/L		12/06/23 04:39	04/05/24 08:26	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.50	ng/L		12/06/23 04:39	04/05/24 08:26	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.50	ng/L		12/06/23 04:39	04/05/24 08:26	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.50	ng/L		12/06/23 04:39	04/05/24 08:26	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.50	ng/L		12/06/23 04:39	04/05/24 08:26	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.50	ng/L		12/06/23 04:39	04/05/24 08:26	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.50	ng/L		12/06/23 04:39	04/05/24 08:26	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		8.0	2.0	ng/L		12/06/23 04:39	04/05/24 08:26	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		8.0	2.0	ng/L		12/06/23 04:39	04/05/24 08:26	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		8.0	2.0	ng/L		12/06/23 04:39	04/05/24 08:26	1
Perfluorooctanesulfonamide (PFOSA)	ND		2.0	0.50	ng/L		12/06/23 04:39	04/05/24 08:26	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		2.0	0.50	ng/L		12/06/23 04:39	04/05/24 08:26	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		2.0	0.50	ng/L		12/06/23 04:39	04/05/24 08:26	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.50	ng/L		12/06/23 04:39	04/05/24 08:26	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.50	ng/L		12/06/23 04:39	04/05/24 08:26	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		20	5.0	ng/L		12/06/23 04:39	04/05/24 08:26	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		20	5.0	ng/L		12/06/23 04:39	04/05/24 08:26	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		8.0	2.0	ng/L		12/06/23 04:39	04/05/24 08:26	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		8.0	2.0	ng/L		12/06/23 04:39	04/05/24 08:26	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		4.0	1.0	ng/L		12/06/23 04:39	04/05/24 08:26	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		4.0	1.0	ng/L		12/06/23 04:39	04/05/24 08:26	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		4.0	1.0	ng/L		12/06/23 04:39	04/05/24 08:26	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		8.0	2.0	ng/L		12/06/23 04:39	04/05/24 08:26	1

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: MB 320-752267/1-A
Matrix: Water
Analysis Batch: 752549

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 752267

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		8.0	2.0	ng/L		12/06/23 04:39	04/05/24 08:26	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		4.0	1.0	ng/L		12/06/23 04:39	04/05/24 08:26	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		10	2.5	ng/L		12/06/23 04:39	04/05/24 08:26	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		50	13	ng/L		12/06/23 04:39	04/05/24 08:26	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		50	13	ng/L		12/06/23 04:39	04/05/24 08:26	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*72.2*		*5 - 130*	*12/06/23 04:39*	*04/05/24 08:26*	*1*
13C5 PFPeA	*84.0*		*40 - 130*	*12/06/23 04:39*	*04/05/24 08:26*	*1*
13C5 PFHxA	*86.6*		*40 - 130*	*12/06/23 04:39*	*04/05/24 08:26*	*1*
13C4 PFHpA	*80.5*		*40 - 130*	*12/06/23 04:39*	*04/05/24 08:26*	*1*
13C8 PFOA	*79.9*		*40 - 130*	*12/06/23 04:39*	*04/05/24 08:26*	*1*
13C9 PFNA	*73.4*		*40 - 130*	*12/06/23 04:39*	*04/05/24 08:26*	*1*
13C6 PFDA	*66.5*		*40 - 130*	*12/06/23 04:39*	*04/05/24 08:26*	*1*
13C7 PFUnA	*67.2*		*30 - 130*	*12/06/23 04:39*	*04/05/24 08:26*	*1*
13C2 PFDoA	*60.5*		*10 - 130*	*12/06/23 04:39*	*04/05/24 08:26*	*1*
13C2 PFTeDA	*57.4*		*10 - 130*	*12/06/23 04:39*	*04/05/24 08:26*	*1*
13C3 PFBS	*74.2*		*40 - 135*	*12/06/23 04:39*	*04/05/24 08:26*	*1*
13C3 PFHxS	*70.3*		*40 - 130*	*12/06/23 04:39*	*04/05/24 08:26*	*1*
13C8 PFOS	*84.8*		*40 - 130*	*12/06/23 04:39*	*04/05/24 08:26*	*1*
13C8 PFOSA	*70.3*		*40 - 130*	*12/06/23 04:39*	*04/05/24 08:26*	*1*
d3-NMeFOSAA	*76.6*		*40 - 170*	*12/06/23 04:39*	*04/05/24 08:26*	*1*
d5-NEtFOSAA	*80.9*		*25 - 135*	*12/06/23 04:39*	*04/05/24 08:26*	*1*
13C2 4:2 FTS	*81.9*		*40 - 200*	*12/06/23 04:39*	*04/05/24 08:26*	*1*
13C2 6:2 FTS	*73.1*		*40 - 200*	*12/06/23 04:39*	*04/05/24 08:26*	*1*
13C2 8:2 FTS	*86.3*		*40 - 300*	*12/06/23 04:39*	*04/05/24 08:26*	*1*
13C3 HFPO-DA	*87.2*		*40 - 130*	*12/06/23 04:39*	*04/05/24 08:26*	*1*
d7-N-MeFOSE-M	*73.1*		*10 - 130*	*12/06/23 04:39*	*04/05/24 08:26*	*1*
d9-N-EtFOSE-M	*77.2*		*10 - 130*	*12/06/23 04:39*	*04/05/24 08:26*	*1*
d5-NEtPFOSA	*80.4*		*10 - 130*	*12/06/23 04:39*	*04/05/24 08:26*	*1*
d3-NMePFOSA	*70.5*		*10 - 130*	*12/06/23 04:39*	*04/05/24 08:26*	*1*

Lab Sample ID: LCS 320-752267/3-A
Matrix: Water
Analysis Batch: 752549

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 752267

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	128	142		ng/L		111	70 - 140
Perfluoropentanoic acid (PFPeA)	64.0	64.2		ng/L		100	65 - 135
Perfluorohexanoic acid (PFHxA)	32.0	28.9		ng/L		90	70 - 145
Perfluoroheptanoic acid (PFHpA)	32.0	33.5		ng/L		105	70 - 150
Perfluorooctanoic acid (PFOA)	32.0	34.2		ng/L		107	70 - 150
Perfluorononanoic acid (PFNA)	32.0	33.6		ng/L		105	70 - 150
Perfluorodecanoic acid (PFDA)	32.0	39.0		ng/L		122	70 - 140

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-752267/3-A
Matrix: Water
Analysis Batch: 752549

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 752267

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	32.0	32.6		ng/L		102	70 - 145
Perfluorododecanoic acid (PFDoA)	32.0	35.4		ng/L		111	70 - 140
Perfluorotridecanoic acid (PFTrDA)	32.0	39.5		ng/L		123	65 - 140
Perfluorotetradecanoic acid (PFTeDA)	32.0	33.9		ng/L		106	60 - 140
Perfluorobutanesulfonic acid (PFBS)	28.4	27.8		ng/L		98	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	30.1	32.1		ng/L		107	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	29.2	28.5		ng/L		98	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	30.5	30.9		ng/L		101	70 - 150
Perfluorooctanesulfonic acid (PFOS)	29.8	29.8		ng/L		100	55 - 150
Perfluorononanesulfonic acid (PFNS)	30.8	26.9		ng/L		87	65 - 145
Perfluorodecanesulfonic acid (PFDS)	30.8	23.8		ng/L		77	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	31.0	25.8		ng/L		83	50 - 145
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	117		ng/L		97	70 - 145
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	122	121		ng/L		99	65 - 155
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	123	133		ng/L		108	60 - 150
Perfluorooctanesulfonamide (PFOSA)	32.0	33.9		ng/L		106	70 - 145
N-methylperfluorooctane sulfonamide (NMeFOSA)	32.0	34.4		ng/L		107	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA)	32.0	28.9		ng/L		90	65 - 145
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	32.0	37.5		ng/L		117	50 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	32.0	30.4		ng/L		95	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	320	356		ng/L		111	70 - 145
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	320	368		ng/L		115	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	128	130		ng/L		101	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	121	118		ng/L		97	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	64.0	64.4		ng/L		101	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	64.0	54.2		ng/L		85	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	64.0	67.8		ng/L		106	50 - 150

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-752267/3-A
Matrix: Water
Analysis Batch: 752549

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 752267

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	120	115		ng/L		96	70 - 155
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	121	118		ng/L		98	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	57.1	58.6		ng/L		103	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	160	174		ng/L		109	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	799	716		ng/L		90	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	799	643		ng/L		80	50 - 145

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*69.7*		*5 - 130*
13C5 PFPeA	*82.5*		*40 - 130*
13C5 PFHxA	*88.3*		*40 - 130*
13C4 PFHpA	*79.0*		*40 - 130*
13C8 PFOA	*74.3*		*40 - 130*
13C9 PFNA	*76.7*		*40 - 130*
13C6 PFDA	*65.5*		*40 - 130*
13C7 PFUnA	*68.1*		*30 - 130*
13C2 PFDoA	*56.3*		*10 - 130*
13C2 PFTeDA	*63.3*		*10 - 130*
13C3 PFBS	*70.0*		*40 - 135*
13C3 PFHxS	*70.1*		*40 - 130*
13C8 PFOS	*78.0*		*40 - 130*
13C8 PFOSA	*67.3*		*40 - 130*
d3-NMeFOSAA	*77.5*		*40 - 170*
d5-NEtFOSAA	*78.6*		*25 - 135*
13C2 4:2 FTS	*70.7*		*40 - 200*
13C2 6:2 FTS	*65.4*		*40 - 200*
13C2 8:2 FTS	*78.7*		*40 - 300*
13C3 HFPO-DA	*87.3*		*40 - 130*
d7-N-MeFOSE-M	*72.1*		*10 - 130*
d9-N-EtFOSE-M	*75.5*		*10 - 130*
d5-NEtPFOSA	*69.0*		*10 - 130*
d3-NMePFOSA	*64.8*		*10 - 130*

Lab Sample ID: LLCS 320-752267/2-A
Matrix: Water
Analysis Batch: 752549

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 752267

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	12.8	14.3		ng/L		112	70 - 140
Perfluoropentanoic acid (PFPeA)	6.40	6.55		ng/L		102	65 - 135
Perfluorohexanoic acid (PFHxA)	3.20	3.12		ng/L		97	70 - 145
Perfluoroheptanoic acid (PFHpA)	3.20	3.36		ng/L		105	70 - 150
Perfluorooctanoic acid (PFOA)	3.20	3.48		ng/L		109	70 - 150

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-752267/2-A
Matrix: Water
Analysis Batch: 752549

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 752267

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorononanoic acid (PFNA)	3.20	3.42		ng/L		107	70 - 150
Perfluorodecanoic acid (PFDA)	3.20	3.63		ng/L		114	70 - 140
Perfluoroundecanoic acid (PFUnA)	3.20	3.23		ng/L		101	70 - 145
Perfluorododecanoic acid (PFDoA)	3.20	3.88		ng/L		121	70 - 140
Perfluorotridecanoic acid (PFTrDA)	3.20	4.22		ng/L		132	65 - 140
Perfluorotetradecanoic acid (PFTeDA)	3.20	3.29		ng/L		103	60 - 140
Perfluorobutanesulfonic acid (PFBS)	2.84	2.75		ng/L		97	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	3.01	3.33		ng/L		111	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	2.92	3.01		ng/L		103	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	3.05	3.08		ng/L		101	70 - 150
Perfluorooctanesulfonic acid (PFOS)	2.98	2.99		ng/L		100	55 - 150
Perfluorononanesulfonic acid (PFNS)	3.08	2.42		ng/L		79	65 - 145
Perfluorodecanesulfonic acid (PFDS)	3.08	2.26		ng/L		73	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	3.10	2.27		ng/L		73	50 - 145
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	12.0	12.2		ng/L		101	70 - 145
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	12.2	12.6		ng/L		104	65 - 155
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	12.3	13.6		ng/L		111	60 - 150
Perfluorooctanesulfonamide (PFOSA)	3.20	3.37		ng/L		105	70 - 145
N-methylperfluorooctane sulfonamide (NMeFOSA)	3.20	3.27		ng/L		102	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA)	3.20	2.70		ng/L		84	65 - 145
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.20	4.13		ng/L		129	50 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	3.20	3.27		ng/L		102	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	32.0	36.6		ng/L		115	70 - 145
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	32.0	36.8		ng/L		115	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	12.8	11.8		ng/L		92	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	12.1	11.6		ng/L		96	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	6.40	6.44		ng/L		101	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	6.40	5.02		ng/L		79	60 - 150

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-752267/2-A
Matrix: Water
Analysis Batch: 752549

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 752267

Analyte			Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits		
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)			6.40	7.05		ng/L		110	50 - 150		
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)			12.0	11.0		ng/L		92	70 - 155		
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)			12.1	10.5		ng/L		87	55 - 160		
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			5.71	6.04		ng/L		106	70 - 140		
3-Perfluoropropylpropanoic acid (3:3 FTCA)			16.0	17.0		ng/L		106	65 - 130		
3-Perfluoropentylpropanoic acid (5:3 FTCA)			79.9	72.3		ng/L		91	70 - 135		
3-Perfluoroheptylpropanoic acid (7:3 FTCA)			79.9	62.1		ng/L		78	50 - 145		

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C4 PFBA	*69.4*		*5 - 130*
13C5 PFPeA	*82.5*		*40 - 130*
13C5 PFHxA	*87.3*		*40 - 130*
13C4 PFHpA	*83.9*		*40 - 130*
13C8 PFOA	*71.9*		*40 - 130*
13C9 PFNA	*78.9*		*40 - 130*
13C6 PFDA	*67.7*		*40 - 130*
13C7 PFUnA	*67.5*		*30 - 130*
13C2 PFDoA	*57.1*		*10 - 130*
13C2 PFTeDA	*60.9*		*10 - 130*
13C3 PFBS	*71.0*		*40 - 135*
13C3 PFHxS	*67.9*		*40 - 130*
13C8 PFOS	*78.3*		*40 - 130*
13C8 PFOSA	*62.9*		*40 - 130*
d3-NMeFOSAA	*71.2*		*40 - 170*
d5-NEtFOSAA	*80.8*		*25 - 135*
13C2 4:2 FTS	*75.0*		*40 - 200*
13C2 6:2 FTS	*69.6*		*40 - 200*
13C2 8:2 FTS	*91.3*		*40 - 300*
13C3 HFPO-DA	*89.4*		*40 - 130*
d7-N-MeFOSE-M	*67.1*		*10 - 130*
d9-N-EtFOSE-M	*71.0*		*10 - 130*
d5-NEtPFOSA	*74.1*		*10 - 130*
d3-NMePFOSA	*65.8*		*10 - 130*

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 590-46754/2-A
Matrix: Water
Analysis Batch: 46765

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 46754

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	ND		1.0	0.13	mg/L		04/11/24 12:24	04/11/24 13:38	1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: MB 590-46754/2-A
Matrix: Water
Analysis Batch: 46765

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 46754

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	ND		0.50	0.29	mg/L		04/11/24 12:24	04/11/24 13:38	1
Sodium	ND		0.50	0.20	mg/L		04/11/24 12:24	04/11/24 13:38	1

Lab Sample ID: LCS 590-46754/1-A
Matrix: Water
Analysis Batch: 46765

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 46754

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Magnesium	50.0	55.7		mg/L		111	80 - 120
Potassium	50.0	52.8		mg/L		106	80 - 135
Sodium	50.0	53.6		mg/L		107	80 - 154

Lab Sample ID: 590-23966-3 MS
Matrix: Water
Analysis Batch: 46765

Client Sample ID: MW-2A-032524
Prep Type: Total Recoverable
Prep Batch: 46754

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Magnesium	16		50.0	69.9		mg/L		108	75 - 125
Potassium	6.8		50.0	59.6		mg/L		105	75 - 125
Sodium	37		50.0	87.1		mg/L		100	75 - 125

Lab Sample ID: 590-23966-3 MSD
Matrix: Water
Analysis Batch: 46765

Client Sample ID: MW-2A-032524
Prep Type: Total Recoverable
Prep Batch: 46754

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Magnesium	16		50.0	68.9		mg/L		106	75 - 125	1	20
Potassium	6.8		50.0	58.7		mg/L		104	75 - 125	2	20
Sodium	37		50.0	86.1		mg/L		98	75 - 125	1	20

Lab Sample ID: 590-23966-3 DU
Matrix: Water
Analysis Batch: 46765

Client Sample ID: MW-2A-032524
Prep Type: Total Recoverable
Prep Batch: 46754

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Magnesium	16		15.1		mg/L		3	20
Potassium	6.8		6.75		mg/L		1	20
Sodium	37		35.9		mg/L		3	20

Lab Sample ID: MB 590-46752/2-C
Matrix: Water
Analysis Batch: 46765

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 46762

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		2.0	0.20	mg/L		04/11/24 10:49	04/11/24 14:40	1
Magnesium	ND		1.0	0.13	mg/L		04/11/24 10:49	04/11/24 14:40	1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCS 590-46752/1-C
Matrix: Water
Analysis Batch: 46765

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 46762

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Calcium			50.0	54.0		mg/L		108	80 - 120		
Magnesium			50.0	54.3		mg/L		109	80 - 120		

Lab Sample ID: 590-23966-1 MS
Matrix: Water
Analysis Batch: 46765

Client Sample ID: MW-12A-032524
Prep Type: Dissolved
Prep Batch: 46762

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Calcium	29		50.0	87.8		mg/L		117	75 - 125		
Magnesium	10		50.0	68.9		mg/L		117	75 - 125		

Lab Sample ID: 590-23966-1 MSD
Matrix: Water
Analysis Batch: 46765

Client Sample ID: MW-12A-032524
Prep Type: Dissolved
Prep Batch: 46762

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Magnesium	10		50.0	68.0		mg/L		115	75 - 125	1	20

Lab Sample ID: 590-23966-1 MSD
Matrix: Water
Analysis Batch: 46770

Client Sample ID: MW-12A-032524
Prep Type: Dissolved
Prep Batch: 46762

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	29		50.0	85.5		mg/L		112	75 - 125	3	20

Lab Sample ID: 590-23966-1 DU
Matrix: Water
Analysis Batch: 46765

Client Sample ID: MW-12A-032524
Prep Type: Dissolved
Prep Batch: 46762

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Calcium	29		31.5		mg/L		7	20
Magnesium	10		13.1	F3	mg/L		25	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 580-455843/22-A
Matrix: Water
Analysis Batch: 456090

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 455843

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.0010	mg/L		04/05/24 16:45	04/08/24 22:33	5
Cadmium	ND		0.0020	0.00019	mg/L		04/05/24 16:45	04/08/24 22:33	5
Iron	ND		0.50	0.067	mg/L		04/05/24 16:45	04/08/24 22:33	5
Lead	ND		0.0020	0.00020	mg/L		04/05/24 16:45	04/08/24 22:33	5
Manganese	ND		0.010	0.0023	mg/L		04/05/24 16:45	04/08/24 22:33	5
Zinc	ND		0.035	0.0046	mg/L		04/05/24 16:45	04/08/24 22:33	5

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 580-455843/23-A
Matrix: Water
Analysis Batch: 456090

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 455843

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	0.944		mg/L		94	80 - 120
Cadmium	1.00	0.943		mg/L		94	80 - 120
Iron	20.0	19.6		mg/L		98	80 - 120
Lead	1.00	0.959		mg/L		96	80 - 120
Manganese	1.00	1.08		mg/L		108	80 - 120
Zinc	1.00	1.01		mg/L		101	80 - 120

Lab Sample ID: LCSD 580-455843/24-A
Matrix: Water
Analysis Batch: 456090

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 455843

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	1.00	0.966		mg/L		97	80 - 120	2	20
Cadmium	1.00	0.948		mg/L		95	80 - 120	1	20
Iron	20.0	20.0		mg/L		100	80 - 120	2	20
Lead	1.00	0.967		mg/L		97	80 - 120	1	20
Manganese	1.00	0.978		mg/L		98	80 - 120	10	20
Zinc	1.00	1.02		mg/L		102	80 - 120	2	20

Lab Sample ID: MB 580-455235/1-B
Matrix: Water
Analysis Batch: 455760

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 455378

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010	0.00020	mg/L		04/01/24 17:48	04/04/24 15:27	1
Cadmium	ND		0.00040	0.000037	mg/L		04/01/24 17:48	04/04/24 15:27	1
Iron	ND		0.10	0.013	mg/L		04/01/24 17:48	04/04/24 15:27	1
Lead	ND		0.00040	0.000040	mg/L		04/01/24 17:48	04/04/24 15:27	1
Manganese	ND		0.0020	0.00046	mg/L		04/01/24 17:48	04/04/24 15:27	1
Zinc	ND		0.0070	0.00093	mg/L		04/01/24 17:48	04/04/24 15:27	1

Lab Sample ID: LCS 580-455235/2-B
Matrix: Water
Analysis Batch: 455760

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 455378

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	1.01		mg/L		101	80 - 120
Cadmium	1.00	1.01		mg/L		101	80 - 120
Iron	20.0	20.0		mg/L		100	80 - 120
Lead	1.00	1.00		mg/L		100	80 - 120
Manganese	1.00	1.01		mg/L		101	80 - 120
Zinc	1.00	1.03		mg/L		103	80 - 120

Lab Sample ID: LCSD 580-455235/3-B
Matrix: Water
Analysis Batch: 455760

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 455378

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	1.00	0.991		mg/L		99	80 - 120	2	20

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 580-455235/3-B
Matrix: Water
Analysis Batch: 455760

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 455378

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium			1.00	1.00		mg/L		100	80 - 120	1	20
Iron			20.0	19.6		mg/L		98	80 - 120	2	20
Lead			1.00	0.970		mg/L		97	80 - 120	3	20
Manganese			1.00	1.00		mg/L		100	80 - 120	1	20
Zinc			1.00	1.02		mg/L		102	80 - 120	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 590-46753/2-A
Matrix: Water
Analysis Batch: 46767

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 46753

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.120	J	0.20	0.090	ug/L		04/11/24 12:20	04/11/24 16:44	1

Lab Sample ID: LCS 590-46753/1-A
Matrix: Water
Analysis Batch: 46767

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 46753

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			2.00	1.88		ug/L		94	80 - 120		

Lab Sample ID: 590-23966-1 MS
Matrix: Water
Analysis Batch: 46767

Client Sample ID: MW-12A-032524
Prep Type: Total/NA
Prep Batch: 46753

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury	0.12	J B	2.00	1.94		ug/L		91	80 - 120		

Lab Sample ID: 590-23966-1 MSD
Matrix: Water
Analysis Batch: 46767

Client Sample ID: MW-12A-032524
Prep Type: Total/NA
Prep Batch: 46753

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.12	J B	2.00	1.97		ug/L		93	80 - 120	2	20

Lab Sample ID: 590-23966-1 DU
Matrix: Water
Analysis Batch: 46767

Client Sample ID: MW-12A-032524
Prep Type: Total/NA
Prep Batch: 46753

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Mercury	0.12	J B		0.120	J	ug/L				0	20

Lab Sample ID: MB 590-46752/2-B
Matrix: Water
Analysis Batch: 46767

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 46761

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.130	J	0.20	0.090	ug/L		04/11/24 10:46	04/11/24 17:14	1

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 590-46752/1-B
Matrix: Water
Analysis Batch: 46767

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 46761

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			2.00	1.91		ug/L		96	80 - 120		

Lab Sample ID: 590-23966-3 MS
Matrix: Water
Analysis Batch: 46767

Client Sample ID: MW-2A-032524
Prep Type: Dissolved
Prep Batch: 46761

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury	0.12	J B	2.00	1.88		ug/L		88	80 - 120		

Lab Sample ID: 590-23966-3 MSD
Matrix: Water
Analysis Batch: 46767

Client Sample ID: MW-2A-032524
Prep Type: Dissolved
Prep Batch: 46761

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.12	J B	2.00	1.91		ug/L		90	80 - 120	2	20

Lab Sample ID: 590-23966-3 DU
Matrix: Water
Analysis Batch: 46767

Client Sample ID: MW-2A-032524
Prep Type: Dissolved
Prep Batch: 46761

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Mercury	0.12	J B	0.130	J	ug/L		8	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 280-648894/111
Matrix: Water
Analysis Batch: 648894

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	ND		0.10	0.029	mg/L			04/09/24 17:27	1

Lab Sample ID: LCS 280-648894/112
Matrix: Water
Analysis Batch: 648894

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Ammonia as N			2.50	2.72		mg/L		109	90 - 110		

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 590-46763/1
Matrix: Water
Analysis Batch: 46763

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.00	J	20	5.0	mg/L			04/08/24 14:00	1
Bicarbonate Alkalinity as CaCO3	5.00	J	20	5.0	mg/L			04/08/24 14:00	1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: LCS 590-46763/2
Matrix: Water
Analysis Batch: 46763

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	501	500		mg/L		100	90 - 110

Lab Sample ID: 590-23966-1 DU
Matrix: Water
Analysis Batch: 46763

Client Sample ID: MW-12A-032524
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	110	B	105		mg/L		5	10
Bicarbonate Alkalinity as CaCO3	110	B	105		mg/L		5	10

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 590-46672/1
Matrix: Water
Analysis Batch: 46672

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		25	13	mg/L			04/01/24 15:21	1

Lab Sample ID: LCS 590-46672/2
Matrix: Water
Analysis Batch: 46672

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	503	490		mg/L		97	80 - 120

Lab Sample ID: MB 590-46726/1
Matrix: Water
Analysis Batch: 46726

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		25	13	mg/L			04/03/24 15:26	1

Lab Sample ID: LCS 590-46726/2
Matrix: Water
Analysis Batch: 46726

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	503	481		mg/L		96	80 - 120

Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 280-648036/35
Matrix: Water
Analysis Batch: 648036

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		1.0	0.35	mg/L			04/02/24 01:12	1

Method: SM 5310B - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: LCS 280-648036/34
Matrix: Water
Analysis Batch: 648036

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Organic Carbon - Duplicates			25.0	23.9		mg/L		96	88 - 112		

Client Sample ID: MW-12A-032524

Lab Sample ID: 590-23966-1

Date Collected: 03/25/24 13:06

Matrix: Water

Date Received: 03/28/24 08:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	43 mL	43 mL	46631	04/05/24 15:38	JSP	EET SPK
Total/NA	Prep	3510C			269 mL	1 mL	455296	04/01/24 09:03	TOA	EET SEA
Total/NA	Analysis	8270C SIM ID		1	1 mL	1 mL	455319	04/01/24 17:20	K1K	EET SEA
Total/NA	Analysis	300.0		1	5 mL	5 mL	46500	03/28/24 11:53	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	46501	03/28/24 11:53	NMI	EET SPK
Dissolved	Filtration	FILTRATION			250 mL	250 mL	46752	04/11/24 10:16	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	46762	04/11/24 10:49	AMB	EET SPK
Dissolved	Analysis	6010D		1			46765	04/11/24 14:45	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	46754	04/11/24 12:24	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			46765	04/11/24 13:43	AMB	EET SPK
Dissolved	Filtration	FILTRATION			100 mL	100 mL	455235	03/29/24 18:10	JLS	EET SEA
Dissolved	Prep	3005A			50 mL	50 mL	455378	04/01/24 17:48	AUA	EET SEA
Dissolved	Analysis	6020B		5	50 mL	50 mL	455760	04/04/24 16:44	FCW	EET SEA
Total Recoverable	Prep	3005A			50 mL	50 mL	455843	04/05/24 16:45	TMH	EET SEA
Total Recoverable	Analysis	6020B		5	50 mL	50 mL	456090	04/08/24 23:54	FCW	EET SEA
Dissolved	Filtration	FILTRATION			250 mL	250 mL	46752	04/11/24 10:16	AMB	EET SPK
Dissolved	Prep	7470A			50 mL	50 mL	46761	04/11/24 10:46	AMB	EET SPK
Dissolved	Analysis	7470A		1			46767	04/11/24 17:17	AMB	EET SPK
Total/NA	Prep	7470A			50 mL	50 mL	46753	04/11/24 12:21	AMB	EET SPK
Total/NA	Analysis	7470A		1			46767	04/11/24 16:47	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	648894	04/09/24 17:59	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	46763	04/08/24 14:00	AMB	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	46672	04/01/24 15:21	AMB	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	648036	04/02/24 07:18	ABW	EET DEN

Client Sample ID: MW-15A-032524

Lab Sample ID: 590-23966-2

Date Collected: 03/25/24 11:40

Matrix: Water

Date Received: 03/28/24 08:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633			549 mL	5.0 mL	752267	04/04/24 04:12	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633		1	1 mL	1 mL	752549	04/05/24 10:47	SEY	EET SAC

Client Sample ID: MW-2A-032524

Lab Sample ID: 590-23966-3

Date Collected: 03/26/24 11:25

Matrix: Water

Date Received: 03/28/24 08:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	43 mL	43 mL	46631	04/05/24 15:59	JSP	EET SPK
Total/NA	Prep	3510C			266.1 mL	1 mL	455296	04/01/24 09:03	TOA	EET SEA
Total/NA	Analysis	8270C SIM ID		1	1 mL	1 mL	455319	04/01/24 17:33	K1K	EET SEA
Total/NA	Analysis	300.0		1	5 mL	5 mL	46500	03/28/24 12:53	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	46501	03/28/24 12:53	NMI	EET SPK

Lab Chronicle

Client: GeoEngineers Inc
Job ID: 590-23966-1
Project/Site: Marshall Landfill/0504-104-01

Client Sample ID: MW-2A-032524
Lab Sample ID: 590-23966-3
Date Collected: 03/26/24 11:25
Matrix: Water
Date Received: 03/28/24 08:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633			555.4 mL	5.0 mL	752267	04/04/24 04:12	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633		1	1 mL	1 mL	752549	04/05/24 13:08	SEY	EET SAC
Total/NA	Prep	1633	RA		555.4 mL	5.0 mL	752267	04/04/24 04:12	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633	RA	1	1 mL	1 mL	753285	04/08/24 18:43	S1M	EET SAC
Dissolved	Filtration	FILTRATION			250 mL	250 mL	46752	04/11/24 10:16	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	46762	04/11/24 10:49	AMB	EET SPK
Dissolved	Analysis	6010D		1			46765	04/11/24 14:49	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	46754	04/11/24 12:24	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			46765	04/11/24 13:47	AMB	EET SPK
Dissolved	Filtration	FILTRATION			100 mL	100 mL	455235	03/29/24 18:10	JLS	EET SEA
Dissolved	Prep	3005A			50 mL	50 mL	455378	04/01/24 17:48	AUA	EET SEA
Dissolved	Analysis	6020B		5	50 mL	50 mL	455760	04/04/24 16:49	FCW	EET SEA
Total Recoverable	Prep	3005A			50 mL	50 mL	455843	04/05/24 16:45	TMH	EET SEA
Total Recoverable	Analysis	6020B		5	50 mL	50 mL	456090	04/08/24 23:56	FCW	EET SEA
Dissolved	Filtration	FILTRATION			250 mL	250 mL	46752	04/11/24 10:16	AMB	EET SPK
Dissolved	Prep	7470A			50 mL	50 mL	46761	04/11/24 10:46	AMB	EET SPK
Dissolved	Analysis	7470A		1			46767	04/11/24 17:27	AMB	EET SPK
Total/NA	Prep	7470A			50 mL	50 mL	46753	04/11/24 12:21	AMB	EET SPK
Total/NA	Analysis	7470A		1			46767	04/11/24 16:57	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	648894	04/09/24 18:12	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	46763	04/08/24 14:00	AMB	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	46672	04/01/24 15:21	AMB	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	648036	04/02/24 07:34	ABW	EET DEN

Client Sample ID: MW-8A-032524
Lab Sample ID: 590-23966-4
Date Collected: 03/26/24 12:35
Matrix: Water
Date Received: 03/28/24 08:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633			543.5 mL	5.0 mL	752267	04/04/24 04:12	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633		1	1 mL	1 mL	752549	04/05/24 13:25	SEY	EET SAC

Client Sample ID: MW-9A-032524
Lab Sample ID: 590-23966-5
Date Collected: 03/26/24 13:40
Matrix: Water
Date Received: 03/28/24 08:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633			559.7 mL	5.0 mL	752267	04/04/24 04:12	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633		1	1 mL	1 mL	752549	04/05/24 13:43	SEY	EET SAC

Lab Chronicle

Client: GeoEngineers Inc
Job ID: 590-23966-1
Project/Site: Marshall Landfill/0504-104-01

Client Sample ID: MW-16A-032524
Lab Sample ID: 590-23966-6
Date Collected: 03/26/24 14:36
Matrix: Water
Date Received: 03/28/24 08:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633			545.7 mL	5.0 mL	752267	04/04/24 04:12	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633		1	1 mL	1 mL	752549	04/05/24 14:01	SEY	EET SAC

Client Sample ID: MW-7B-032524
Lab Sample ID: 590-23966-7
Date Collected: 03/27/24 09:25
Matrix: Water
Date Received: 03/28/24 08:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	43 mL	43 mL	46631	04/05/24 16:20	JSP	EET SPK
Total/NA	Prep	3510C			270.9 mL	1 mL	455296	04/01/24 09:03	TOA	EET SEA
Total/NA	Analysis	8270C SIM ID		1	1 mL	1 mL	455319	04/01/24 17:47	K1K	EET SEA
Total/NA	Analysis	300.0		1	5 mL	5 mL	46500	03/28/24 13:03	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	46501	03/28/24 13:03	NMI	EET SPK
Total/NA	Prep	1633			477.3 mL	5.0 mL	752267	04/04/24 04:12	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633		1	1 mL	1 mL	752549	04/05/24 14:18	SEY	EET SAC
Dissolved	Filtration	FILTRATION			250 mL	250 mL	46752	04/11/24 10:16	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	46762	04/11/24 10:49	AMB	EET SPK
Dissolved	Analysis	6010D		1			46765	04/11/24 15:26	AMB	EET SPK
Dissolved	Filtration	FILTRATION			250 mL	250 mL	46752	04/11/24 10:16	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	46762	04/11/24 10:49	AMB	EET SPK
Dissolved	Analysis	6010D		1			46770	04/11/24 17:44	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	46754	04/11/24 12:24	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			46765	04/11/24 14:11	AMB	EET SPK
Dissolved	Filtration	FILTRATION			100 mL	100 mL	455235	03/29/24 18:10	JLS	EET SEA
Dissolved	Prep	3005A			50 mL	50 mL	455378	04/01/24 17:48	AUA	EET SEA
Dissolved	Analysis	6020B		5	50 mL	50 mL	455760	04/04/24 16:52	FCW	EET SEA
Total Recoverable	Prep	3005A			50 mL	50 mL	455843	04/05/24 16:45	TMH	EET SEA
Total Recoverable	Analysis	6020B		5	50 mL	50 mL	456090	04/08/24 23:59	FCW	EET SEA
Dissolved	Filtration	FILTRATION			250 mL	250 mL	46752	04/11/24 10:16	AMB	EET SPK
Dissolved	Prep	7470A			50 mL	50 mL	46761	04/11/24 10:46	AMB	EET SPK
Dissolved	Analysis	7470A		1			46767	04/11/24 17:30	AMB	EET SPK
Total/NA	Prep	7470A			50 mL	50 mL	46753	04/11/24 12:21	AMB	EET SPK
Total/NA	Analysis	7470A		1			46767	04/11/24 16:59	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	648894	04/09/24 18:14	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	46763	04/08/24 14:00	AMB	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	46726	04/03/24 15:26	AMB	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	648036	04/02/24 07:50	ABW	EET DEN

Client Sample ID: MW-5A-032524
Lab Sample ID: 590-23966-8
Date Collected: 03/27/24 10:45
Matrix: Water
Date Received: 03/28/24 08:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	43 mL	43 mL	46631	04/05/24 16:41	JSP	EET SPK

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Marshall Landfill/0504-104-01

Job ID: 590-23966-1

Client Sample ID: MW-5A-032524

Date Collected: 03/27/24 10:45
Date Received: 03/28/24 08:37

Lab Sample ID: 590-23966-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			262.2 mL	1 mL	455296	04/01/24 09:03	TOA	EET SEA
Total/NA	Analysis	8270C SIM ID		1	1 mL	1 mL	455319	04/01/24 18:01	K1K	EET SEA
Total/NA	Analysis	300.0		1	5 mL	5 mL	46500	03/28/24 13:13	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	46501	03/28/24 13:13	NMI	EET SPK
Total/NA	Prep	1633			558.7 mL	5.0 mL	752267	04/04/24 04:12	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633		1	1 mL	1 mL	752549	04/05/24 14:36	SEY	EET SAC
Dissolved	Filtration	FILTRATION			250 mL	250 mL	46752	04/11/24 10:16	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	46762	04/11/24 10:49	AMB	EET SPK
Dissolved	Analysis	6010D		1			46765	04/11/24 15:30	AMB	EET SPK
Dissolved	Filtration	FILTRATION			250 mL	250 mL	46752	04/11/24 10:16	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	46762	04/11/24 10:49	AMB	EET SPK
Dissolved	Analysis	6010D		1			46770	04/11/24 17:48	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	46754	04/11/24 12:24	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			46765	04/11/24 14:28	AMB	EET SPK
Dissolved	Filtration	FILTRATION			100 mL	100 mL	455235	03/29/24 18:10	JLS	EET SEA
Dissolved	Prep	3005A			50 mL	50 mL	455378	04/01/24 17:48	AUA	EET SEA
Dissolved	Analysis	6020B		5	50 mL	50 mL	455760	04/04/24 16:38	FCW	EET SEA
Total Recoverable	Prep	3005A			50 mL	50 mL	455843	04/05/24 16:45	TMH	EET SEA
Total Recoverable	Analysis	6020B		5	50 mL	50 mL	456090	04/09/24 00:02	FCW	EET SEA
Dissolved	Filtration	FILTRATION			250 mL	250 mL	46752	04/11/24 10:16	AMB	EET SPK
Dissolved	Prep	7470A			50 mL	50 mL	46761	04/11/24 10:46	AMB	EET SPK
Dissolved	Analysis	7470A		1			46767	04/11/24 17:32	AMB	EET SPK
Total/NA	Prep	7470A			50 mL	50 mL	46753	04/11/24 12:21	AMB	EET SPK
Total/NA	Analysis	7470A		1			46767	04/11/24 17:02	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	648894	04/09/24 18:23	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	46763	04/08/24 14:00	AMB	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	46726	04/03/24 15:26	AMB	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	648036	04/02/24 08:05	ABW	EET DEN

Client Sample ID: DUP-032724

Date Collected: 03/27/24 12:00
Date Received: 03/28/24 08:37

Lab Sample ID: 590-23966-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	43 mL	43 mL	46631	04/05/24 17:01	JSP	EET SPK
Total/NA	Prep	3510C			243.2 mL	1 mL	455296	04/01/24 09:03	TOA	EET SEA
Total/NA	Analysis	8270C SIM ID		1	1 mL	1 mL	455319	04/01/24 18:15	K1K	EET SEA
Total/NA	Analysis	300.0		1	5 mL	5 mL	46500	03/28/24 13:23	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	46501	03/28/24 13:23	NMI	EET SPK
Total/NA	Prep	1633			540.4 mL	5.0 mL	752267	04/04/24 04:12	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633		1	1 mL	1 mL	752549	04/05/24 14:54	SEY	EET SAC
Dissolved	Filtration	FILTRATION			250 mL	250 mL	46752	04/11/24 10:16	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	46762	04/11/24 10:49	AMB	EET SPK
Dissolved	Analysis	6010D		1			46765	04/11/24 15:34	AMB	EET SPK

Lab Chronicle

Client: GeoEngineers Inc
Job ID: 590-23966-1
Project/Site: Marshall Landfill/0504-104-01

Client Sample ID: DUP-032724
Lab Sample ID: 590-23966-9
Date Collected: 03/27/24 12:00
Matrix: Water
Date Received: 03/28/24 08:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			250 mL	250 mL	46752	04/11/24 10:16	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	46762	04/11/24 10:49	AMB	EET SPK
Dissolved	Analysis	6010D		1			46770	04/11/24 17:52	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	46754	04/11/24 12:24	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			46765	04/11/24 14:32	AMB	EET SPK
Dissolved	Filtration	FILTRATION			100 mL	100 mL	455235	03/29/24 18:10	JLS	EET SEA
Dissolved	Prep	3005A			50 mL	50 mL	455378	04/01/24 17:48	AUA	EET SEA
Dissolved	Analysis	6020B		5	50 mL	50 mL	455760	04/04/24 16:41	FCW	EET SEA
Total Recoverable	Prep	3005A			50 mL	50 mL	455843	04/05/24 16:45	TMH	EET SEA
Total Recoverable	Analysis	6020B		5	50 mL	50 mL	456090	04/09/24 00:05	FCW	EET SEA
Dissolved	Filtration	FILTRATION			250 mL	250 mL	46752	04/11/24 10:16	AMB	EET SPK
Dissolved	Prep	7470A			50 mL	50 mL	46761	04/11/24 10:46	AMB	EET SPK
Dissolved	Analysis	7470A		1			46767	04/11/24 17:40	AMB	EET SPK
Total/NA	Prep	7470A			50 mL	50 mL	46753	04/11/24 12:21	AMB	EET SPK
Total/NA	Analysis	7470A		1			46767	04/11/24 17:09	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	648894	04/09/24 18:25	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	46763	04/08/24 14:00	AMB	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	46726	04/03/24 15:26	AMB	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	648036	04/02/24 08:52	ABW	EET DEN

Client Sample ID: FB-032524
Lab Sample ID: 590-23966-10
Date Collected: 03/25/24 11:06
Matrix: Water
Date Received: 03/28/24 08:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633			554.5 mL	5.0 mL	752267	04/04/24 04:12	HJA	EET SAC
Total/NA	Analysis	Draft-4 1633		1	1 mL	1 mL	752549	04/05/24 15:46	SEY	EET SAC

Client Sample ID: TB-2/26
Lab Sample ID: 590-23966-11
Date Collected: 03/26/24 00:00
Matrix: Water
Date Received: 03/28/24 08:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	43 mL	43 mL	46631	04/05/24 17:43	JSP	EET SPK

Laboratory References:

EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600
EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310
EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Accreditation/Certification Summary

Client: GeoEngineers Inc
Job ID: 590-23966-1
Project/Site: Marshall Landfill/0504-104-01

Laboratory: Eurofins Spokane

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C569	01-07-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3

Laboratory: Eurofins Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	06-11-24
A2LA	ISO/IEC 17025	2907.01	06-11-24
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	06-26-24
Arizona	State	AZ0713	07-30-24
Arkansas DEQ	State	19-047-0	04-21-24
California	State	2513	01-08-25
Colorado	Petroleum Storage Tank Program	4025 (or)	01-08-25
Connecticut	State	PH-0686	09-30-24
Florida	NELAP	E87667-57	04-25-24
Georgia	State	4025-011	01-08-25
Illinois	NELAP	2000172024-9	04-17-24
Iowa	State	370	08-04-24
Kansas	NELAP	E-10166	04-30-24
Kentucky (WW)	State	KY98047	12-31-24
Louisiana	NELAP	30785	06-30-14 *
Louisiana (All)	NELAP	30785	06-17-24
Minnesota	NELAP	1788752	05-12-24
Nevada	State	CO000262024-08	05-01-24
New Hampshire	NELAP	2053	04-28-24
New Jersey	NELAP	230001	06-30-24
New York	NELAP	59923	04-01-25
Oklahoma	NELAP	8614	08-31-24
Oregon	NELAP	4025	05-20-24
Pennsylvania	NELAP	013	07-08-24
South Carolina	State	72002001	01-08-24 *
Texas	NELAP	TX104704183-08-TX	09-30-09 *
Texas	NELAP	T104704183-23-23	09-30-24
USDA	US Federal Programs	P330-20-00065	12-19-25
Utah	NELAP	QUAN5	06-30-13 *
Utah	NELAP	CO000262019-11	05-29-24
Virginia	NELAP	460232	06-14-24
Washington	State	C583	08-03-24
West Virginia DEP	State	354	06-10-24
Wisconsin	State	999615430	08-19-24
Wyoming (UST)	A2LA	2907.01	06-11-24

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GeoEngineers Inc
Job ID: 590-23966-1
Project/Site: Marshall Landfill/0504-104-01

Laboratory: Eurofins Sacramento (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	06-10-24
ANAB	Dept. of Defense ELAP	L2468	01-20-27
ANAB	Dept. of Energy	L2468.01	01-20-27
ANAB	ISO/IEC 17025	L2468	01-20-27
Arizona	State	AZ0708	08-11-24
Arkansas DEQ	State	88-0691	05-18-24
California	State	2897	01-31-26
Colorado	State	CA00044	08-31-24
Florida	NELAP	E87570	06-30-24
Georgia	State	4040	01-29-25
Hawaii	State	Eurofins Sacramento	01-29-25
Illinois	NELAP	200060	03-31-25
Kansas	NELAP	E-10375	05-22-24
Louisiana	NELAP	01944	06-30-24
Louisiana (All)	NELAP	01944	06-30-24
Maine	State	CA00004	04-14-24
Michigan	State	9947	08-18-24
Nevada	State	CA00044	05-19-24
New Hampshire	NELAP	2997	04-16-24
New Jersey	NELAP	CA005	04-18-24
New York	NELAP	11666	04-01-25
Ohio	State	41252	01-29-25
Oregon	NELAP	4040	07-16-24
Texas	NELAP	T104704399-23-17	05-31-24
US Fish & Wildlife	US Federal Programs	A22139	04-30-24
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442023-16	02-28-25
Virginia	NELAP	460278	03-14-25
Washington	State	C581	05-05-24
West Virginia (DW)	State	9930C	01-31-25
Wisconsin	State	998204680	05-06-24
Wyoming	State Program	8TMS-L	01-28-19 *

Laboratory: Eurofins Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-004	02-19-25
ANAB	Dept. of Defense ELAP	L2236	08-07-24
ANAB	Dept. of Energy	L2236	08-07-24
ANAB	ISO/IEC 17025	L2236	08-07-24
California	State	2954	07-07-24
Florida	NELAP	E87575	06-30-24
Louisiana	NELAP	03073	06-30-24
Louisiana (All)	NELAP	03073	06-30-24
Maine	State	WA01273	05-02-24
Montana (UST)	State	NA	04-14-27
New Jersey	NELAP	WA014	06-30-24
New York	NELAP	11662	04-01-25
Oregon	NELAP	4167	07-07-24

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GeoEngineers Inc
Job ID: 590-23966-1
Project/Site: Marshall Landfill/0504-104-01

Laboratory: Eurofins Seattle (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
US Fish & Wildlife	US Federal Programs	A20571	06-30-24
USDA	US Federal Programs	525-23-4-22573	01-04-26
Washington	State	C788-24	07-13-24
Wisconsin	State	399133460	08-31-24

Method Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill/0504-104-01

Job ID: 590-23966-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET SPK
8270C SIM ID	Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)	SW846	EET SEA
300.0	Anions, Ion Chromatography	EPA	EET SPK
Draft-4 1633	Per- and Polyfluoroalkyl Substances by LC/MS/MS	EPA	EET SAC
6010D	Metals (ICP)	SW846	EET SPK
6020B	Metals (ICP/MS)	SW846	EET SEA
7470A	Mercury (CVAA)	SW846	EET SPK
350.1	Nitrogen, Ammonia	EPA	EET DEN
SM 2320B	Alkalinity	SM	EET SPK
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET SPK
SM 5310B	Organic Carbon, Total (TOC)	SM	EET DEN
1633	Solid-Phase Extraction (SPE)	EPA	EET SAC
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET SEA
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET SPK
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET SEA
5030C	Purge and Trap	SW846	EET SPK
7470A	Preparation, Mercury	SW846	EET SPK
FILTRATION	Sample Filtration	None	EET SEA
FILTRATION	Sample Filtration	None	EET SPK

Protocol References:

EPA = US Environmental Protection Agency
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600
EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310
EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone (509) 924-9200 Phone (509) 924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information	Sampler: Morea Schofield	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-9177-2634 1
Client Contact: Justin Orr / Sydney Bronson	Phone: 509.999.6413	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: GeoEngineers Inc	PWSID:			Job #:
Address: 523 East Second Ave	Due Date Requested:			
City: Spokane	TAT Requested (days): STAT			
State, Zip: WA, 99202	Compliance Project: Δ Yes Δ No			
Phone:	PO #: Purchase Order not required			
Email: jorr@geoengineers.com / sbronson@geo-engineers.com	WO #:			
Project Name: Marshall Landfill	Project #: ~~50002009~~ 0504-104-01			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A HCL, B NaOH, C Zn Acetate, D Nitric Acid, E NaHSO4, F MeOH, G Amchlor, H Ascorbic Acid, I Ice, J DI Water, K EDTA, L EDA, M Hexane, N None, O AsNaO2, P Na2O4S, Q Na2SO3, R Na2S2O3, S H2SO4, T TSP Dodecahydrate, U Acetone, V MCAA, W pH 4-5, Y Trizma, Z other (specify), Other:

Special Instructions/Note: Dissolved metals lab filtered

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2320B Alk/Bicarb, 2540C TDS, 300-Cl, NO3, NO2 & SO4	6020B Total As, Cd, Fe, Mn, Pb & Zn	6020B Diss As, Cd, Fe, Mn, Pb & Zn	6010D Total K, Mg & Na, 7470A Total Hg	6010D Dissolved Ca & Mg, 7470 Dissolved Hg	350.1 Ammonia	SM5310B TOC	B	8260D - Standard Analyte List PCE & 1,1-TCA	8270E Semivolatiles, Standard list 1,4-Dioxane	N	EPA 1633	Total Number of containers
			Preservation Code:				N	D	N	D	N	S	S		A	N	N	N	
MW-12A-032524	3.25.24	1306	G	Water			X	X	X	X	X	X	X		X	X			13
MW-15-032524	3.25.24	1140	G	Water														X	3
MW-2A-032624	3.26.24	1125	G	Water			X	X	X	X	X	X	X		X	X		X	10
MW-8B-032624	3.26.24	1235	G	Water														X	3
MW-9A-032624	3.26.24	1340	G	Water														X	3
MW-16-032624	3.26.24	1436	G	Water														X	3
MW-7B-032724	3.27.24	0925	G	Water			X	X	X	X	X	X	X		X	X		X	10
MW-5A-032724	3.27.24	1045	G	W			X	X	X	X	X	X	X		X	X		X	9
DUP-032724	3.27.24	1200	G	W			X	X	X	X	X	X	X		X	X		X	10
EB-032524	3.25.24	1106	G	W														X	3
TB-032624	3/26/24	x	G	W											X				1

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee m ☐ Return To Client — *than 1 month)* — *Months*

Deliverable Requested: I II III IV Other (specify)

Special Instructions/QC R

590-23966 Chain of Custody

Empty Kit Relinquished by:	Date:	Time:		
Relinquished by: Morea Schofield	Date/Time: 3.28.24 07:37	Company: GEI	Received by:	Company
Relinquished by:	Date/Time:	Company	Received by:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 8/28/24 8:37 Company: EFSPO

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.

Cooler Temperature(s) °C and Other Remarks: 5.9 aw + 0.5 ow + 2.3 aw IR Gun

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-8933.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Washington		Job #: 590-23966-1
Address: 4955 Yarrow Street, ,	Due Date Requested: 4/10/2024			
City: Arvada	TAT Requested (days):			
State, Zip: CO, 80002				
Phone: 303-736-0100(Tel) 303-431-7171(Fax)	PO #:			
Email:	WO #:			
Project Name: Marshall Landfill/0504-104-01	Project #: 59002669			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	350.1	SM5310B/ (MOD) TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
MW-12A-032524 (590-23966-1)	3/25/24	13:06 Pacific		Water			X	X	2	
MW-2A-032524 (590-23966-3)	3/26/24	11:25 Pacific		Water			X	X	2	
MW-7B-032524 (590-23966-7)	3/27/24	09:25 Pacific		Water			X	X	2	
MW-5A-032524 (590-23966-8)	3/27/24	10:45 Pacific		Water			X	X	2	
DUP-032724 (590-23966-9)	3/27/24	12:00 Pacific		Water			X	X	2	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	3/29/24 15:30	EET SPO		03/30/24 0935	EETDEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:
		0.5, CF-1, IK-14

Ver: 06/08/2021

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-8931.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Northwest,		Accreditations Required (See note): State Program - Washington		Job #: 590-23966-1
Address: 5755 8th Street East, ,	Due Date Requested: 4/10/2024			
City: Tacoma	TAT Requested (days):			
State, Zip: WA, 98424				
Phone: 253-922-2310(Tel)	PO #:			
Email:	WO #:			
Project Name: Marshall Landfill/0504-104-01	Project #: 59002669			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020B/3005A (MOD) Total As, Cd, Fe, Mn, Pb & Zn	6020B/FILTRATION (MOD) Diss As, Cd, Fe, Mn, Pb & Zn	8270C_SIM_MS_ID/3510C_LVI 1,4-Dioxane	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-12A-032524 (590-23966-1)	3/25/24	13:06 Pacific		Water			X	X	X	4	
MW-2A-032524 (590-23966-3)	3/26/24	11:25 Pacific		Water			X	X	X	4	
MW-7B-032524 (590-23966-7)	3/27/24	09:25 Pacific		Water			X	X	X	4	
MW-5A-032524 (590-23966-8)	3/27/24	10:45 Pacific		Water			X	X	X	4	
DUP-032724 (590-23966-9)	3/27/24	12:00 Pacific		Water			X	X	X	4	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		3/28/24 15:07	EET SO		3/29/24 0945	EETN
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: IR11 0.9/0.8

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-23966-1

Login Number: 23966
List Number: 1
Creator: Morris, Mackenzie 1

List Source: Eurofins Spokane

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-23966-1

Login Number: 23966
List Number: 4
Creator: Little, Matthew L

List Source: Eurofins Denver
List Creation: 03/30/24 11:39 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-23966-1

Login Number: 23966
List Number: 3
Creator: Simmons, Jason C

List Source: Eurofins Sacramento
List Creation: 03/29/24 02:32 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	2261029
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.5c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-23966-1

Login Number: 23966
List Number: 2
Creator: Harp, Cordelia

List Source: Eurofins Seattle
List Creation: 03/29/24 10:47 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	IR 11 0.9/0.8 c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: GeoEngineers Inc
Job ID: 590-23966-1
Project/Site: Marshall Landfill/0504-104-01

Method: 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)
		DXE
Lab Sample ID	Client Sample ID	(40-140)
590-23966-1	MW-12A-032524	38 *5-
590-23966-3	MW-2A-032524	41
590-23966-7	MW-7B-032524	35 *5-
590-23966-8	MW-5A-032524	36 *5-
590-23966-9	DUP-032724	35 *5-
LCS 580-455296/2-A	Lab Control Sample	49
LCSD 580-455296/3-A	Lab Control Sample Dup	45
MB 580-455296/1-A	Method Blank	45

Surrogate Legend

DXE = 1,4-Dioxane-d8

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA	PFPeA	13C5PHA	C4PFHA	C8PFOA	C9PFNA	C6PFDA	13C7PUA
Lab Sample ID	Client Sample ID	(5-130)	(40-130)	(40-130)	(40-130)	(40-130)	(40-130)	(40-130)	(30-130)
590-23966-2	MW-15A-032524	69.1	78.0	84.4	77.2	73.7	73.7	70.2	60.6
590-23966-3	MW-2A-032524	69.4	84.3	82.8	76.2	77.2	70.6	60.4	59.2
590-23966-3 - RA	MW-2A-032524								
590-23966-4	MW-8A-032524	66.9	77.8	83.3	74.1	74.0	73.5	62.6	56.4
590-23966-5	MW-9A-032524	69.5	81.8	84.2	81.3	76.9	78.2	64.5	63.9
590-23966-6	MW-16A-032524	66.5	79.9	80.7	71.5	71.4	72.2	64.3	54.9
590-23966-7	MW-7B-032524	65.5	76.6	80.6	73.0	69.5	73.2	51.0	50.3
590-23966-8	MW-5A-032524	67.9	80.1	82.2	74.0	73.8	69.1	55.3	55.3
590-23966-9	DUP-032724	66.6	78.1	85.5	77.8	71.2	77.0	68.1	70.1
590-23966-10	FB-032524	66.1	73.4	78.9	73.7	68.7	68.0	61.8	59.5
LCS 320-752267/3-A	Lab Control Sample	69.7	82.5	88.3	79.0	74.3	76.7	65.5	68.1
LLCS 320-752267/2-A	Lab Control Sample	69.4	82.5	87.3	83.9	71.9	78.9	67.7	67.5
MB 320-752267/1-A	Method Blank	72.2	84.0	86.6	80.5	79.9	73.4	66.5	67.2

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFDoA	PFTDA	C3PFBS	C3PFHS	C8PFOS	PFOSA	d3NMFOS	d5NEFOS
Lab Sample ID	Client Sample ID	(10-130)	(10-130)	(40-135)	(40-130)	(40-130)	(40-130)	(40-170)	(25-135)
590-23966-2	MW-15A-032524	59.2	53.3	70.9	69.7	76.6	66.6	80.4	85.3
590-23966-3	MW-2A-032524	51.2	50.7	71.8	67.5	75.5	69.8	77.4	77.3
590-23966-3 - RA	MW-2A-032524								
590-23966-4	MW-8A-032524	51.3	51.3	70.0	63.4	72.5	66.7	71.1	72.3
590-23966-5	MW-9A-032524	54.2	51.6	74.5	68.9	77.6	69.6	74.8	77.9
590-23966-6	MW-16A-032524	50.0	49.2	71.5	64.6	74.8	66.5	66.7	73.9
590-23966-7	MW-7B-032524	46.4	48.7	69.4	65.9	72.4	64.5	70.9	71.3
590-23966-8	MW-5A-032524	47.3	47.6	73.2	67.6	74.2	68.6	69.4	71.9
590-23966-9	DUP-032724	58.5	59.7	68.9	66.7	76.6	69.0	74.7	75.2
590-23966-10	FB-032524	49.8	50.3	67.8	64.1	72.9	62.0	72.2	68.8
LCS 320-752267/3-A	Lab Control Sample	56.3	63.3	70.0	70.1	78.0	67.3	77.5	78.6
LLCS 320-752267/2-A	Lab Control Sample	57.1	60.9	71.0	67.9	78.3	62.9	71.2	80.8
MB 320-752267/1-A	Method Blank	60.5	57.4	74.2	70.3	84.8	70.3	76.6	80.9

Isotope Dilution Summary

Client: GeoEngineers Inc
Job ID: 590-23966-1
Project/Site: Marshall Landfill/0504-104-01

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Matrix: Water
Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M242FTS (40-200)	M262FTS (40-200)	M282FTS (40-300)	HFPODA (40-130)	NMFM (10-130)	NEFM (10-130)	d5NPFSA (10-130)	d3NMFSA (10-130)
590-23966-2	MW-15A-032524	88.6	77.5	79.7	83.8	63.2	67.4	73.1	68.2
590-23966-3	MW-2A-032524	85.6		98.3	85.2	63.7	67.8	70.5	65.0
590-23966-3 - RA	MW-2A-032524		76.9						
590-23966-4	MW-8A-032524	81.3	72.0	78.2	82.3	61.0	62.7	66.2	61.6
590-23966-5	MW-9A-032524	91.1	79.3	94.7	83.4	67.9	69.3	71.0	65.1
590-23966-6	MW-16A-032524	86.1	72.1	88.6	80.1	61.7	62.5	66.0	62.8
590-23966-7	MW-7B-032524	85.0	71.0	86.6	79.0	48.8	56.6	67.3	59.2
590-23966-8	MW-5A-032524	86.9	75.3	92.7	84.3	68.8	70.8	71.6	67.0
590-23966-9	DUP-032724	82.2	72.3	95.0	83.4	72.2	73.9	78.1	70.5
590-23966-10	FB-032524	80.4	74.1	83.8	82.8	63.2	64.3	69.2	59.5
LCS 320-752267/3-A	Lab Control Sample	70.7	65.4	78.7	87.3	72.1	75.5	69.0	64.8
LLCS 320-752267/2-A	Lab Control Sample	75.0	69.6	91.3	89.4	67.1	71.0	74.1	65.8
MB 320-752267/1-A	Method Blank	81.9	73.1	86.3	87.2	73.1	77.2	80.4	70.5

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
13C5PHA = 13C5 PFHxA
C4PFHA = 13C4 PFHpA
C8PFOA = 13C8 PFOA
C9PFNA = 13C9 PFNA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
C8PFOS = 13C8 PFOS
PFOSA = 13C8 PFOSA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
M242FTS = 13C2 4:2 FTS
M262FTS = 13C2 6:2 FTS
M282FTS = 13C2 8:2 FTS
HFPODA = 13C3 HFPO-DA
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
d5NPFSA = d5-NEtPFOSA
d3NMFSA = d3-NMePFOSA

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ANALYTICAL REPORT

PREPARED FOR

Attn: Justin Orr
GeoEngineers Inc
523 East Second Ave
Spokane, Washington 99202

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JOB DESCRIPTION

Marshall Landfill

JOB NUMBER

590-25435-1

Eurofins Spokane
11922 East 1st Ave
Spokane WA 99206

See page two for job notes and contact information.

my EOL

Job Notes

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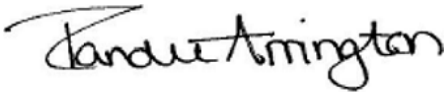
Authorization



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Job Narrative
590-25435-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Revision
The report being provided is a revision of the original report sent on 7/10/2024. The report (revision 1) is being revised due to: revised the following sample per the clients request:

MW-8B-061824 revised to MW-8A-061824 (590-25435-2).

Receipt
The samples were received on 6/18/2024 4:27 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.4°C.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

LCMS
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

PFAS
Method 1633: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-775603.

Method 1633: The following samples in preparation batch 320-775603 were yellow in color following extraction. MW-9A-061824 (590-25435-1)

Method 1633: The "I" qualifier means the transition mass ratio for the indicated analyte was outside the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty. However, analyst judgment was used to positively identify the analyte: MW-9A-061824 (590-25435-1).

Method 1633: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 320-777242.

Method 1633: The following samples in preparation batch 320-777242 were light green in color following extraction. MW-9A-061824 (590-25435-1)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
Method 6010D - Dissolved: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 590-48117 and 590-48188 and analytical batch 590-48207 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
Method 2320B: The method blank for analytical batch 590-48087 contained Alkalinity and Bicarbonate Alkalinity as CaCO3 above the method detection limit (MDL). Associated samples were not re-analyzed because the method blank results were less than the

reporting limit (RL).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Sample Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25435-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-25435-1	MW-9A-061824	Water	06/18/24 13:25	06/18/24 16:27
590-25435-2	MW-8A-061824	Water	06/18/24 14:40	06/18/24 16:27

Definitions/Glossary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25435-1

Qualifiers

LCMS

Qualifier	Qualifier Description
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25435-1

Client Sample ID: MW-9A-061824

Date Collected: 06/18/24 13:25
Date Received: 06/18/24 16:27

Lab Sample ID: 590-25435-1

Matrix: Water

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**57**		0.80	0.42	mg/L			06/19/24 17:28	1
Nitrate as N	ND		0.20	0.057	mg/L			06/19/24 17:28	1
Nitrite as N	ND		0.20	0.069	mg/L			06/19/24 17:28	1
Sulfate	**12**		0.50	0.13	mg/L			06/20/24 14:45	1

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**20**		6.7	1.7	ng/L		06/29/24 08:01	07/05/24 00:29	1
Perfluoropentanoic acid (PFPeA)	**35**		3.3	0.84	ng/L		06/29/24 08:01	07/05/24 00:29	1
Perfluorohexanoic acid (PFHxA)	**24**		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:29	1
Perfluoroheptanoic acid (PFHpA)	**5.9**		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:29	1
Perfluorooctanoic acid (PFOA)	**13**		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:29	1
Perfluorononanoic acid (PFNA)	**0.56**	**J**	1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:29	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:29	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:29	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:29	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:29	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:29	1
Perfluorobutanesulfonic acid (PFBS)	**7.1**		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:29	1
Perfluoropentanesulfonic acid (PFPeS)	**0.74**	**J**	1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:29	1
Perfluorohexanesulfonic acid (PFHxS)	**6.7**		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:29	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:29	1
Perfluorooctanesulfonic acid (PFOS)	**13**	**I**	1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:29	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:29	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:29	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:29	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/05/24 00:29	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/05/24 00:29	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/05/24 00:29	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:29	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:29	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:29	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:29	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:29	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		17	4.2	ng/L		06/29/24 08:01	07/05/24 00:29	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		17	4.2	ng/L		06/29/24 08:01	07/05/24 00:29	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/05/24 00:29	1

Client Sample ID: MW-9A-061824
Date Collected: 06/18/24 13:25
Date Received: 06/18/24 16:27

Lab Sample ID: 590-25435-1
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/05/24 00:29	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		3.3	0.84	ng/L		06/29/24 08:01	07/05/24 00:29	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		3.3	0.84	ng/L		06/29/24 08:01	07/05/24 00:29	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		3.3	0.84	ng/L		06/29/24 08:01	07/05/24 00:29	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/05/24 00:29	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		3.3	0.84	ng/L		06/29/24 08:01	07/05/24 00:29	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		8.4	2.1	ng/L		06/29/24 08:01	07/05/24 00:29	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		42	10	ng/L		06/29/24 08:01	07/05/24 00:29	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		42	10	ng/L		06/29/24 08:01	07/05/24 00:29	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*86.9*		*5 - 130*	*06/29/24 08:01*	*07/05/24 00:29*	*1*
13C5 PFPeA	*71.4*		*40 - 130*	*06/29/24 08:01*	*07/05/24 00:29*	*1*
13C5 PFHxA	*80.0*		*40 - 130*	*06/29/24 08:01*	*07/05/24 00:29*	*1*
13C4 PFHpA	*80.3*		*40 - 130*	*06/29/24 08:01*	*07/05/24 00:29*	*1*
13C8 PFOA	*86.9*		*40 - 130*	*06/29/24 08:01*	*07/05/24 00:29*	*1*
13C9 PFNA	*93.0*		*40 - 130*	*06/29/24 08:01*	*07/05/24 00:29*	*1*
13C6 PFDA	*91.2*		*40 - 130*	*06/29/24 08:01*	*07/05/24 00:29*	*1*
13C7 PFUnA	*73.5*		*30 - 130*	*06/29/24 08:01*	*07/05/24 00:29*	*1*
13C2 PFDoA	*72.3*		*10 - 130*	*06/29/24 08:01*	*07/05/24 00:29*	*1*
13C2 PFTeDA	*70.4*		*10 - 130*	*06/29/24 08:01*	*07/05/24 00:29*	*1*
13C3 PFBS	*83.8*		*40 - 135*	*06/29/24 08:01*	*07/05/24 00:29*	*1*
13C3 PFHxS	*78.7*		*40 - 130*	*06/29/24 08:01*	*07/05/24 00:29*	*1*
13C8 PFOS	*79.2*		*40 - 130*	*06/29/24 08:01*	*07/05/24 00:29*	*1*
13C8 PFOSA	*87.1*		*40 - 130*	*06/29/24 08:01*	*07/05/24 00:29*	*1*
d3-NMeFOSAA	*78.3*		*40 - 170*	*06/29/24 08:01*	*07/05/24 00:29*	*1*
d5-NEtFOSAA	*78.8*		*25 - 135*	*06/29/24 08:01*	*07/05/24 00:29*	*1*
13C2 4:2 FTS	*89.0*		*40 - 200*	*06/29/24 08:01*	*07/05/24 00:29*	*1*
13C2 6:2 FTS	*88.4*		*40 - 200*	*06/29/24 08:01*	*07/05/24 00:29*	*1*
13C2 8:2 FTS	*75.9*		*40 - 300*	*06/29/24 08:01*	*07/05/24 00:29*	*1*
13C3 HFPO-DA	*84.8*		*40 - 130*	*06/29/24 08:01*	*07/05/24 00:29*	*1*
d7-N-MeFOSE-M	*65.6*		*10 - 130*	*06/29/24 08:01*	*07/05/24 00:29*	*1*
d9-N-EtFOSE-M	*61.1*		*10 - 130*	*06/29/24 08:01*	*07/05/24 00:29*	*1*
d5-NEtPFOSA	*55.3*		*10 - 130*	*06/29/24 08:01*	*07/05/24 00:29*	*1*
d3-NMePFOSA	*56.4*		*10 - 130*	*06/29/24 08:01*	*07/05/24 00:29*	*1*

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		6.7	1.7	ng/L		07/08/24 05:18	07/09/24 10:58	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*83.7*		*40 - 130*	*07/08/24 05:18*	*07/09/24 10:58*	*1*

Client Sample ID: MW-9A-061824

Lab Sample ID: 590-25435-1

Date Collected: 06/18/24 13:25

Matrix: Water

Date Received: 06/18/24 16:27

Method: Lab SOP PPCP NEG - Pharmaceuticals and Personal Care Products (LC/MS/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acesulfame K	0.45		0.020	0.0020	ug/L			06/25/24 03:43	1

Method: Lab SOP PPCP NEG - Pharmaceuticals and Personal Care Products (LC/MS/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sucralose	12		1.0	0.14	ug/L			06/25/24 15:24	10

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	15		0.50	0.13	mg/L		06/27/24 10:32	07/02/24 12:22	1
Potassium	6.8		2.0	0.29	mg/L		06/27/24 10:32	07/02/24 12:22	1
Sodium	41		2.0	0.20	mg/L		06/27/24 10:32	07/02/24 12:22	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	31	F1	1.0	0.20	mg/L		07/02/24 11:12	07/02/24 13:14	1
Magnesium	13		0.50	0.13	mg/L		07/02/24 11:12	07/02/24 13:14	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.50	0.067	mg/L		06/25/24 15:33	06/26/24 12:42	5
Manganese	ND		0.010	0.0023	mg/L		06/25/24 15:33	06/26/24 12:42	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	0.068	J	0.10	0.029	mg/L			06/21/24 11:51	1
Alkalinity (SM 2320B)	180	B	20	5.0	mg/L			06/26/24 09:37	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	180	B	20	5.0	mg/L			06/26/24 09:37	1
Total Dissolved Solids (SM 2540C)	280		25	13	mg/L			06/24/24 15:52	1
Total Organic Carbon - Duplicates (SM 5310B)	5.3		1.0	0.35	mg/L			06/25/24 04:52	1

Client Sample ID: MW-8A-061824

Lab Sample ID: 590-25435-2

Date Collected: 06/18/24 14:40

Matrix: Water

Date Received: 06/18/24 16:27

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	13		0.80	0.42	mg/L			06/19/24 17:38	1
Nitrate as N	2.1		0.20	0.057	mg/L			06/19/24 17:38	1
Nitrite as N	ND		0.20	0.069	mg/L			06/19/24 17:38	1
Sulfate	12		0.50	0.13	mg/L			06/20/24 14:55	1

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	6.1	J	6.7	1.7	ng/L		06/29/24 08:01	07/05/24 00:49	1
Perfluoropentanoic acid (PFPeA)	10		3.4	0.84	ng/L		06/29/24 08:01	07/05/24 00:49	1
Perfluorohexanoic acid (PFHxA)	4.1		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:49	1
Perfluoroheptanoic acid (PFHpA)	1.7		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:49	1
Perfluorooctanoic acid (PFOA)	3.6		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:49	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:49	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:49	1

Client Sample ID: MW-8A-061824
Date Collected: 06/18/24 14:40
Date Received: 06/18/24 16:27

Lab Sample ID: 590-25435-2
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:49	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:49	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:49	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:49	1
Perfluorobutanesulfonic acid (PFBS)	**1.6**	**J**	1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:49	1
Perfluoropentanesulfonic acid (PFPeS)	**0.63**	**J**	1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:49	1
Perfluorohexanesulfonic acid (PFHxS)	**2.6**		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:49	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:49	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:49	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:49	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:49	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:49	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/05/24 00:49	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/05/24 00:49	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/05/24 00:49	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:49	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:49	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:49	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:49	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 00:49	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		17	4.2	ng/L		06/29/24 08:01	07/05/24 00:49	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		17	4.2	ng/L		06/29/24 08:01	07/05/24 00:49	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/05/24 00:49	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/05/24 00:49	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		3.4	0.84	ng/L		06/29/24 08:01	07/05/24 00:49	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		3.4	0.84	ng/L		06/29/24 08:01	07/05/24 00:49	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		3.4	0.84	ng/L		06/29/24 08:01	07/05/24 00:49	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/05/24 00:49	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		3.4	0.84	ng/L		06/29/24 08:01	07/05/24 00:49	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		8.4	2.1	ng/L		06/29/24 08:01	07/05/24 00:49	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		42	10	ng/L		06/29/24 08:01	07/05/24 00:49	1

Client Sample ID: MW-8A-061824
Date Collected: 06/18/24 14:40
Date Received: 06/18/24 16:27

Lab Sample ID: 590-25435-2
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		42	10	ng/L		06/29/24 08:01	07/05/24 00:49	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*96.6*		*5 - 130*	*06/29/24 08:01*	*07/05/24 00:49*	*1*
13C5 PFPeA	*74.0*		*40 - 130*	*06/29/24 08:01*	*07/05/24 00:49*	*1*
13C5 PFHxA	*90.7*		*40 - 130*	*06/29/24 08:01*	*07/05/24 00:49*	*1*
13C4 PFHpA	*87.4*		*40 - 130*	*06/29/24 08:01*	*07/05/24 00:49*	*1*
13C8 PFOA	*90.9*		*40 - 130*	*06/29/24 08:01*	*07/05/24 00:49*	*1*
13C9 PFNA	*96.2*		*40 - 130*	*06/29/24 08:01*	*07/05/24 00:49*	*1*
13C6 PFDA	*107*		*40 - 130*	*06/29/24 08:01*	*07/05/24 00:49*	*1*
13C7 PFUnA	*88.5*		*30 - 130*	*06/29/24 08:01*	*07/05/24 00:49*	*1*
13C2 PFDoA	*95.1*		*10 - 130*	*06/29/24 08:01*	*07/05/24 00:49*	*1*
13C2 PFTeDA	*89.9*		*10 - 130*	*06/29/24 08:01*	*07/05/24 00:49*	*1*
13C3 PFBS	*85.2*		*40 - 135*	*06/29/24 08:01*	*07/05/24 00:49*	*1*
13C3 PFHxS	*78.4*		*40 - 130*	*06/29/24 08:01*	*07/05/24 00:49*	*1*
13C8 PFOS	*90.6*		*40 - 130*	*06/29/24 08:01*	*07/05/24 00:49*	*1*
13C8 PFOSA	*96.0*		*40 - 130*	*06/29/24 08:01*	*07/05/24 00:49*	*1*
d3-NMeFOSAA	*91.4*		*40 - 170*	*06/29/24 08:01*	*07/05/24 00:49*	*1*
d5-NEtFOSAA	*88.8*		*25 - 135*	*06/29/24 08:01*	*07/05/24 00:49*	*1*
13C2 4:2 FTS	*92.3*		*40 - 200*	*06/29/24 08:01*	*07/05/24 00:49*	*1*
13C2 6:2 FTS	*95.6*		*40 - 200*	*06/29/24 08:01*	*07/05/24 00:49*	*1*
13C2 8:2 FTS	*86.7*		*40 - 300*	*06/29/24 08:01*	*07/05/24 00:49*	*1*
13C3 HFPO-DA	*86.1*		*40 - 130*	*06/29/24 08:01*	*07/05/24 00:49*	*1*
d7-N-MeFOSE-M	*81.1*		*10 - 130*	*06/29/24 08:01*	*07/05/24 00:49*	*1*
d9-N-EtFOSE-M	*75.8*		*10 - 130*	*06/29/24 08:01*	*07/05/24 00:49*	*1*
d5-NEtPFOSA	*70.5*		*10 - 130*	*06/29/24 08:01*	*07/05/24 00:49*	*1*
d3-NMePFOSA	*69.0*		*10 - 130*	*06/29/24 08:01*	*07/05/24 00:49*	*1*

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		6.8	1.7	ng/L		07/08/24 05:18	07/09/24 11:19	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*84.1*		*40 - 130*	*07/08/24 05:18*	*07/09/24 11:19*	*1*

Method: Lab SOP PPCP NEG - Pharmaceuticals and Personal Care Products (LC/MS/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acesulfame K	**0.12**		0.020	0.0020	ug/L			06/25/24 04:11	1
Sucralose	**0.40**		0.10	0.014	ug/L			06/25/24 04:11	1

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**14**		0.50	0.13	mg/L		06/27/24 10:32	07/02/24 12:46	1
Potassium	**2.1**		2.0	0.29	mg/L		06/27/24 10:32	07/02/24 12:46	1
Sodium	**9.7**		2.0	0.20	mg/L		06/27/24 10:32	07/02/24 12:46	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**40**		1.0	0.20	mg/L		07/02/24 11:12	07/02/24 13:39	1
Magnesium	**13**		0.50	0.13	mg/L		07/02/24 11:12	07/02/24 13:39	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25435-1

Client Sample ID: MW-8A-061824

Date Collected: 06/18/24 14:40
Date Received: 06/18/24 16:27

Lab Sample ID: 590-25435-2

Matrix: Water

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.50	0.067	mg/L		06/25/24 15:33	06/26/24 12:38	5
Manganese	ND		0.010	0.0023	mg/L		06/25/24 15:33	06/26/24 12:38	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	0.036	J	0.10	0.029	mg/L			06/21/24 11:53	1
Alkalinity (SM 2320B)	180	B	20	5.0	mg/L			06/26/24 09:37	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	180	B	20	5.0	mg/L			06/26/24 09:37	1
Total Dissolved Solids (SM 2540C)	220		25	13	mg/L			06/24/24 15:52	1
Total Organic Carbon - Duplicates (SM 5310B)	0.78	J	1.0	0.35	mg/L			06/25/24 05:06	1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 590-47983/1003
Matrix: Water
Analysis Batch: 47983

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20	0.057	mg/L			06/19/24 14:45	1
Nitrite as N	ND		0.20	0.069	mg/L			06/19/24 14:45	1

Lab Sample ID: LCS 590-47983/1004
Matrix: Water
Analysis Batch: 47983

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	5.00	4.80		mg/L		96	90 - 110
Nitrite as N	5.00	4.71		mg/L		94	90 - 110

Lab Sample ID: MB 590-47984/1003
Matrix: Water
Analysis Batch: 47984

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.80	0.42	mg/L			06/19/24 14:45	1

Lab Sample ID: LCS 590-47984/1004
Matrix: Water
Analysis Batch: 47984

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	12.5	11.8		mg/L		94	90 - 110

Lab Sample ID: MB 590-47992/1015
Matrix: Water
Analysis Batch: 47992

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.80	0.42	mg/L			06/20/24 10:57	1
Sulfate	ND		0.50	0.13	mg/L			06/20/24 10:57	1

Lab Sample ID: LCS 590-47992/1016
Matrix: Water
Analysis Batch: 47992

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	12.5	12.7		mg/L		101	90 - 110
Sulfate	12.5	12.1		mg/L		97	90 - 110

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Lab Sample ID: MB 320-775603/1-A
Matrix: Water
Analysis Batch: 776597

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 775603

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		8.0	2.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluoropentanoic acid (PFPeA)	ND		4.0	1.0	ng/L		06/29/24 08:01	07/04/24 22:05	1

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: MB 320-775603/1-A
Matrix: Water
Analysis Batch: 776597

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 775603

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorotetradecanoic acid (PFTeDA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		8.0	2.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		8.0	2.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		8.0	2.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorooctanesulfonamide (PFOSA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		20	5.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		20	5.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		8.0	2.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		8.0	2.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		4.0	1.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		4.0	1.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		4.0	1.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		8.0	2.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		4.0	1.0	ng/L		06/29/24 08:01	07/04/24 22:05	1

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: MB 320-775603/1-A
Matrix: Water
Analysis Batch: 776597

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 775603

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		10	2.5	ng/L		06/29/24 08:01	07/04/24 22:05	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		50	13	ng/L		06/29/24 08:01	07/04/24 22:05	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		50	13	ng/L		06/29/24 08:01	07/04/24 22:05	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*94.9*		*5 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C5 PFPeA	*79.7*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C5 PFHxA	*88.2*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C4 PFHpA	*97.2*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C8 PFOA	*90.2*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C9 PFNA	*96.7*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C6 PFDA	*107*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C7 PFUnA	*93.5*		*30 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C2 PFDoA	*102*		*10 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C2 PFTeDA	*96.5*		*10 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C3 PFBS	*91.3*		*40 - 135*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C3 PFHxS	*82.8*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C8 PFOS	*89.7*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C8 PFOSA	*92.9*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
d3-NMeFOSAA	*100*		*40 - 170*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
d5-NEtFOSAA	*96.2*		*25 - 135*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C2 4:2 FTS	*103*		*40 - 200*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C2 6:2 FTS	*101*		*40 - 200*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C2 8:2 FTS	*101*		*40 - 300*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C3 HFPO-DA	*94.8*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
d7-N-MeFOSE-M	*84.9*		*10 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
d9-N-EtFOSE-M	*81.0*		*10 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
d5-NEtPFOSA	*73.7*		*10 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
d3-NMePFOSA	*71.7*		*10 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*

Lab Sample ID: LCS 320-775603/3-A
Matrix: Water
Analysis Batch: 776597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 775603

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	128	121		ng/L		94	70 - 140
Perfluoropentanoic acid (PFPeA)	64.0	58.9		ng/L		92	65 - 135
Perfluorohexanoic acid (PFHxA)	32.0	30.8		ng/L		96	70 - 145
Perfluoroheptanoic acid (PFHpA)	32.0	29.9		ng/L		94	70 - 150
Perfluorooctanoic acid (PFOA)	32.0	29.7		ng/L		93	70 - 150
Perfluorononanoic acid (PFNA)	32.0	31.8		ng/L		99	70 - 150
Perfluorodecanoic acid (PFDA)	32.0	29.1		ng/L		91	70 - 140
Perfluoroundecanoic acid (PFUnA)	32.0	31.0		ng/L		97	70 - 145
Perfluorododecanoic acid (PFDoA)	32.0	28.2		ng/L		88	70 - 140

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-775603/3-A
Matrix: Water
Analysis Batch: 776597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 775603

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorotridecanoic acid (PFTrDA)	32.0	27.9		ng/L		87	65 - 140
Perfluorotetradecanoic acid (PFTeDA)	32.0	29.2		ng/L		91	60 - 140
Perfluorobutanesulfonic acid (PFBS)	28.4	27.4		ng/L		97	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	30.1	29.5		ng/L		98	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	29.2	27.2		ng/L		93	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	30.5	26.9		ng/L		88	70 - 150
Perfluorooctanesulfonic acid (PFOS)	29.8	27.4		ng/L		92	55 - 150
Perfluorononanesulfonic acid (PFNS)	30.8	28.7		ng/L		93	65 - 145
Perfluorodecanesulfonic acid (PFDS)	30.8	28.7		ng/L		93	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	31.0	25.8		ng/L		83	50 - 145
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	113		ng/L		94	70 - 145
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	122	119		ng/L		98	65 - 155
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	123	125		ng/L		101	60 - 150
Perfluorooctanesulfonamide (PFOSA)	32.0	24.7		ng/L		77	70 - 145
N-methylperfluorooctane sulfonamide (NMeFOSA)	32.0	32.0		ng/L		100	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA)	32.0	31.2		ng/L		97	65 - 145
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	32.0	30.0		ng/L		94	50 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	32.0	28.7		ng/L		90	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	320	291		ng/L		91	70 - 145
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	320	286		ng/L		89	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	128	117		ng/L		91	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	121	110		ng/L		91	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	64.0	60.0		ng/L		94	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	64.0	64.8		ng/L		101	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	64.0	64.7		ng/L		101	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	121	100		ng/L		83	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	57.1	52.8		ng/L		93	70 - 140

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-775603/3-A
Matrix: Water
Analysis Batch: 776597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 775603

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
3-Perfluoropropylpropanoic acid (3:3 FTCA)	160	154		ng/L		96	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	799	725		ng/L		91	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	799	708		ng/L		89	50 - 145

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*96.0*		*5 - 130*
13C5 PFPeA	*78.8*		*40 - 130*
13C5 PFHxA	*89.2*		*40 - 130*
13C4 PFHpA	*92.4*		*40 - 130*
13C8 PFOA	*90.6*		*40 - 130*
13C9 PFNA	*101*		*40 - 130*
13C6 PFDA	*103*		*40 - 130*
13C7 PFUnA	*94.2*		*30 - 130*
13C2 PFDoA	*101*		*10 - 130*
13C2 PFTeDA	*93.1*		*10 - 130*
13C3 PFBS	*89.9*		*40 - 135*
13C3 PFHxS	*85.2*		*40 - 130*
13C8 PFOS	*97.8*		*40 - 130*
13C8 PFOSA	*94.3*		*40 - 130*
d3-NMeFOSAA	*101*		*40 - 170*
d5-NEtFOSAA	*99.4*		*25 - 135*
13C2 4:2 FTS	*95.9*		*40 - 200*
13C2 6:2 FTS	*99.5*		*40 - 200*
13C2 8:2 FTS	*97.6*		*40 - 300*
13C3 HFPO-DA	*95.1*		*40 - 130*
d7-N-MeFOSE-M	*86.9*		*10 - 130*
d9-N-EtFOSE-M	*83.1*		*10 - 130*
d5-NEtPFOSA	*75.5*		*10 - 130*
d3-NMePFOSA	*68.5*		*10 - 130*

Lab Sample ID: LLCS 320-775603/2-A
Matrix: Water
Analysis Batch: 776597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 775603

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	12.8	11.3		ng/L		88	70 - 140
Perfluoropentanoic acid (PFPeA)	6.40	5.52		ng/L		86	65 - 135
Perfluorohexanoic acid (PFHxA)	3.20	2.64		ng/L		83	70 - 145
Perfluoroheptanoic acid (PFHpA)	3.20	2.95		ng/L		92	70 - 150
Perfluorooctanoic acid (PFOA)	3.20	2.42		ng/L		76	70 - 150
Perfluorononanoic acid (PFNA)	3.20	3.04		ng/L		95	70 - 150
Perfluorodecanoic acid (PFDA)	3.20	2.60		ng/L		81	70 - 140
Perfluoroundecanoic acid (PFUnA)	3.20	2.98		ng/L		93	70 - 145
Perfluorododecanoic acid (PFDoA)	3.20	2.51		ng/L		78	70 - 140

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-775603/2-A
Matrix: Water
Analysis Batch: 776597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 775603

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorotridecanoic acid (PFTrDA)	3.20	2.59		ng/L		81	65 - 140
Perfluorotetradecanoic acid (PFTeDA)	3.20	2.69		ng/L		84	60 - 140
Perfluorobutanesulfonic acid (PFBS)	2.84	2.49		ng/L		88	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	3.01	2.32		ng/L		77	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	2.92	2.73		ng/L		94	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	3.05	2.27		ng/L		74	70 - 150
Perfluorooctanesulfonic acid (PFOS)	2.98	2.52		ng/L		85	55 - 150
Perfluorononanesulfonic acid (PFNS)	3.08	2.75		ng/L		89	65 - 145
Perfluorodecanesulfonic acid (PFDS)	3.08	2.49		ng/L		81	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	3.10	2.90		ng/L		93	50 - 145
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	12.0	11.2		ng/L		93	70 - 145
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	12.2	11.7		ng/L		96	65 - 155
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	12.3	11.8		ng/L		96	60 - 150
Perfluorooctanesulfonamide (PFOSA)	3.20	2.32		ng/L		72	70 - 145
N-methylperfluorooctane sulfonamide (NMeFOSA)	3.20	2.47		ng/L		77	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA)	3.20	2.54		ng/L		79	65 - 145
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.20	2.71		ng/L		85	50 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	3.20	2.76		ng/L		86	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	32.0	26.1		ng/L		82	70 - 145
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	32.0	25.8		ng/L		81	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	12.8	11.3		ng/L		88	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	12.1	10.4		ng/L		86	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	6.40	5.18		ng/L		81	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	6.40	5.96		ng/L		93	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	6.40	6.02		ng/L		94	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	12.1	9.08		ng/L		75	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	5.71	4.13		ng/L		72	70 - 140

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-775603/2-A
Matrix: Water
Analysis Batch: 776597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 775603

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
3-Perfluoropropylpropanoic acid (3:3 FTCA)	16.0	14.3		ng/L		90	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	79.9	66.3		ng/L		83	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	79.9	65.5		ng/L		82	50 - 145

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C4 PFBA	*90.0*		*5 - 130*
13C5 PFPeA	*76.4*		*40 - 130*
13C5 PFHxA	*87.4*		*40 - 130*
13C4 PFHpA	*88.1*		*40 - 130*
13C8 PFOA	*93.5*		*40 - 130*
13C9 PFNA	*97.6*		*40 - 130*
13C6 PFDA	*103*		*40 - 130*
13C7 PFUnA	*89.7*		*30 - 130*
13C2 PFDoA	*98.5*		*10 - 130*
13C2 PFTeDA	*99.0*		*10 - 130*
13C3 PFBS	*85.9*		*40 - 135*
13C3 PFHxS	*77.6*		*40 - 130*
13C8 PFOS	*90.0*		*40 - 130*
13C8 PFOSA	*93.1*		*40 - 130*
d3-NMeFOSAA	*94.8*		*40 - 170*
d5-NEtFOSAA	*96.4*		*25 - 135*
13C2 4:2 FTS	*88.6*		*40 - 200*
13C2 6:2 FTS	*89.0*		*40 - 200*
13C2 8:2 FTS	*91.5*		*40 - 300*
13C3 HFPO-DA	*91.5*		*40 - 130*
d7-N-MeFOSE-M	*85.7*		*10 - 130*
d9-N-EtFOSE-M	*82.5*		*10 - 130*
d5-NEtPFOSA	*73.0*		*10 - 130*
d3-NMePFOSA	*69.4*		*10 - 130*

Lab Sample ID: MB 320-777242/1-A
Matrix: Water
Analysis Batch: 777673

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 777242

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		8.0	2.0	ng/L		07/08/24 05:18	07/09/24 09:16	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*84.2*		*40 - 130*	*07/08/24 05:18*	*07/09/24 09:16*	*1*

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-777242/3-A
Matrix: Water
Analysis Batch: 777673

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 777242

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)			120	117		ng/L		98	70 - 155		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C3 HFPO-DA	*83.6*		*40 - 130*

Lab Sample ID: LCSD 320-777242/4-A
Matrix: Water
Analysis Batch: 777673

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 777242

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)			120	107		ng/L		90	70 - 155	8	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C3 HFPO-DA	*86.6*		*40 - 130*

Lab Sample ID: LLCS 320-777242/2-A
Matrix: Water
Analysis Batch: 777673

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 777242

Analyte			Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits		
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)			12.0	10.7		ng/L		89	70 - 155		

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C3 HFPO-DA	*87.0*		*40 - 130*

Method: PPCP NEG - Pharmaceuticals and Personal Care Products (LC/MS/MS)

Lab Sample ID: MB 810-103678/10
Matrix: Water
Analysis Batch: 103678

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acesulfame K	ND		0.020	0.0020	ug/L			06/25/24 02:47	1
Sucralose	ND		0.10	0.014	ug/L			06/25/24 02:47	1

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 590-48116/2-A
Matrix: Water
Analysis Batch: 48207

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 48116

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	ND		0.50	0.13	mg/L		06/27/24 10:32	07/02/24 12:18	1
Potassium	ND		2.0	0.29	mg/L		06/27/24 10:32	07/02/24 12:18	1
Sodium	ND		2.0	0.20	mg/L		06/27/24 10:32	07/02/24 12:18	1

Method: 6010D - Metals (ICP)

Lab Sample ID: LCS 590-48116/1-A
Matrix: Water
Analysis Batch: 48207

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 48116

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Magnesium			25.0	22.5		mg/L		90	80 - 120		
Potassium			25.0	22.5		mg/L		90	80 - 135		
Sodium			25.0	26.1		mg/L		104	80 - 154		

Lab Sample ID: 590-25435-1 MS
Matrix: Water
Analysis Batch: 48207

Client Sample ID: MW-9A-061824
Prep Type: Total Recoverable
Prep Batch: 48116

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Magnesium	15		25.0	35.9		mg/L		84	75 - 125		
Potassium	6.8		25.0	28.9		mg/L		88	75 - 125		
Sodium	41		25.0	64.6		mg/L		95	75 - 125		

Lab Sample ID: 590-25435-1 MSD
Matrix: Water
Analysis Batch: 48207

Client Sample ID: MW-9A-061824
Prep Type: Total Recoverable
Prep Batch: 48116

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Magnesium	15		25.0	35.7		mg/L		83	75 - 125	0	20
Potassium	6.8		25.0	28.8		mg/L		88	75 - 125	0	20
Sodium	41		25.0	64.5		mg/L		94	75 - 125	0	20

Lab Sample ID: 590-25435-1 DU
Matrix: Water
Analysis Batch: 48207

Client Sample ID: MW-9A-061824
Prep Type: Total Recoverable
Prep Batch: 48116

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Magnesium	15		14.8		mg/L		0.6	20
Potassium	6.8		6.75		mg/L		0.5	20
Sodium	41		40.9		mg/L		0	20

Lab Sample ID: MB 590-48117/2-B
Matrix: Water
Analysis Batch: 48207

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 48188

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.0	0.20	mg/L		07/02/24 11:12	07/02/24 13:10	1
Magnesium	ND		0.50	0.13	mg/L		07/02/24 11:12	07/02/24 13:10	1

Lab Sample ID: LCS 590-48117/1-B
Matrix: Water
Analysis Batch: 48207

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 48188

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Calcium			25.0	21.7		mg/L		87	80 - 120		
Magnesium			25.0	21.8		mg/L		87	80 - 120		

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 590-25435-1 MS
Matrix: Water
Analysis Batch: 48207

Client Sample ID: MW-9A-061824
Prep Type: Dissolved
Prep Batch: 48188

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	31	F1	25.0	48.9	F1	mg/L		70	75 - 125
Magnesium	13		25.0	32.3		mg/L		77	75 - 125

Lab Sample ID: 590-25435-1 MSD
Matrix: Water
Analysis Batch: 48207

Client Sample ID: MW-9A-061824
Prep Type: Dissolved
Prep Batch: 48188

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	31	F1	25.0	50.7		mg/L		77	75 - 125	4	20
Magnesium	13		25.0	33.5		mg/L		82	75 - 125	4	20

Lab Sample ID: 590-25435-1 DU
Matrix: Water
Analysis Batch: 48207

Client Sample ID: MW-9A-061824
Prep Type: Dissolved
Prep Batch: 48188

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Calcium	31	F1	31.3		mg/L		0.6	20
Magnesium	13		13.0		mg/L		0.6	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 580-463083/11-B
Matrix: Water
Analysis Batch: 463405

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 463243

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.50	0.067	mg/L		06/25/24 15:33	06/26/24 12:13	5
Manganese	ND		0.010	0.0023	mg/L		06/25/24 15:33	06/26/24 12:13	5

Lab Sample ID: LCS 580-463083/12-B
Matrix: Water
Analysis Batch: 463405

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 463243

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Iron	20.0	19.8		mg/L		99	80 - 120
Manganese	1.00	0.978		mg/L		98	80 - 120

Lab Sample ID: LCSD 580-463083/13-B
Matrix: Water
Analysis Batch: 463405

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 463243

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Iron	20.0	20.0		mg/L		100	80 - 120	1	20
Manganese	1.00	0.992		mg/L		99	80 - 120	1	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 280-657963/19
Matrix: Water
Analysis Batch: 657963

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	ND		0.10	0.029	mg/L			06/21/24 11:34	1

Lab Sample ID: LCS 280-657963/20
Matrix: Water
Analysis Batch: 657963

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	2.50	2.47		mg/L		99	90 - 110

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 590-48087/1
Matrix: Water
Analysis Batch: 48087

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.00	J	20	5.0	mg/L			06/26/24 09:37	1
Bicarbonate Alkalinity as CaCO3	5.00	J	20	5.0	mg/L			06/26/24 09:37	1

Lab Sample ID: LCS 590-48087/2
Matrix: Water
Analysis Batch: 48087

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	501	475		mg/L		95	90 - 110

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 590-48060/1
Matrix: Water
Analysis Batch: 48060

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		25	13	mg/L			06/24/24 15:51	1

Lab Sample ID: LCS 590-48060/2
Matrix: Water
Analysis Batch: 48060

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	500	500		mg/L		100	80 - 120

Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 280-658294/36
Matrix: Water
Analysis Batch: 658294

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		1.0	0.35	mg/L			06/24/24 22:53	1

Method: SM 5310B - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: LCS 280-658294/35
Matrix: Water
Analysis Batch: 658294

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Organic Carbon - Duplicates			25.0	25.2		mg/L		101	88 - 112		

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25435-1

Client Sample ID: MW-9A-061824

Date Collected: 06/18/24 13:25
Date Received: 06/18/24 16:27

Lab Sample ID: 590-25435-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	5 mL	5 mL	47983	06/19/24 17:28	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	47984	06/19/24 17:28	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	47992	06/20/24 14:45	NMI	EET SPK
Total/NA	Prep	1633			598.6 mL	5.0 mL	775603	06/29/24 08:01	WVD	EET SAC
Total/NA	Analysis	Draft-4 1633		1	1 mL	1 mL	776597	07/05/24 00:29	EMF	EET SAC
Total/NA	Prep	1633	RE		593 mL	5.0 mL	777242	07/08/24 05:18	GAT	EET SAC
Total/NA	Analysis	Draft-4 1633	RE	1	1 mL	1 mL	777673	07/09/24 10:58	K1D	EET SAC
Total/NA	Analysis	PPCP NEG		1	1 mL	1 mL	103678	06/25/24 03:43	BS	EA SB
Total/NA	Analysis	PPCP NEG	DL	10	1 mL	1 mL	103678	06/25/24 15:24	BS	EA SB
Dissolved	Filtration	FILTRATION			50 mL	50 mL	48117	06/27/24 10:48	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	48188	07/02/24 11:12	AMB	EET SPK
Dissolved	Analysis	6010D		1			48207	07/02/24 13:14	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	48116	06/27/24 10:32	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			48207	07/02/24 12:22	AMB	EET SPK
Dissolved	Filtration	FILTRATION			250 mL	250 mL	463083	06/24/24 10:04	TMH	EET SEA
Dissolved	Prep	3005A			50 mL	50 mL	463243	06/25/24 15:33	MCMS	EET SEA
Dissolved	Analysis	6020B		5			463405	06/26/24 12:42	TMH	EET SEA
Total/NA	Analysis	350.1		1	10 mL	10 mL	657963	06/21/24 11:51	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	48087	06/26/24 09:37	RMA	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	48060	06/24/24 15:52	RMA	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	658294	06/25/24 04:52	ABW	EET DEN

Client Sample ID: MW-8A-061824

Date Collected: 06/18/24 14:40
Date Received: 06/18/24 16:27

Lab Sample ID: 590-25435-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	5 mL	5 mL	47983	06/19/24 17:38	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	47984	06/19/24 17:38	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	47992	06/20/24 14:55	NMI	EET SPK
Total/NA	Prep	1633			595.8 mL	5.0 mL	775603	06/29/24 08:01	WVD	EET SAC
Total/NA	Analysis	Draft-4 1633		1	1 mL	1 mL	776597	07/05/24 00:49	EMF	EET SAC
Total/NA	Prep	1633	RE		586.3 mL	5.0 mL	777242	07/08/24 05:18	GAT	EET SAC
Total/NA	Analysis	Draft-4 1633	RE	1	1 mL	1 mL	777673	07/09/24 11:19	K1D	EET SAC
Total/NA	Analysis	PPCP NEG		1	1 mL	1 mL	103678	06/25/24 04:11	BS	EA SB
Dissolved	Filtration	FILTRATION			50 mL	50 mL	48117	06/27/24 10:48	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	48188	07/02/24 11:12	AMB	EET SPK
Dissolved	Analysis	6010D		1			48207	07/02/24 13:39	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	48116	06/27/24 10:32	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			48207	07/02/24 12:46	AMB	EET SPK
Dissolved	Filtration	FILTRATION			250 mL	250 mL	463083	06/24/24 10:04	TMH	EET SEA
Dissolved	Prep	3005A			50 mL	50 mL	463243	06/25/24 15:33	MCMS	EET SEA
Dissolved	Analysis	6020B		5			463405	06/26/24 12:38	TMH	EET SEA

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25435-1

Client Sample ID: MW-8A-061824

Date Collected: 06/18/24 14:40
Date Received: 06/18/24 16:27

Lab Sample ID: 590-25435-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	350.1		1	10 mL	10 mL	657963	06/21/24 11:53	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	48087	06/26/24 09:37	RMA	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	48060	06/24/24 15:52	RMA	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	658294	06/25/24 05:06	ABW	EET DEN

Laboratory References:

EA SB = Eurofins Eaton Analytical South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777
EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600
EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310
EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Accreditation/Certification Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25435-1

Laboratory: Eurofins Spokane

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C569	01-07-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3

Laboratory: Eurofins Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-25
A2LA	ISO/IEC 17025	2907.01	10-31-25
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	06-26-24
Arizona	State	AZ0713	07-30-24
Arkansas DEQ	State	19-047-0	04-21-25
California	State	2513	01-08-25
Colorado	Petroleum Storage Tank Program	4025 (or)	01-08-25
Connecticut	State	PH-0686	09-30-24
Florida	NELAP	E87667-57	06-30-24
Georgia	State	4025-011	01-08-25
Illinois	NELAP	2000172024-9	05-31-25
Iowa	State	370	08-04-24
Kansas	NELAP	E-10166	04-30-25
Kentucky (WW)	State	KY98047	12-31-24
Louisiana	NELAP	30785	06-30-14 *
Louisiana (All)	NELAP	30785	06-30-25
Minnesota	NELAP	1788752	08-20-24
Nevada	State	CO000262024-08	07-31-24
New Hampshire	NELAP	2053	08-12-24
New Jersey	NELAP	230001	06-30-24
New York	NELAP	59923	04-01-25
Oklahoma	NELAP	8614	08-31-24
Oregon	NELAP	4025	07-16-24
Pennsylvania	NELAP	013	07-08-24
South Carolina	State	72002001	01-08-24 *
Texas	NELAP	TX104704183-08-TX	09-30-09 *
Texas	NELAP	T104704183-23-23	09-30-24
USDA	US Federal Programs	P330-20-00065	12-19-25
Utah	NELAP	QUAN5	06-30-13 *
Utah	NELAP	CO000262019-11	07-31-25
Virginia	NELAP	460232	06-30-24
Washington	State	C583	08-03-24
West Virginia DEP	State	354	11-30-24
Wisconsin	State	999615430	08-19-24
Wyoming (UST)	A2LA	2907.01	10-31-25

Laboratory: Eurofins Eaton Analytical South Bend

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25435-1

Laboratory: Eurofins Eaton Analytical South Bend (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	ISO/IEC 17025	5794.01	07-21-24
Alabama	State	40700	06-30-24
Alaska	State	IN00035	06-30-24
Arizona	State	AZ0432	07-25-24
Arkansas (DW)	State	EPA IN00035	06-30-24
California	State	2920	06-30-24
Colorado	State	IN00035	08-05-24
Connecticut	State	PH-0132	07-08-24
Delaware (DW)	State	IN00035	06-27-24
Florida	NELAP	E87775	06-30-24
Georgia (DW)	State	929	06-30-24
Guam	State	23-011R	07-15-24
Hawaii	State	IN035	06-30-24
Idaho (DW)	State	IN00035	08-15-24
IL Dept. of Public Health (Micro)	State	17767	06-30-24
Illinois	NELAP	200001	09-19-24
Indiana	State	C-71-01	12-31-25
Indiana (Micro)	State	M-76-07	12-31-25
Iowa	State	IA Lab #098	08-01-24
Kansas	NELAP	E-10233	10-31-24
Kentucky (DW)	State	KY90056	08-12-24
Louisiana (DW)	State	LA014	07-16-24
Maine	State	IN00035	05-01-25
Maryland	State	209	06-27-24
Massachusetts	State	M-IN035	07-30-24
MI - RadChem Recognition	State	9926	06-26-24
Michigan	State	9926	06-26-24
Minnesota	NELAP	1989807	12-31-24
Mississippi	State	IN00035	06-30-24
Missouri	State	880	09-30-24
Montana (DW)	State	CERT0026	07-16-24
Nebraska	State	NE-OS-05-04	06-30-24
Nevada	State	IN000352024-01	07-31-24
New Hampshire	NELAP	2124	11-05-24
New Jersey	NELAP	IN598	06-30-24
New Mexico	State	IN00035	06-30-24
New York	NELAP	11398	04-01-25
North Carolina (DW)	State	18700	06-30-24
North Dakota	State	R-035	06-30-24
Northern Mariana Islands (DW)	State	IN00035	06-30-24
Ohio	State	87775	06-27-24
Oklahoma	NELAP	D9508	08-31-24
Oregon	NELAP	4156	09-16-24
Pennsylvania	NELAP	68-00466	04-30-25
Puerto Rico	State	IN00035	07-10-24
Rhode Island	State	LAO00343	07-21-24
South Carolina	State	95005001	06-30-24
South Dakota (DW)	State	IN00035	06-30-24
Tennessee	State	TN02973	06-30-24
Texas	NELAP	T104704187-22-16	12-31-24

Accreditation/Certification Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25435-1

Laboratory: Eurofins Eaton Analytical South Bend (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Texas	TCEQ Water Supply	TX207	06-30-24
USEPA Reg X SDWA	US Federal Programs	IN00035	08-24-24
USEPA UCMR 5	US Federal Programs	IN00035	12-31-25
Utah	NELAP	IN00035	07-31-24
Vermont	State	VT-8775	07-16-24
Virginia	NELAP	460275	07-31-24
Washington	State	C837	01-01-25
West Virginia (DW)	State	9927 C	08-19-24
Wisconsin	State	999766900	08-31-24
Wisconsin (Micro)	State	10121	12-31-24
Wyoming	State	8TMS-L	06-30-24

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-27
ANAB	Dept. of Defense ELAP	L2468	01-20-27
ANAB	Dept. of Energy	L2468.01	01-20-27
ANAB	ISO/IEC 17025	L2468	01-20-27
Arizona	State	AZ0708	08-11-24
Arkansas DEQ	State	88-0691	05-18-25
California	State	2897	01-31-26
Colorado	State	CA00044	08-31-24
Florida	NELAP	E87570	06-30-25
Georgia	State	4040	01-29-25
Hawaii	State	Eurofins Sacramento	01-29-25
Illinois	NELAP	200060	03-31-25
Kansas	NELAP	E-10375	10-31-25
Louisiana	NELAP	01944	06-30-25
Louisiana (All)	NELAP	01944	06-30-25
Maine	State	CA00004	04-14-26
Michigan	State	9947	08-18-24
Nevada	State	CA00044	07-31-24
New Hampshire	NELAP	2997	04-19-25
New Jersey	NELAP	CA005	06-30-25
New York	NELAP	11666	04-01-25
Ohio	State	41252	01-29-25
Oregon	NELAP	4040	07-16-24
Texas	NELAP	T104704399-23-17	05-31-25
US Fish & Wildlife	US Federal Programs	A22139	04-30-25
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442023-16	02-28-25
Virginia	NELAP	460278	03-14-25
Washington	State	C581	05-05-25
West Virginia (DW)	State	9930C	01-31-25
Wisconsin	State	998204680	08-07-24
Wyoming	State Program	8TMS-L	01-28-19 *

Laboratory: Eurofins Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25435-1

Laboratory: Eurofins Seattle (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-004	02-19-25
ANAB	Dept. of Defense ELAP	L2236	08-07-24
ANAB	Dept. of Energy	L2236	08-07-24
ANAB	ISO/IEC 17025	L2236	08-07-24
California	State	2954	07-07-24
Florida	NELAP	E87575	06-30-24
Louisiana	NELAP	03073	06-30-24
Louisiana (All)	NELAP	03073	06-30-24
Maine	State	WA01273	05-02-26
Montana (UST)	State	NA	04-14-27
New Jersey	NELAP	WA014	06-30-24
New York	NELAP	11662	04-01-25
Oregon	NELAP	4167	07-07-24
US Fish & Wildlife	US Federal Programs	A20571	06-30-24
USDA	US Federal Programs	525-23-4-22573	01-04-26
Washington	State	C788-24	07-13-24
Wisconsin	State	399133460	08-31-24

Method Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25435-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	EPA	EET SPK
Draft-4 1633	Per- and Polyfluoroalkyl Substances by LC/MS/MS	EPA	EET SAC
PPCP NEG	Pharmaceuticals and Personal Care Products (LC/MS/MS)	Lab SOP	EA SB
6010D	Metals (ICP)	SW846	EET SPK
6020B	Metals (ICP/MS)	SW846	EET SEA
350.1	Nitrogen, Ammonia	EPA	EET DEN
SM 2320B	Alkalinity	SM	EET SPK
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET SPK
SM 5310B	Organic Carbon, Total (TOC)	SM	EET DEN
1633	Solid-Phase Extraction (SPE)	EPA	EET SAC
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET SEA
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET SPK
FILTRATION	Sample Filtration	None	EET SEA
FILTRATION	Sample Filtration	None	EET SPK

Protocol References:

EPA = US Environmental Protection Agency
Lab SOP = Laboratory Standard Operating Procedure
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EA SB = Eurofins Eaton Analytical South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777
EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600
EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310
EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Eurofins Spokane
11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record

eurofins | Environment Testing America

Regulatory Program ☐ DW ☐ NPDES ☐ RCRA ☐ Other

Eurofins Environment Testing America

Client Contact	**Project Manager:** Sydney Bronson	COC No:
GeoEngineers, Inc.	Email sbronson@geoengineers.com	Site Contact: / Date	___ of ___ COCs
523 E 2nd Ave	Tel/Fax: 509.570.0779	Lab Contact: / Carrier:	TALS Project #:
Spokane, WA 99202	**Analysis Turnaround Time**		Sampler:
509.363.3125 Phone	☐ CALENDAR DAYS ☐ WORKING DAYS		**For Lab Use Only:**
FAX	TAT if different from Below ___		Walk-in Client:
Project Name: Marshall Landfill GWM	☒ 2 weeks		Lab Sampling:
Site: Marshall Landfill Site Design	☐ 1 week		Job / SDG No.
P O # 0504-104-01	☐ 2 days ☐ 1 day		

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PFAS / EPA 1633	Ammonia as N / EPA 350.1	Alkalinity bicarbonate / SM 2320B	TDS / SM 2540C	TOC / SM 5310B	Total K, Mg, Na / EPA 6010D	Dissolved Ca, Mg / EPA 6010D	Chloride, sulfate, nitrate, nitrite / EPA 300.0	Diss. Fe Mn / EPA 6020B	Total Hg / EPA 7470A	Diss Hg / 7470A	Total As, Cd, Fe, Mn, Pb, Zn / EPA 6020B	Diss As, Cd, Fe, Mn, Pb, Zn / EPA 6020B	Artificial Sweeteners (acesulfame K, sucralose	PCE, 1,1,1 TCA / EPA 8260D	1,4-dioxane / EPA 8270E SIM	Sample Specific Notes:
MW-9A-061824	6-18-24	13 25	G	W				X	X	X	X	X	X	X	X	X						X		
MW-8B-061824	6-18-24	14:40	G	W				X	X	X	X	X	X	X	X	X						X		

590-25435 Chain of Custody

Preservation Used. 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH, 6= Other ___

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for ___ Months

Special Instructions/QC Requirements & Comments:
DISSOLVED METALS LAB FILTERED

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No. | Cooler Temp. (°C): Obs'd: 4.3 Corr'd: 4.4 | Therm ID No.: IR006

Relinquished by:	Company: GEOENGINEERS	Date/Time: 06/18/24 1626	Received by:	Company: EE? SPO	Date/Time: 6/18/24 16:27
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

8/28/2024 (Rev. 1)

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-9305.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Washington		Job #: 590-25435-1
Address: 4955 Yarrow Street, ,	Due Date Requested: 7/1/2024			
City: Arvada	TAT Requested (days):			
State, Zip: CO, 80002				
Phone: 303-736-0100(Tel) 303-431-7171(Fax)	PO #:			
Email:	WO #:			
Project Name: Marshall Landfill	Project #: 59002669			
Site:	SSOW#:			

Analysis Requested

Preservation Codes: -

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	350.1	SM5310B/ (MOD) TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
MW-9A-061824 (590-25435-1)	6/18/24	13:25 Pacific		Water			X	X	2	
MW-8B-061824 (590-25435-2)	6/18/24	14:40 Pacific		Water			X	X	2	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	6/19/24 15:23	EECSPO			
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
				6-20-24 0910	EEDEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 0.8°C NAC1ACF0.2

Ver: 04/02/2024

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone. 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-9318 1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note): State Program - Washington		Job #: 590-25435-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 7/1/2024			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Marshall Landfill	Project #: 59002669			
Site:	SSOW#:			

Analysis Requested

Preservation Codes: -

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1633/1633_SPE EPA 1633 Method List	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-9A-061824 (590-25435-1)	6/18/24	13:25 Pacific		Water			X	3	
MW-8B-061824 (590-25435-2)	6/18/24	14.40 Pacific		Water			X	3	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	6/20/24 15:55	EET SPO		6.21.24 930	EET SPO
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks:
	0074644	1.3c

Ver: 04/02/2024

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-9307.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Eaton Analytical		Accreditations Required (See note): State Program - Washington		Job #: 590-25435-1
Address: 110 S Hill Street, ,	Due Date Requested: 7/1/2024			Preservation Codes: -
City: South Bend	TAT Requested (days):			
State, Zip: IN, 46617				
Phone: 574-233-4777(Tel) 574-233-8207(Fax)	PO #:			
Email:	WO #:			
Project Name: Marshall Landfill	Project #: 59002669			
Site:	SSOW#:			Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	LCMS_PPCP_NEG/ (MOD) Acesulfame K & Sucralose	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-9A-061824 (590-25435-1)	6/18/24	13:25 Pacific		Water			X	2	
MW-8B-061824 (590-25435-2)	6/18/24	14:40 Pacific		Water			X	2	

Analysis Requested

pH Acceptable

Temp: 1.8 2.0 Corr. Temp: Lot #: 24-4

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	6/19/24 1945	EET SO		6-20-24 0900	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 04/02/2024

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-25435-1

Login Number: 25435
List Number: 1
Creator: Morris, Mackenzie 1

List Source: Eurofins Spokane

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-25435-1

Login Number: 25435
List Number: 3
Creator: Held, Wesley

List Source: Eurofins Denver
List Creation: 06/20/24 12:11 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-25435-1

Login Number: 25435
List Number: 2
Creator: Moore, Gary

List Source: Eurofins Eaton Analytical South Bend
List Creation: 06/20/24 09:36 AM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Samples do not require splitting or compositing.	True	
Container provided by EEA	True	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-25435-1

Login Number: 25435
List Number: 5
Creator: Simmons, Jason C

List Source: Eurofins Sacramento
List Creation: 06/21/24 02:30 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	2274641
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.3c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-25435-1

Login Number: 25435
List Number: 4
Creator: Martinez, Lanea

List Source: Eurofins Seattle
List Creation: 06/21/24 11:08 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	IR14 1.0c/0.7c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing

Sacramento Sample Receiving Notes (SSRN)

Job _____

590 25435 Field Sheet

Tracking # 7391 0416 9643

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSL / OnTrac / Goldstreak / USPS / Other_____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations.
File in the job folder with the COC

Therm. ID: L-11 Corr. Factor (+ / -) _____ °C

Ice 1 Wet 1 Gel _____ Other _____

Cooler Custody Seal: 0074641

Cooler ID: _____

Temp Observed: 1.3 °C Corrected 1.3 °C

From. Temp Blank ☐ Sample ☒

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☒	☐
Cooler Temperature is acceptable?	☒	☐	☐
Frozen samples show signs of thaw?	☐	☐	☒

Initials _____ Date 6.21.24

Unpacking/Labeling The Samples	Yes	No	NA
Containers are not broken or leaking?	☒	☐	☐
Samples compromised/tampered with?	☐	☒	☐
COC is complete w/o discrepancies	☒	☐	☐
Sample custody seal?	☐	☐	☒
Sample containers have legible labels?	☒	☐	☐
Sample date/times are provided?	☒	☐	☐
Appropriate containers are used?	☒	☐	☐
Sample bottles are completely filled?	☒	☐	☐
Sample preservatives verified?	☐	☐	☒
Is the Field Sampler's name on COC?	☐	☐	☒
Samples w/o discrepancies?	☒	☐	☐
Zero headspace?*	☐	☐	☒
Alkalinity has no headspace?	☐	☐	☒
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☒
Multiphasic samples are not present?	☒	☐	☐

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials _____ Date 6.21.24

Notes: _____

Trizma Lot #(s): _____

Ammonium Acetate Lot #(s) _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☒	☐	☐
NCM Filed?	☐	☐	☒
Samples received within hold time?	☐	☐	☒
Log Release checked in TALS?	☐	☐	☒

Initials _____ Date 6.21.24

Isotope Dilution Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25435-1

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (5-130)	PFPeA (40-130)	13C5PHA (40-130)	C4PFHA (40-130)	C8PFOA (40-130)	C9PFNA (40-130)	C6PFDA (40-130)	13C7PUA (30-130)
590-25435-1	MW-9A-061824	86.9	71.4	80.0	80.3	86.9	93.0	91.2	73.5
590-25435-1 - RE	MW-9A-061824								
590-25435-2	MW-8A-061824	96.6	74.0	90.7	87.4	90.9	96.2	107	88.5
590-25435-2 - RE	MW-8A-061824								
LCS 320-775603/3-A	Lab Control Sample	96.0	78.8	89.2	92.4	90.6	101	103	94.2
LCS 320-777242/3-A	Lab Control Sample								
LCSD 320-777242/4-A	Lab Control Sample Dup								
LLCS 320-775603/2-A	Lab Control Sample	90.0	76.4	87.4	88.1	93.5	97.6	103	89.7
LLCS 320-777242/2-A	Lab Control Sample								
MB 320-775603/1-A	Method Blank	94.9	79.7	88.2	97.2	90.2	96.7	107	93.5
MB 320-777242/1-A	Method Blank								

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (10-130)	PFTDA (10-130)	C3PFBS (40-135)	C3PFHS (40-130)	C8PFOS (40-130)	PFOSA (40-130)	d3NMFOS (40-170)	d5NEFOS (25-135)
590-25435-1	MW-9A-061824	72.3	70.4	83.8	78.7	79.2	87.1	78.3	78.8
590-25435-1 - RE	MW-9A-061824								
590-25435-2	MW-8A-061824	95.1	89.9	85.2	78.4	90.6	96.0	91.4	88.8
590-25435-2 - RE	MW-8A-061824								
LCS 320-775603/3-A	Lab Control Sample	101	93.1	89.9	85.2	97.8	94.3	101	99.4
LCS 320-777242/3-A	Lab Control Sample								
LCSD 320-777242/4-A	Lab Control Sample Dup								
LLCS 320-775603/2-A	Lab Control Sample	98.5	99.0	85.9	77.6	90.0	93.1	94.8	96.4
LLCS 320-777242/2-A	Lab Control Sample								
MB 320-775603/1-A	Method Blank	102	96.5	91.3	82.8	89.7	92.9	100	96.2
MB 320-777242/1-A	Method Blank								

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M242FTS (40-200)	M262FTS (40-200)	M282FTS (40-300)	HFPODA (40-130)	NMFM (10-130)	NEFM (10-130)	d5NPFSA (10-130)	d3NMFSA (10-130)
590-25435-1	MW-9A-061824	89.0	88.4	75.9	84.8	65.6	61.1	55.3	56.4
590-25435-1 - RE	MW-9A-061824				83.7				
590-25435-2	MW-8A-061824	92.3	95.6	86.7	86.1	81.1	75.8	70.5	69.0
590-25435-2 - RE	MW-8A-061824				84.1				
LCS 320-775603/3-A	Lab Control Sample	95.9	99.5	97.6	95.1	86.9	83.1	75.5	68.5
LCS 320-777242/3-A	Lab Control Sample				83.6				
LCSD 320-777242/4-A	Lab Control Sample Dup				86.6				
LLCS 320-775603/2-A	Lab Control Sample	88.6	89.0	91.5	91.5	85.7	82.5	73.0	69.4
LLCS 320-777242/2-A	Lab Control Sample				87.0				
MB 320-775603/1-A	Method Blank	103	101	101	94.8	84.9	81.0	73.7	71.7
MB 320-777242/1-A	Method Blank				84.2				

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
13C5PHA = 13C5 PFHxA
C4PFHA = 13C4 PFHpA
C8PFOA = 13C8 PFOA
C9PFNA = 13C9 PFNA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA

Isotope Dilution Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25435-1

PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
C8PFOS = 13C8 PFOS
PFOSA = 13C8 PFOSA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
M242FTS = 13C2 4:2 FTS
M262FTS = 13C2 6:2 FTS
M282FTS = 13C2 8:2 FTS
HFPODA = 13C3 HFPO-DA
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
d5NPFSA = d5-NEtPFOSA
d3NMFSA = d3-NMePFOSA

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ANALYTICAL REPORT

PREPARED FOR

Attn: Sydney Bronson
GeoEngineers Inc
523 East Second Ave
Spokane, Washington 99202

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JOB DESCRIPTION

Marshall Landfill

JOB NUMBER

590-25447-1

Eurofins Spokane
11922 East 1st Ave
Spokane WA 99206

See page two for job notes and contact information.

my EOL

Job Notes

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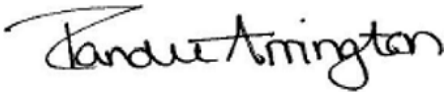

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Revision 2

Authorized for release by
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Job Narrative
590-25447-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Revision
The report being provided is a revision of the original report sent on 7/12/2024. The report (revision 1) is being revised due to: revised COC that was provided by client on 6/20/24 was added to the final report.

Revision
The report being provided is a revision of the original report sent on 7/12/2024. The report (revision 2) is being revised due to: revised the following client sample IDs per the clients request:

MW-15-061924 revised to MW-15A-061924 (590-25447-3)

Receipt
The samples were received on 6/19/2024 4:17 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 3.8°C and 11.5°C.

GC/MS VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS Semi VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

LCMS
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

PFAS
Method 1633: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-775603.

Method 1633: The following samples in preparation batch 320-775603 were yellow in color following extraction. MW-15-061924 (590-25447-3)

Method 1633: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 320-777242.

Method 1633: The following samples in preparation batch 320-777242 were light green in color following extraction. MW-15-061924 (590-25447-3)

Method 1633: Elevated reporting limits are provided for the following samples due to RX status; Existing samples consumed or spiked in previous extraction: MW-7B-061924 (590-25447-1).

Method 1633: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-777797.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
Method 6010D - Dissolved: The low level initial calibration verification (ICVL) associated with batch 590-48256 recovered above the upper control limit for Potassium and Sodium. The samples associated with this ICVL were 10x the spike amount or non-detects for the affected analytes; therefore, the data have been reported.

Method 6010D - Total Recoverable: The low level initial calibration verification (ICVL) associated with batch 590-48256 recovered above the upper control limit for Potassium and Sodium. The samples associated with this ICVL were 10x the spike amount or non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
Method 2320B: The method blank for analytical batch 590-48087 contained Alkalinity and Bicarbonate Alkalinity as CaCO3 above the method detection limit (MDL). Associated samples were not re-analyzed because the method blank results were less than the reporting limit (RL).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Sample Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25447-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-25447-1	MW-7B-061924	Water	06/19/24 09:15	06/19/24 16:17
590-25447-2	MW-12A-061924	Water	06/19/24 11:40	06/19/24 16:17
590-25447-3	MW-15A-061924	Water	06/19/24 13:40	06/19/24 16:17

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
^1+	Initial Calibration Verification (ICV) is outside acceptance limits, high biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Client Sample ID: MW-7B-061924

Date Collected: 06/19/24 09:15
Date Received: 06/19/24 16:17

Lab Sample ID: 590-25447-1

Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			06/24/24 13:58	1
Tetrachloroethene	ND		1.0	0.22	ug/L			06/24/24 13:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*80 - 120*		*06/24/24 13:58*	*1*
4-Bromofluorobenzene (Surr)	*88*		*76 - 120*		*06/24/24 13:58*	*1*
Dibromofluoromethane (Surr)	*118*		*80 - 123*		*06/24/24 13:58*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*06/24/24 13:58*	*1*

Method: SW846 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	**0.078**	**J**	0.21	0.037	ug/L		06/25/24 08:16	06/26/24 18:28	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*52*		*40 - 140*	*06/25/24 08:16*	*06/26/24 18:28*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**0.62**	**J**	0.80	0.42	mg/L			06/20/24 15:05	1
Nitrate as N	ND		0.20	0.057	mg/L			06/20/24 15:05	1
Nitrite as N	ND		0.20	0.069	mg/L			06/20/24 15:05	1
Sulfate	**3.3**		0.50	0.13	mg/L			06/20/24 15:05	1

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**5.9**	**J**	6.7	1.7	ng/L		06/29/24 08:01	07/05/24 01:50	1
Perfluoropentanoic acid (PFPeA)	**5.6**		3.3	0.83	ng/L		06/29/24 08:01	07/05/24 01:50	1
Perfluorohexanoic acid (PFHxA)	**1.9**		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 01:50	1
Perfluoroheptanoic acid (PFHpA)	**0.93**	**J**	1.7	0.42	ng/L		06/29/24 08:01	07/05/24 01:50	1
Perfluorooctanoic acid (PFOA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 01:50	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 01:50	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 01:50	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 01:50	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 01:50	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 01:50	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 01:50	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 01:50	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 01:50	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 01:50	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 01:50	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 01:50	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 01:50	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 01:50	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 01:50	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/05/24 01:50	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/05/24 01:50	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/05/24 01:50	1

Client Sample ID: MW-7B-061924
Date Collected: 06/19/24 09:15
Date Received: 06/19/24 16:17

Lab Sample ID: 590-25447-1
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (PFOSA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 01:50	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 01:50	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 01:50	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 01:50	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 01:50	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		17	4.2	ng/L		06/29/24 08:01	07/05/24 01:50	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		17	4.2	ng/L		06/29/24 08:01	07/05/24 01:50	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/05/24 01:50	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/05/24 01:50	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		3.3	0.83	ng/L		06/29/24 08:01	07/05/24 01:50	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		3.3	0.83	ng/L		06/29/24 08:01	07/05/24 01:50	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		3.3	0.83	ng/L		06/29/24 08:01	07/05/24 01:50	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/05/24 01:50	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		3.3	0.83	ng/L		06/29/24 08:01	07/05/24 01:50	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		8.3	2.1	ng/L		06/29/24 08:01	07/05/24 01:50	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		42	10	ng/L		06/29/24 08:01	07/05/24 01:50	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		42	10	ng/L		06/29/24 08:01	07/05/24 01:50	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*91.9*		*5 - 130*	*06/29/24 08:01*	*07/05/24 01:50*	*1*
13C5 PFPeA	*78.3*		*40 - 130*	*06/29/24 08:01*	*07/05/24 01:50*	*1*
13C5 PFHxA	*87.6*		*40 - 130*	*06/29/24 08:01*	*07/05/24 01:50*	*1*
13C4 PFHpA	*89.8*		*40 - 130*	*06/29/24 08:01*	*07/05/24 01:50*	*1*
13C8 PFOA	*86.7*		*40 - 130*	*06/29/24 08:01*	*07/05/24 01:50*	*1*
13C9 PFNA	*93.4*		*40 - 130*	*06/29/24 08:01*	*07/05/24 01:50*	*1*
13C6 PFDA	*98.6*		*40 - 130*	*06/29/24 08:01*	*07/05/24 01:50*	*1*
13C7 PFUnA	*76.0*		*30 - 130*	*06/29/24 08:01*	*07/05/24 01:50*	*1*
13C2 PFDoA	*79.8*		*10 - 130*	*06/29/24 08:01*	*07/05/24 01:50*	*1*
13C2 PFTeDA	*76.4*		*10 - 130*	*06/29/24 08:01*	*07/05/24 01:50*	*1*
13C3 PFBS	*84.0*		*40 - 135*	*06/29/24 08:01*	*07/05/24 01:50*	*1*
13C3 PFHxS	*78.9*		*40 - 130*	*06/29/24 08:01*	*07/05/24 01:50*	*1*
13C8 PFOS	*83.0*		*40 - 130*	*06/29/24 08:01*	*07/05/24 01:50*	*1*
13C8 PFOSA	*88.9*		*40 - 130*	*06/29/24 08:01*	*07/05/24 01:50*	*1*
d3-NMeFOSAA	*90.9*		*40 - 170*	*06/29/24 08:01*	*07/05/24 01:50*	*1*
d5-NEtFOSAA	*85.2*		*25 - 135*	*06/29/24 08:01*	*07/05/24 01:50*	*1*
13C2 4:2 FTS	*94.4*		*40 - 200*	*06/29/24 08:01*	*07/05/24 01:50*	*1*
13C2 6:2 FTS	*97.9*		*40 - 200*	*06/29/24 08:01*	*07/05/24 01:50*	*1*
13C2 8:2 FTS	*89.5*		*40 - 300*	*06/29/24 08:01*	*07/05/24 01:50*	*1*

Client Sample ID: MW-7B-061924

Date Collected: 06/19/24 09:15
Date Received: 06/19/24 16:17

Lab Sample ID: 590-25447-1

Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*92.0*		*40 - 130*	*06/29/24 08:01*	*07/05/24 01:50*	*1*
d7-N-MeFOSE-M	*71.2*		*10 - 130*	*06/29/24 08:01*	*07/05/24 01:50*	*1*
d9-N-EtFOSE-M	*66.9*		*10 - 130*	*06/29/24 08:01*	*07/05/24 01:50*	*1*
d5-NEtPFOSA	*66.6*		*10 - 130*	*06/29/24 08:01*	*07/05/24 01:50*	*1*
d3-NMePFOSA	*68.1*		*10 - 130*	*06/29/24 08:01*	*07/05/24 01:50*	*1*

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		22	5.6	ng/L		07/09/24 12:39	07/11/24 04:34	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*78.4*		*40 - 130*	*07/09/24 12:39*	*07/11/24 04:34*	*1*

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**11**		0.50	0.13	mg/L		06/27/24 10:32	07/02/24 18:20	1
Potassium	**1.5**	**J ^1+**	2.0	0.29	mg/L		06/27/24 10:32	07/02/24 18:20	1
Sodium	**4.1**	**^1+**	2.0	0.20	mg/L		06/27/24 10:32	07/02/24 18:20	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**34**		1.0	0.20	mg/L		07/02/24 11:12	07/02/24 18:58	1
Magnesium	**10**		0.50	0.13	mg/L		07/02/24 11:12	07/02/24 18:58	1

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.0010	mg/L		06/21/24 15:42	06/24/24 12:19	5
Cadmium	ND		0.0020	0.00019	mg/L		06/21/24 15:42	06/24/24 12:19	5
Iron	**0.34**	**J**	0.50	0.067	mg/L		06/21/24 15:42	06/24/24 13:08	5
Lead	ND		0.0020	0.00020	mg/L		06/21/24 15:42	06/24/24 12:19	5
Manganese	**0.0059**	**J**	0.010	0.0023	mg/L		06/21/24 15:42	06/24/24 12:19	5
Zinc	ND		0.035	0.0046	mg/L		06/21/24 15:42	06/24/24 12:19	5

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.0010	mg/L		06/25/24 15:33	06/26/24 12:49	5
Cadmium	ND		0.0020	0.00019	mg/L		06/25/24 15:33	06/26/24 12:49	5
Iron	ND		0.50	0.067	mg/L		06/25/24 15:33	06/26/24 12:49	5
Lead	ND		0.0020	0.00020	mg/L		06/25/24 15:33	06/26/24 12:49	5
Manganese	ND		0.010	0.0023	mg/L		06/25/24 15:33	06/26/24 12:49	5
Zinc	ND		0.035	0.0046	mg/L		06/25/24 15:33	06/26/24 12:49	5

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		07/03/24 10:13	07/03/24 12:20	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		07/03/24 10:15	07/03/24 13:01	1

Client Sample ID: MW-7B-061924

Lab Sample ID: 590-25447-1

Date Collected: 06/19/24 09:15

Matrix: Water

Date Received: 06/19/24 16:17

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	0.034	J	0.10	0.029	mg/L			06/25/24 17:18	1
Alkalinity (SM 2320B)	140	B	20	5.0	mg/L			06/26/24 09:37	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	140	B	20	5.0	mg/L			06/26/24 09:37	1
Total Dissolved Solids (SM 2540C)	150		25	13	mg/L			06/26/24 14:27	1
Total Organic Carbon - Duplicates (SM 5310B)	0.77	J	1.0	0.35	mg/L			06/25/24 05:20	1

Client Sample ID: MW-12A-061924

Lab Sample ID: 590-25447-2

Date Collected: 06/19/24 11:40

Matrix: Water

Date Received: 06/19/24 16:17

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			06/24/24 14:21	1
Tetrachloroethene	ND		1.0	0.22	ug/L			06/24/24 14:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*		*06/24/24 14:21*	*1*
4-Bromofluorobenzene (Surr)	*87*		*76 - 120*		*06/24/24 14:21*	*1*
Dibromofluoromethane (Surr)	*121*		*80 - 123*		*06/24/24 14:21*	*1*
Toluene-d8 (Surr)	*106*		*80 - 120*		*06/24/24 14:21*	*1*

Method: SW846 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.19	0.034	ug/L		06/25/24 08:16	06/26/24 18:42	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*49*		*40 - 140*	*06/25/24 08:16*	*06/26/24 18:42*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.5		0.80	0.42	mg/L			06/20/24 15:15	1
Nitrate as N	7.0		0.20	0.057	mg/L			06/20/24 15:15	1
Nitrite as N	ND		0.20	0.069	mg/L			06/20/24 15:15	1
Sulfate	14		0.50	0.13	mg/L			06/20/24 15:15	1

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	11		0.50	0.13	mg/L		06/27/24 10:32	07/02/24 18:25	1
Potassium	2.6	^1+	2.0	0.29	mg/L		06/27/24 10:32	07/02/24 18:25	1
Sodium	8.9	^1+	2.0	0.20	mg/L		06/27/24 10:32	07/02/24 18:25	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	29		1.0	0.20	mg/L		07/02/24 11:12	07/03/24 13:34	1
Magnesium	10		0.50	0.13	mg/L		07/02/24 11:12	07/03/24 13:34	1

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0013	J	0.0050	0.0010	mg/L		06/24/24 16:51	06/25/24 11:19	5
Cadmium	ND		0.0020	0.00019	mg/L		06/24/24 16:51	06/25/24 11:19	5
Iron	ND		0.50	0.067	mg/L		06/24/24 16:51	06/25/24 11:19	5

Client Sample ID: MW-12A-061924

Lab Sample ID: 590-25447-2

Date Collected: 06/19/24 11:40

Matrix: Water

Date Received: 06/19/24 16:17

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**0.00054**	**J**	0.0020	0.00020	mg/L		06/24/24 16:51	06/25/24 11:19	5
Manganese	ND		0.010	0.0023	mg/L		06/24/24 16:51	06/25/24 11:19	5
Zinc	ND		0.035	0.0046	mg/L		06/24/24 16:51	06/25/24 11:19	5

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.0010	mg/L		06/25/24 15:33	06/26/24 12:55	5
Iron	ND		0.50	0.067	mg/L		06/25/24 15:33	06/26/24 12:55	5
Cadmium	ND		0.0020	0.00019	mg/L		06/25/24 15:33	06/26/24 12:55	5
Manganese	ND		0.010	0.0023	mg/L		06/25/24 15:33	06/26/24 12:55	5
Iron	ND		0.50	0.067	mg/L		06/25/24 15:33	06/26/24 12:55	5
Lead	ND		0.0020	0.00020	mg/L		06/25/24 15:33	06/26/24 12:55	5
Manganese	ND		0.010	0.0023	mg/L		06/25/24 15:33	06/26/24 12:55	5
Zinc	ND		0.035	0.0046	mg/L		06/25/24 15:33	06/26/24 12:55	5

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		07/03/24 10:13	07/03/24 12:31	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		07/03/24 10:15	07/03/24 13:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	**0.031**	**J**	0.10	0.029	mg/L			06/25/24 15:34	1
Alkalinity (SM 2320B)	**100**	**B**	20	5.0	mg/L			06/26/24 09:37	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**100**	**B**	20	5.0	mg/L			06/26/24 09:37	1
Total Dissolved Solids (SM 2540C)	**190**		25	13	mg/L			06/26/24 14:27	1
Total Organic Carbon - Duplicates (SM 5310B)	**2.6**		1.0	0.35	mg/L			06/25/24 06:08	1

Client Sample ID: MW-15A-061924

Lab Sample ID: 590-25447-3

Date Collected: 06/19/24 13:40

Matrix: Water

Date Received: 06/19/24 16:17

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**56**		0.80	0.42	mg/L			06/20/24 15:25	1
Nitrate as N	**0.92**		0.20	0.057	mg/L			06/20/24 15:25	1
Nitrite as N	ND		0.20	0.069	mg/L			06/20/24 15:25	1
Sulfate	**17**		0.50	0.13	mg/L			06/20/24 15:25	1

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**21**		6.7	1.7	ng/L		06/29/24 08:01	07/05/24 02:31	1
Perfluoropentanoic acid (PFPeA)	**12**		3.4	0.84	ng/L		06/29/24 08:01	07/05/24 02:31	1
Perfluorohexanoic acid (PFHxA)	**4.2**		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 02:31	1
Perfluoroheptanoic acid (PFHpA)	**2.3**		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 02:31	1
Perfluorooctanoic acid (PFOA)	**1.7**		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 02:31	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 02:31	1

Client Sample ID: MW-15A-061924
Date Collected: 06/19/24 13:40
Date Received: 06/19/24 16:17

Lab Sample ID: 590-25447-3
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanoic acid (PFDA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 02:31	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 02:31	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 02:31	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 02:31	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 02:31	1
Perfluorobutanesulfonic acid (PFBS)	**0.91**	**J**	1.7	0.42	ng/L		06/29/24 08:01	07/05/24 02:31	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 02:31	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 02:31	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 02:31	1
Perfluorooctanesulfonic acid (PFOS)	**2.5**		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 02:31	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 02:31	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 02:31	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 02:31	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/05/24 02:31	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/05/24 02:31	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/05/24 02:31	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 02:31	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 02:31	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 02:31	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 02:31	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/05/24 02:31	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		17	4.2	ng/L		06/29/24 08:01	07/05/24 02:31	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		17	4.2	ng/L		06/29/24 08:01	07/05/24 02:31	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/05/24 02:31	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/05/24 02:31	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		3.4	0.84	ng/L		06/29/24 08:01	07/05/24 02:31	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		3.4	0.84	ng/L		06/29/24 08:01	07/05/24 02:31	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		3.4	0.84	ng/L		06/29/24 08:01	07/05/24 02:31	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/05/24 02:31	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		3.4	0.84	ng/L		06/29/24 08:01	07/05/24 02:31	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		8.4	2.1	ng/L		06/29/24 08:01	07/05/24 02:31	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		42	11	ng/L		06/29/24 08:01	07/05/24 02:31	1

Client Sample ID: MW-15A-061924
Date Collected: 06/19/24 13:40
Date Received: 06/19/24 16:17

Lab Sample ID: 590-25447-3
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		42	11	ng/L		06/29/24 08:01	07/05/24 02:31	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*86.9*		*5 - 130*	*06/29/24 08:01*	*07/05/24 02:31*	*1*
13C5 PFPeA	*71.6*		*40 - 130*	*06/29/24 08:01*	*07/05/24 02:31*	*1*
13C5 PFHxA	*82.2*		*40 - 130*	*06/29/24 08:01*	*07/05/24 02:31*	*1*
13C4 PFHpA	*83.5*		*40 - 130*	*06/29/24 08:01*	*07/05/24 02:31*	*1*
13C8 PFOA	*81.8*		*40 - 130*	*06/29/24 08:01*	*07/05/24 02:31*	*1*
13C9 PFNA	*88.0*		*40 - 130*	*06/29/24 08:01*	*07/05/24 02:31*	*1*
13C6 PFDA	*91.1*		*40 - 130*	*06/29/24 08:01*	*07/05/24 02:31*	*1*
13C7 PFUnA	*78.6*		*30 - 130*	*06/29/24 08:01*	*07/05/24 02:31*	*1*
13C2 PFDoA	*79.4*		*10 - 130*	*06/29/24 08:01*	*07/05/24 02:31*	*1*
13C2 PFTeDA	*68.4*		*10 - 130*	*06/29/24 08:01*	*07/05/24 02:31*	*1*
13C3 PFBS	*81.4*		*40 - 135*	*06/29/24 08:01*	*07/05/24 02:31*	*1*
13C3 PFHxS	*75.8*		*40 - 130*	*06/29/24 08:01*	*07/05/24 02:31*	*1*
13C8 PFOS	*79.7*		*40 - 130*	*06/29/24 08:01*	*07/05/24 02:31*	*1*
13C8 PFOSA	*85.8*		*40 - 130*	*06/29/24 08:01*	*07/05/24 02:31*	*1*
d3-NMeFOSAA	*88.6*		*40 - 170*	*06/29/24 08:01*	*07/05/24 02:31*	*1*
d5-NEtFOSAA	*83.1*		*25 - 135*	*06/29/24 08:01*	*07/05/24 02:31*	*1*
13C2 4:2 FTS	*91.0*		*40 - 200*	*06/29/24 08:01*	*07/05/24 02:31*	*1*
13C2 6:2 FTS	*86.3*		*40 - 200*	*06/29/24 08:01*	*07/05/24 02:31*	*1*
13C2 8:2 FTS	*85.6*		*40 - 300*	*06/29/24 08:01*	*07/05/24 02:31*	*1*
13C3 HFPO-DA	*84.6*		*40 - 130*	*06/29/24 08:01*	*07/05/24 02:31*	*1*
d7-N-MeFOSE-M	*60.0*		*10 - 130*	*06/29/24 08:01*	*07/05/24 02:31*	*1*
d9-N-EtFOSE-M	*51.3*		*10 - 130*	*06/29/24 08:01*	*07/05/24 02:31*	*1*
d5-NEtPFOSA	*60.4*		*10 - 130*	*06/29/24 08:01*	*07/05/24 02:31*	*1*
d3-NMePFOSA	*63.1*		*10 - 130*	*06/29/24 08:01*	*07/05/24 02:31*	*1*

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		6.8	1.7	ng/L		07/08/24 05:18	07/09/24 11:39	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*85.2*		*40 - 130*	*07/08/24 05:18*	*07/09/24 11:39*	*1*

Method: Lab SOP PPCP NEG - Pharmaceuticals and Personal Care Products (LC/MS/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acesulfame K	**0.58**		0.020	0.0020	ug/L			06/25/24 06:31	1

Method: Lab SOP PPCP NEG - Pharmaceuticals and Personal Care Products (LC/MS/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sucralose	**11**		1.0	0.14	ug/L			06/25/24 13:04	10

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**14**		0.50	0.13	mg/L		06/27/24 10:32	07/02/24 18:29	1
Potassium	**6.6**	^1+	2.0	0.29	mg/L		06/27/24 10:32	07/02/24 18:29	1
Sodium	**38**	^1+	2.0	0.20	mg/L		06/27/24 10:32	07/02/24 18:29	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25447-1

Client Sample ID: MW-15A-061924

Date Collected: 06/19/24 13:40
Date Received: 06/19/24 16:17

Lab Sample ID: 590-25447-3

Matrix: Water

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**31**		1.0	0.20	mg/L		07/02/24 11:12	07/03/24 13:38	1
Magnesium	**13**		0.50	0.13	mg/L		07/02/24 11:12	07/03/24 13:38	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.50	0.067	mg/L		06/25/24 15:33	06/26/24 12:53	5
Manganese	ND		0.010	0.0023	mg/L		06/25/24 15:33	06/26/24 12:53	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	ND		0.10	0.029	mg/L			06/25/24 15:37	1
Alkalinity (SM 2320B)	**140**	**B**	20	5.0	mg/L			06/26/24 09:37	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**140**	**B**	20	5.0	mg/L			06/26/24 09:37	1
Total Dissolved Solids (SM 2540C)	**270**		25	13	mg/L			06/26/24 14:27	1
Total Organic Carbon - Duplicates (SM 5310B)	**3.5**		1.0	0.35	mg/L			06/25/24 06:25	1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 590-48050/10
Matrix: Water
Analysis Batch: 48050

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			06/24/24 13:35	1
Tetrachloroethene	ND		1.0	0.22	ug/L			06/24/24 13:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*		*06/24/24 13:35*	*1*
4-Bromofluorobenzene (Surr)	*91*		*76 - 120*		*06/24/24 13:35*	*1*
Dibromofluoromethane (Surr)	*120*		*80 - 123*		*06/24/24 13:35*	*1*
Toluene-d8 (Surr)	*106*		*80 - 120*		*06/24/24 13:35*	*1*

Lab Sample ID: LCS 590-48050/1005
Matrix: Water
Analysis Batch: 48050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,1,1-Trichloroethane			10.0	10.6		ug/L		106	71 - 138		
Tetrachloroethene			10.0	11.7		ug/L		117	80 - 139		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*94*		*80 - 120*
4-Bromofluorobenzene (Surr)	*86*		*76 - 120*
Dibromofluoromethane (Surr)	*107*		*80 - 123*
Toluene-d8 (Surr)	*101*		*80 - 120*

Lab Sample ID: LCSD 590-48050/6
Matrix: Water
Analysis Batch: 48050

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane			10.0	10.4		ug/L		104	71 - 138	2	17
Tetrachloroethene			10.0	11.0		ug/L		110	80 - 139	7	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*94*		*80 - 120*
4-Bromofluorobenzene (Surr)	*85*		*76 - 120*
Dibromofluoromethane (Surr)	*111*		*80 - 123*
Toluene-d8 (Surr)	*99*		*80 - 120*

Method: 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Lab Sample ID: MB 580-463156/1-A
Matrix: Water
Analysis Batch: 463356

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 463156

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.036	ug/L		06/25/24 08:16	06/26/24 17:46	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*58*		*40 - 140*	*06/25/24 08:16*	*06/26/24 17:46*	*1*

Method: 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Lab Sample ID: LCS 580-463156/2-A
Matrix: Water
Analysis Batch: 463356

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 463156

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,4-Dioxane			8.00	8.20		ug/L		102	78 - 130		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,4-Dioxane-d8	*63*		*40 - 140*

Lab Sample ID: LCSD 580-463156/3-A
Matrix: Water
Analysis Batch: 463356

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 463156

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,4-Dioxane			8.00	8.14		ug/L		102	78 - 130	1	13

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,4-Dioxane-d8	*58*		*40 - 140*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 590-47991/1015
Matrix: Water
Analysis Batch: 47991

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20	0.057	mg/L			06/20/24 10:57	1
Nitrite as N	ND		0.20	0.069	mg/L			06/20/24 10:57	1

Lab Sample ID: LCS 590-47991/1016
Matrix: Water
Analysis Batch: 47991

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate as N			5.00	5.04		mg/L		101	90 - 110		
Nitrite as N			5.00	4.95		mg/L		99	90 - 110		

Lab Sample ID: MB 590-47992/1015
Matrix: Water
Analysis Batch: 47992

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.80	0.42	mg/L			06/20/24 10:57	1
Sulfate	ND		0.50	0.13	mg/L			06/20/24 10:57	1

Lab Sample ID: LCS 590-47992/1016
Matrix: Water
Analysis Batch: 47992

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			12.5	12.7		mg/L		101	90 - 110		
Sulfate			12.5	12.1		mg/L		97	90 - 110		

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Lab Sample ID: MB 320-775603/1-A
Matrix: Water
Analysis Batch: 776597

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 775603

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		8.0	2.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluoropentanoic acid (PFPeA)	ND		4.0	1.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorotetradecanoic acid (PFTeDA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		8.0	2.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		8.0	2.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		8.0	2.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorooctanesulfonamide (PFOSA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		20	5.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		20	5.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		8.0	2.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		8.0	2.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		4.0	1.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		4.0	1.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		4.0	1.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		8.0	2.0	ng/L		06/29/24 08:01	07/04/24 22:05	1

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: MB 320-775603/1-A
Matrix: Water
Analysis Batch: 776597

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 775603

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		4.0	1.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		10	2.5	ng/L		06/29/24 08:01	07/04/24 22:05	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		50	13	ng/L		06/29/24 08:01	07/04/24 22:05	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		50	13	ng/L		06/29/24 08:01	07/04/24 22:05	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*94.9*		*5 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C5 PFPeA	*79.7*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C5 PFHxA	*88.2*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C4 PFHpA	*97.2*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C8 PFOA	*90.2*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C9 PFNA	*96.7*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C6 PFDA	*107*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C7 PFUnA	*93.5*		*30 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C2 PFDoA	*102*		*10 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C2 PFTeDA	*96.5*		*10 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C3 PFBS	*91.3*		*40 - 135*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C3 PFHxS	*82.8*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C8 PFOS	*89.7*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C8 PFOSA	*92.9*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
d3-NMeFOSAA	*100*		*40 - 170*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
d5-NEtFOSAA	*96.2*		*25 - 135*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C2 4:2 FTS	*103*		*40 - 200*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C2 6:2 FTS	*101*		*40 - 200*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C2 8:2 FTS	*101*		*40 - 300*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C3 HFPO-DA	*94.8*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
d7-N-MeFOSE-M	*84.9*		*10 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
d9-N-EtFOSE-M	*81.0*		*10 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
d5-NEtPFOSA	*73.7*		*10 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
d3-NMePFOSA	*71.7*		*10 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*

Lab Sample ID: LCS 320-775603/3-A
Matrix: Water
Analysis Batch: 776597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 775603

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	128	121		ng/L		94	70 - 140
Perfluoropentanoic acid (PFPeA)	64.0	58.9		ng/L		92	65 - 135
Perfluorohexanoic acid (PFHxA)	32.0	30.8		ng/L		96	70 - 145
Perfluoroheptanoic acid (PFHpA)	32.0	29.9		ng/L		94	70 - 150
Perfluorooctanoic acid (PFOA)	32.0	29.7		ng/L		93	70 - 150
Perfluorononanoic acid (PFNA)	32.0	31.8		ng/L		99	70 - 150
Perfluorodecanoic acid (PFDA)	32.0	29.1		ng/L		91	70 - 140
Perfluoroundecanoic acid (PFUnA)	32.0	31.0		ng/L		97	70 - 145

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-775603/3-A
Matrix: Water
Analysis Batch: 776597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 775603

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorododecanoic acid (PFDoA)	32.0	28.2		ng/L		88	70 - 140
Perfluorotridecanoic acid (PFTrDA)	32.0	27.9		ng/L		87	65 - 140
Perfluorotetradecanoic acid (PFTeDA)	32.0	29.2		ng/L		91	60 - 140
Perfluorobutanesulfonic acid (PFBS)	28.4	27.4		ng/L		97	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	30.1	29.5		ng/L		98	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	29.2	27.2		ng/L		93	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	30.5	26.9		ng/L		88	70 - 150
Perfluorooctanesulfonic acid (PFOS)	29.8	27.4		ng/L		92	55 - 150
Perfluorononanesulfonic acid (PFNS)	30.8	28.7		ng/L		93	65 - 145
Perfluorodecanesulfonic acid (PFDS)	30.8	28.7		ng/L		93	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	31.0	25.8		ng/L		83	50 - 145
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	113		ng/L		94	70 - 145
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	122	119		ng/L		98	65 - 155
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	123	125		ng/L		101	60 - 150
Perfluorooctanesulfonamide (PFOSA)	32.0	24.7		ng/L		77	70 - 145
N-methylperfluorooctane sulfonamide (NMeFOSA)	32.0	32.0		ng/L		100	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA)	32.0	31.2		ng/L		97	65 - 145
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	32.0	30.0		ng/L		94	50 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	32.0	28.7		ng/L		90	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	320	291		ng/L		91	70 - 145
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	320	286		ng/L		89	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	128	117		ng/L		91	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	121	110		ng/L		91	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	64.0	60.0		ng/L		94	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	64.0	64.8		ng/L		101	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	64.0	64.7		ng/L		101	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	121	100		ng/L		83	55 - 160

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-775603/3-A
Matrix: Water
Analysis Batch: 776597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 775603

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	57.1	52.8		ng/L		93	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	160	154		ng/L		96	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	799	725		ng/L		91	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	799	708		ng/L		89	50 - 145

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*96.0*		*5 - 130*
13C5 PFPeA	*78.8*		*40 - 130*
13C5 PFHxA	*89.2*		*40 - 130*
13C4 PFHpA	*92.4*		*40 - 130*
13C8 PFOA	*90.6*		*40 - 130*
13C9 PFNA	*101*		*40 - 130*
13C6 PFDA	*103*		*40 - 130*
13C7 PFUnA	*94.2*		*30 - 130*
13C2 PFDoA	*101*		*10 - 130*
13C2 PFTeDA	*93.1*		*10 - 130*
13C3 PFBS	*89.9*		*40 - 135*
13C3 PFHxS	*85.2*		*40 - 130*
13C8 PFOS	*97.8*		*40 - 130*
13C8 PFOSA	*94.3*		*40 - 130*
d3-NMeFOSAA	*101*		*40 - 170*
d5-NEtFOSAA	*99.4*		*25 - 135*
13C2 4:2 FTS	*95.9*		*40 - 200*
13C2 6:2 FTS	*99.5*		*40 - 200*
13C2 8:2 FTS	*97.6*		*40 - 300*
13C3 HFPO-DA	*95.1*		*40 - 130*
d7-N-MeFOSE-M	*86.9*		*10 - 130*
d9-N-EtFOSE-M	*83.1*		*10 - 130*
d5-NEtPFOSA	*75.5*		*10 - 130*
d3-NMePFOSA	*68.5*		*10 - 130*

Lab Sample ID: LLCS 320-775603/2-A
Matrix: Water
Analysis Batch: 776597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 775603

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	12.8	11.3		ng/L		88	70 - 140
Perfluoropentanoic acid (PFPeA)	6.40	5.52		ng/L		86	65 - 135
Perfluorohexanoic acid (PFHxA)	3.20	2.64		ng/L		83	70 - 145
Perfluoroheptanoic acid (PFHpA)	3.20	2.95		ng/L		92	70 - 150
Perfluorooctanoic acid (PFOA)	3.20	2.42		ng/L		76	70 - 150
Perfluorononanoic acid (PFNA)	3.20	3.04		ng/L		95	70 - 150
Perfluorodecanoic acid (PFDA)	3.20	2.60		ng/L		81	70 - 140
Perfluoroundecanoic acid (PFUnA)	3.20	2.98		ng/L		93	70 - 145

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-775603/2-A
Matrix: Water
Analysis Batch: 776597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 775603

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorododecanoic acid (PFDoA)	3.20	2.51		ng/L		78	70 - 140
Perfluorotridecanoic acid (PFTrDA)	3.20	2.59		ng/L		81	65 - 140
Perfluorotetradecanoic acid (PFTeDA)	3.20	2.69		ng/L		84	60 - 140
Perfluorobutanesulfonic acid (PFBS)	2.84	2.49		ng/L		88	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	3.01	2.32		ng/L		77	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	2.92	2.73		ng/L		94	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	3.05	2.27		ng/L		74	70 - 150
Perfluorooctanesulfonic acid (PFOS)	2.98	2.52		ng/L		85	55 - 150
Perfluorononanesulfonic acid (PFNS)	3.08	2.75		ng/L		89	65 - 145
Perfluorodecanesulfonic acid (PFDS)	3.08	2.49		ng/L		81	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	3.10	2.90		ng/L		93	50 - 145
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	12.0	11.2		ng/L		93	70 - 145
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	12.2	11.7		ng/L		96	65 - 155
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	12.3	11.8		ng/L		96	60 - 150
Perfluorooctanesulfonamide (PFOSA)	3.20	2.32		ng/L		72	70 - 145
N-methylperfluorooctane sulfonamide (NMeFOSA)	3.20	2.47		ng/L		77	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA)	3.20	2.54		ng/L		79	65 - 145
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.20	2.71		ng/L		85	50 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	3.20	2.76		ng/L		86	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	32.0	26.1		ng/L		82	70 - 145
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	32.0	25.8		ng/L		81	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	12.8	11.3		ng/L		88	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	12.1	10.4		ng/L		86	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	6.40	5.18		ng/L		81	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	6.40	5.96		ng/L		93	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	6.40	6.02		ng/L		94	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	12.1	9.08		ng/L		75	55 - 160

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-775603/2-A
Matrix: Water
Analysis Batch: 776597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 775603

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	5.71	4.13		ng/L		72	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	16.0	14.3		ng/L		90	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	79.9	66.3		ng/L		83	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	79.9	65.5		ng/L		82	50 - 145

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C4 PFBA	*90.0*		*5 - 130*
13C5 PFPeA	*76.4*		*40 - 130*
13C5 PFHxA	*87.4*		*40 - 130*
13C4 PFHpA	*88.1*		*40 - 130*
13C8 PFOA	*93.5*		*40 - 130*
13C9 PFNA	*97.6*		*40 - 130*
13C6 PFDA	*103*		*40 - 130*
13C7 PFUnA	*89.7*		*30 - 130*
13C2 PFDoA	*98.5*		*10 - 130*
13C2 PFTeDA	*99.0*		*10 - 130*
13C3 PFBS	*85.9*		*40 - 135*
13C3 PFHxS	*77.6*		*40 - 130*
13C8 PFOS	*90.0*		*40 - 130*
13C8 PFOSA	*93.1*		*40 - 130*
d3-NMeFOSAA	*94.8*		*40 - 170*
d5-NEtFOSAA	*96.4*		*25 - 135*
13C2 4:2 FTS	*88.6*		*40 - 200*
13C2 6:2 FTS	*89.0*		*40 - 200*
13C2 8:2 FTS	*91.5*		*40 - 300*
13C3 HFPO-DA	*91.5*		*40 - 130*
d7-N-MeFOSE-M	*85.7*		*10 - 130*
d9-N-EtFOSE-M	*82.5*		*10 - 130*
d5-NEtPFOSA	*73.0*		*10 - 130*
d3-NMePFOSA	*69.4*		*10 - 130*

Lab Sample ID: 590-25447-1 DU
Matrix: Water
Analysis Batch: 776597

Client Sample ID: MW-7B-061924
Prep Type: Total/NA
Prep Batch: 775603

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	5.9	J	6.53	J	ng/L		10	30
Perfluoropentanoic acid (PFPeA)	5.6		5.64		ng/L		0.5	30
Perfluorohexanoic acid (PFHxA)	1.9		1.81		ng/L		4	30
Perfluoroheptanoic acid (PFHpA)	0.93	J	1.05	J	ng/L		12	30
Perfluorooctanoic acid (PFOA)	ND		ND		ng/L		NC	30
Perfluorononanoic acid (PFNA)	ND		ND		ng/L		NC	30
Perfluorodecanoic acid (PFDA)	ND		ND		ng/L		NC	30
Perfluoroundecanoic acid (PFUnA)	ND		ND		ng/L		NC	30

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: 590-25447-1 DU
Matrix: Water
Analysis Batch: 776597

Client Sample ID: MW-7B-061924
Prep Type: Total/NA
Prep Batch: 775603

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Perfluorododecanoic acid (PFDoA)	ND			ND		ng/L				NC	30
Perfluorotridecanoic acid (PFTrDA)	ND			ND		ng/L				NC	30
Perfluorotetradecanoic acid (PFTeDA)	ND			ND		ng/L				NC	30
Perfluorobutanesulfonic acid (PFBS)	ND			ND		ng/L				NC	30
Perfluoropentanesulfonic acid (PFPeS)	ND			ND		ng/L				NC	30
Perfluorohexanesulfonic acid (PFHxS)	ND			ND		ng/L				NC	30
Perfluoroheptanesulfonic acid (PFHpS)	ND			ND		ng/L				NC	30
Perfluorooctanesulfonic acid (PFOS)	ND			ND		ng/L				NC	30
Perfluorononanesulfonic acid (PFNS)	ND			ND		ng/L				NC	30
Perfluorodecanesulfonic acid (PFDS)	ND			ND		ng/L				NC	30
Perfluorododecanesulfonic acid (PFDoS)	ND			ND		ng/L				NC	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND			ND		ng/L				NC	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND			ND		ng/L				NC	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND			ND		ng/L				NC	30
Perfluorooctanesulfonamide (PFOSA)	ND			ND		ng/L				NC	30
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND			ND		ng/L				NC	30
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND			ND		ng/L				NC	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			ND		ng/L				NC	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND			ND		ng/L				NC	30
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND			ND		ng/L				NC	30
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND			ND		ng/L				NC	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND			ND		ng/L				NC	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND			ND		ng/L				NC	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND			ND		ng/L				NC	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND			ND		ng/L				NC	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND			ND		ng/L				NC	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			ND		ng/L				NC	30

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: 590-25447-1 DU
Matrix: Water
Analysis Batch: 776597

Client Sample ID: MW-7B-061924
Prep Type: Total/NA
Prep Batch: 775603

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND			ND		ng/L				NC	30
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND			ND		ng/L				NC	30
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND			ND		ng/L				NC	30
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND			ND		ng/L				NC	30

Isotope Dilution	*DU %Recovery*	*DU Qualifier*	*Limits*
13C4 PFBA	*87.3*		*5 - 130*
13C5 PFPeA	*71.1*		*40 - 130*
13C5 PFHxA	*83.3*		*40 - 130*
13C4 PFHpA	*80.7*		*40 - 130*
13C8 PFOA	*84.5*		*40 - 130*
13C9 PFNA	*88.0*		*40 - 130*
13C6 PFDA	*89.5*		*40 - 130*
13C7 PFUnA	*74.1*		*30 - 130*
13C2 PFDoA	*78.9*		*10 - 130*
13C2 PFTeDA	*71.5*		*10 - 130*
13C3 PFBS	*86.6*		*40 - 135*
13C3 PFHxS	*77.0*		*40 - 130*
13C8 PFOS	*81.3*		*40 - 130*
13C8 PFOSA	*84.2*		*40 - 130*
d3-NMeFOSAA	*84.3*		*40 - 170*
d5-NEtFOSAA	*82.5*		*25 - 135*
13C2 4:2 FTS	*97.0*		*40 - 200*
13C2 6:2 FTS	*93.8*		*40 - 200*
13C2 8:2 FTS	*90.3*		*40 - 300*
13C3 HFPO-DA	*83.9*		*40 - 130*
d7-N-MeFOSE-M	*70.8*		*10 - 130*
d9-N-EtFOSE-M	*64.9*		*10 - 130*
d5-NEtPFOSA	*66.8*		*10 - 130*
d3-NMePFOSA	*66.6*		*10 - 130*

Lab Sample ID: MB 320-777242/1-A
Matrix: Water
Analysis Batch: 777673

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 777242

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		8.0	2.0	ng/L		07/08/24 05:18	07/09/24 09:16	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*84.2*		*40 - 130*	*07/08/24 05:18*	*07/09/24 09:16*	*1*

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-777242/3-A
Matrix: Water
Analysis Batch: 777673

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 777242

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)			120	117		ng/L		98	70 - 155		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C3 HFPO-DA	*83.6*		*40 - 130*

Lab Sample ID: LCSD 320-777242/4-A
Matrix: Water
Analysis Batch: 777673

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 777242

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)			120	107		ng/L		90	70 - 155	8	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C3 HFPO-DA	*86.6*		*40 - 130*

Lab Sample ID: LLCS 320-777242/2-A
Matrix: Water
Analysis Batch: 777673

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 777242

Analyte			Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits		
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)			12.0	10.7		ng/L		89	70 - 155		

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C3 HFPO-DA	*87.0*		*40 - 130*

Lab Sample ID: MB 320-777797/1-A
Matrix: Water
Analysis Batch: 778118

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 777797

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		8.0	2.0	ng/L		07/09/24 12:39	07/11/24 03:12	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*73.8*		*40 - 130*	*07/09/24 12:39*	*07/11/24 03:12*	*1*

Lab Sample ID: LCS 320-777797/3-A
Matrix: Water
Analysis Batch: 778118

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 777797

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)			120	119		ng/L		100	70 - 155		

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C3 HFPO-DA	77.1		40 - 130

Lab Sample ID: LCSD 320-777797/4-A
Matrix: Water
Analysis Batch: 778118

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 777797

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	120	126		ng/L		105	70 - 155	5	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C3 HFPO-DA	82.1		40 - 130

Lab Sample ID: LLCS 320-777797/2-A
Matrix: Water
Analysis Batch: 778118

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 777797

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	12.0	11.9		ng/L		99	70 - 155

Isotope Dilution	LLCS %Recovery	LLCS Qualifier	Limits
13C3 HFPO-DA	79.3		40 - 130

Method: PPCP NEG - Pharmaceuticals and Personal Care Products (LC/MS/MS)

Lab Sample ID: MB 810-103678/10
Matrix: Water
Analysis Batch: 103678

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acesulfame K	ND		0.020	0.0020	ug/L			06/25/24 02:47	1
Sucralose	ND		0.10	0.014	ug/L			06/25/24 02:47	1

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 590-48116/2-A
Matrix: Water
Analysis Batch: 48207

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 48116

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	ND		0.50	0.13	mg/L		06/27/24 10:32	07/02/24 12:18	1
Potassium	ND		2.0	0.29	mg/L		06/27/24 10:32	07/02/24 12:18	1
Sodium	ND		2.0	0.20	mg/L		06/27/24 10:32	07/02/24 12:18	1

Lab Sample ID: LCS 590-48116/1-A
Matrix: Water
Analysis Batch: 48207

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 48116

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Magnesium	25.0	22.5		mg/L		90	80 - 120
Potassium	25.0	22.5		mg/L		90	80 - 135

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCS 590-48116/1-A
Matrix: Water
Analysis Batch: 48207

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 48116

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sodium	25.0	26.1		mg/L		104	80 - 154

Lab Sample ID: MB 590-48117/2-B
Matrix: Water
Analysis Batch: 48207

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 48188

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.0	0.20	mg/L		07/02/24 11:12	07/02/24 13:10	1
Magnesium	ND		0.50	0.13	mg/L		07/02/24 11:12	07/02/24 13:10	1

Lab Sample ID: LCS 590-48117/1-B
Matrix: Water
Analysis Batch: 48207

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 48188

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	25.0	21.7		mg/L		87	80 - 120
Magnesium	25.0	21.8		mg/L		87	80 - 120

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 580-463023/11-A
Matrix: Water
Analysis Batch: 463150

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 463023

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.0010	mg/L		06/21/24 15:42	06/24/24 11:46	5
Cadmium	ND		0.0020	0.00019	mg/L		06/21/24 15:42	06/24/24 11:46	5
Iron	ND		0.50	0.067	mg/L		06/21/24 15:42	06/24/24 11:46	5
Lead	0.000306	J	0.0020	0.00020	mg/L		06/21/24 15:42	06/24/24 11:46	5
Manganese	ND		0.010	0.0023	mg/L		06/21/24 15:42	06/24/24 11:46	5
Zinc	ND		0.035	0.0046	mg/L		06/21/24 15:42	06/24/24 11:46	5

Lab Sample ID: LCS 580-463023/12-A
Matrix: Water
Analysis Batch: 463150

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 463023

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	1.01		mg/L		101	80 - 120
Cadmium	1.00	0.987		mg/L		99	80 - 120
Iron	20.0	20.8		mg/L		104	80 - 120
Lead	1.00	0.989		mg/L		99	80 - 120
Manganese	1.00	0.970		mg/L		97	80 - 120
Zinc	1.00	1.04		mg/L		104	80 - 120

Lab Sample ID: LCSD 580-463023/13-A
Matrix: Water
Analysis Batch: 463150

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 463023

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	1.00	1.01		mg/L		101	80 - 120	0	20

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 580-463023/13-A
Matrix: Water
Analysis Batch: 463150

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 463023

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	1.00	0.987		mg/L		99	80 - 120	0	20
Iron	20.0	21.4		mg/L		107	80 - 120	3	20
Lead	1.00	0.990		mg/L		99	80 - 120	0	20
Manganese	1.00	0.974		mg/L		97	80 - 120	0	20
Zinc	1.00	1.04		mg/L		104	80 - 120	1	20

Lab Sample ID: MB 580-463143/10-A
Matrix: Water
Analysis Batch: 463282

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 463143

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.0010	mg/L		06/24/24 16:51	06/25/24 10:50	5
Cadmium	ND		0.0020	0.00019	mg/L		06/24/24 16:51	06/25/24 10:50	5
Iron	ND		0.50	0.067	mg/L		06/24/24 16:51	06/25/24 10:50	5
Lead	ND		0.0020	0.00020	mg/L		06/24/24 16:51	06/25/24 10:50	5
Manganese	ND		0.010	0.0023	mg/L		06/24/24 16:51	06/25/24 10:50	5
Zinc	ND		0.035	0.0046	mg/L		06/24/24 16:51	06/25/24 10:50	5

Lab Sample ID: LCS 580-463143/11-A
Matrix: Water
Analysis Batch: 463282

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 463143

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	0.988		mg/L		99	80 - 120
Cadmium	1.00	0.939		mg/L		94	80 - 120
Iron	20.0	19.7		mg/L		99	80 - 120
Lead	1.00	1.02		mg/L		102	80 - 120
Manganese	1.00	0.948		mg/L		95	80 - 120
Zinc	1.00	0.994		mg/L		99	80 - 120

Lab Sample ID: LCSD 580-463143/12-A
Matrix: Water
Analysis Batch: 463282

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 463143

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	1.00	0.957		mg/L		96	80 - 120	3	20
Cadmium	1.00	0.918		mg/L		92	80 - 120	2	20
Iron	20.0	19.0		mg/L		95	80 - 120	4	20
Lead	1.00	1.01		mg/L		101	80 - 120	1	20
Manganese	1.00	0.914		mg/L		91	80 - 120	4	20
Zinc	1.00	0.953		mg/L		95	80 - 120	4	20

Lab Sample ID: MB 580-463083/11-B
Matrix: Water
Analysis Batch: 463405

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 463243

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.0010	mg/L		06/25/24 15:33	06/26/24 12:13	5
Cadmium	ND		0.0020	0.00019	mg/L		06/25/24 15:33	06/26/24 12:13	5
Iron	ND		0.50	0.067	mg/L		06/25/24 15:33	06/26/24 12:13	5

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 580-463083/11-B
Matrix: Water
Analysis Batch: 463405

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 463243

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0020	0.00020	mg/L		06/25/24 15:33	06/26/24 12:13	5
Manganese	ND		0.010	0.0023	mg/L		06/25/24 15:33	06/26/24 12:13	5
Zinc	ND		0.035	0.0046	mg/L		06/25/24 15:33	06/26/24 12:13	5

Lab Sample ID: LCS 580-463083/12-B
Matrix: Water
Analysis Batch: 463405

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 463243

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	1.03		mg/L		103	80 - 120
Cadmium	1.00	1.02		mg/L		102	80 - 120
Iron	20.0	19.8		mg/L		99	80 - 120
Lead	1.00	1.01		mg/L		101	80 - 120
Manganese	1.00	0.978		mg/L		98	80 - 120
Zinc	1.00	0.986		mg/L		99	80 - 120

Lab Sample ID: LCSD 580-463083/13-B
Matrix: Water
Analysis Batch: 463405

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 463243

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	1.00	1.04		mg/L		104	80 - 120	0	20
Cadmium	1.00	1.03		mg/L		103	80 - 120	1	20
Iron	20.0	20.0		mg/L		100	80 - 120	1	20
Lead	1.00	1.03		mg/L		103	80 - 120	2	20
Manganese	1.00	0.992		mg/L		99	80 - 120	1	20
Zinc	1.00	0.986		mg/L		99	80 - 120	0	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 590-48224/9-A
Matrix: Water
Analysis Batch: 48241

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 48224

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		07/03/24 10:12	07/03/24 12:18	1

Lab Sample ID: LCS 590-48224/8-A
Matrix: Water
Analysis Batch: 48241

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 48224

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	2.00	1.69		ug/L		85	80 - 120

Lab Sample ID: 590-25447-1 MS
Matrix: Water
Analysis Batch: 48241

Client Sample ID: MW-7B-061924
Prep Type: Total/NA
Prep Batch: 48224

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		2.00	1.79		ug/L		90	80 - 120

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 590-25447-1 MSD
Matrix: Water
Analysis Batch: 48241

Client Sample ID: MW-7B-061924
Prep Type: Total/NA
Prep Batch: 48224

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		2.00	1.78		ug/L		89	80 - 120	1	20

Lab Sample ID: 590-25447-1 DU
Matrix: Water
Analysis Batch: 48241

Client Sample ID: MW-7B-061924
Prep Type: Total/NA
Prep Batch: 48224

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Mercury	ND		ND		ug/L		NC	20

Lab Sample ID: MB 590-48117/2-C
Matrix: Water
Analysis Batch: 48241

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 48225

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		07/03/24 10:15	07/03/24 12:59	1

Lab Sample ID: LCS 590-48117/1-C
Matrix: Water
Analysis Batch: 48241

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 48225

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	2.00	1.74		ug/L		87	80 - 120

Lab Sample ID: 590-25447-1 MS
Matrix: Water
Analysis Batch: 48241

Client Sample ID: MW-7B-061924
Prep Type: Dissolved
Prep Batch: 48225

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		2.00	1.77		ug/L		89	80 - 120

Lab Sample ID: 590-25447-1 MSD
Matrix: Water
Analysis Batch: 48241

Client Sample ID: MW-7B-061924
Prep Type: Dissolved
Prep Batch: 48225

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		2.00	1.81		ug/L		91	80 - 120	2	20

Lab Sample ID: 590-25447-1 DU
Matrix: Water
Analysis Batch: 48241

Client Sample ID: MW-7B-061924
Prep Type: Dissolved
Prep Batch: 48225

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Mercury	ND		ND		ug/L		NC	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 280-658344/19
Matrix: Water
Analysis Batch: 658344

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	ND		0.10	0.029	mg/L			06/25/24 15:15	1

Lab Sample ID: LCS 280-658344/20
Matrix: Water
Analysis Batch: 658344

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	2.50	2.43		mg/L		97	90 - 110

Lab Sample ID: LCSD 280-658344/21
Matrix: Water
Analysis Batch: 658344

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia as N	2.50	2.50		mg/L		100	90 - 110	3	10

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 590-48087/1
Matrix: Water
Analysis Batch: 48087

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.00	J	20	5.0	mg/L			06/26/24 09:37	1
Bicarbonate Alkalinity as CaCO3	5.00	J	20	5.0	mg/L			06/26/24 09:37	1

Lab Sample ID: LCS 590-48087/2
Matrix: Water
Analysis Batch: 48087

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	501	475		mg/L		95	90 - 110

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 590-48103/1
Matrix: Water
Analysis Batch: 48103

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		25	13	mg/L			06/26/24 14:26	1

Lab Sample ID: LCS 590-48103/2
Matrix: Water
Analysis Batch: 48103

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	500	499		mg/L		100	80 - 120

Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 280-658294/36
Matrix: Water
Analysis Batch: 658294

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		1.0	0.35	mg/L			06/24/24 22:53	1

Lab Sample ID: LCS 280-658294/35
Matrix: Water
Analysis Batch: 658294

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Organic Carbon - Duplicates			25.0	25.2		mg/L		101	88 - 112		

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25447-1

Client Sample ID: MW-7B-061924

Date Collected: 06/19/24 09:15
Date Received: 06/19/24 16:17

Lab Sample ID: 590-25447-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	43 mL	43 mL	48050	06/24/24 13:58	JSP	EET SPK
Total/NA	Prep	3510C			242.8 mL	1 mL	463156	06/25/24 08:16	JW	EET SEA
Total/NA	Analysis	8270C SIM ID		1	1 mL	1 mL	463356	06/26/24 18:28	TL1	EET SEA
Total/NA	Analysis	300.0		1	5 mL	5 mL	47991	06/20/24 15:05	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	47992	06/20/24 15:05	NMI	EET SPK
Total/NA	Prep	1633			599.8 mL	5.0 mL	775603	06/29/24 08:01	WVD	EET SAC
Total/NA	Analysis	Draft-4 1633		1	1 mL	1 mL	776597	07/05/24 01:50	EMF	EET SAC
Total/NA	Prep	1633	RE		178.9 mL	5.0 mL	777797	07/09/24 12:39	ATB	EET SAC
Total/NA	Analysis	Draft-4 1633	RE	1	1 mL	1 mL	778118	07/11/24 04:34	RS1	EET SAC
Dissolved	Filtration	FILTRATION			50 mL	50 mL	48117	06/27/24 10:48	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	48188	07/02/24 11:12	AMB	EET SPK
Dissolved	Analysis	6010D		1			48256	07/02/24 18:58	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	48116	06/27/24 10:32	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			48256	07/02/24 18:20	AMB	EET SPK
Dissolved	Filtration	FILTRATION			250 mL	250 mL	463083	06/24/24 10:04	TMH	EET SEA
Dissolved	Prep	3005A			50 mL	50 mL	463243	06/25/24 15:33	MCMS	EET SEA
Dissolved	Analysis	6020B		5			463405	06/26/24 12:49	TMH	EET SEA
Total Recoverable	Prep	3005A			50 mL	50 mL	463023	06/21/24 15:42	MCMS	EET SEA
Total Recoverable	Analysis	6020B		5			463150	06/24/24 12:19	FCW	EET SEA
Total Recoverable	Prep	3005A			50 mL	50 mL	463023	06/21/24 15:42	MCMS	EET SEA
Total Recoverable	Analysis	6020B		5			463150	06/24/24 13:08	FCW	EET SEA
Dissolved	Filtration	FILTRATION			50 mL	50 mL	48117	06/27/24 10:48	AMB	EET SPK
Dissolved	Prep	7470A			50 mL	50 mL	48225	07/03/24 10:15	AMB	EET SPK
Dissolved	Analysis	7470A		1			48241	07/03/24 13:01	AMB	EET SPK
Total/NA	Prep	7470A			50 mL	50 mL	48224	07/03/24 10:13	AMB	EET SPK
Total/NA	Analysis	7470A		1			48241	07/03/24 12:20	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	658344	06/25/24 17:18	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	48087	06/26/24 09:37	RMA	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	48103	06/26/24 14:27	RMA	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	658294	06/25/24 05:20	ABW	EET DEN

Client Sample ID: MW-12A-061924

Date Collected: 06/19/24 11:40
Date Received: 06/19/24 16:17

Lab Sample ID: 590-25447-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	43 mL	43 mL	48050	06/24/24 14:21	JSP	EET SPK
Total/NA	Prep	3510C			268 mL	1 mL	463156	06/25/24 08:16	JW	EET SEA
Total/NA	Analysis	8270C SIM ID		1	1 mL	1 mL	463356	06/26/24 18:42	TL1	EET SEA
Total/NA	Analysis	300.0		1	5 mL	5 mL	47991	06/20/24 15:15	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	47992	06/20/24 15:15	NMI	EET SPK
Dissolved	Filtration	FILTRATION			50 mL	50 mL	48117	06/27/24 10:48	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	48188	07/02/24 11:12	AMB	EET SPK
Dissolved	Analysis	6010D		1			48257	07/03/24 13:34	AMB	EET SPK

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25447-1

Client Sample ID: MW-12A-061924

Date Collected: 06/19/24 11:40
Date Received: 06/19/24 16:17

Lab Sample ID: 590-25447-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	48116	06/27/24 10:32	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			48256	07/02/24 18:25	AMB	EET SPK
Dissolved	Filtration	FILTRATION			250 mL	250 mL	463083	06/24/24 10:04	TMH	EET SEA
Dissolved	Prep	3005A			50 mL	50 mL	463243	06/25/24 15:33	MCMS	EET SEA
Dissolved	Analysis	6020B		5			463405	06/26/24 12:55	TMH	EET SEA
Total Recoverable	Prep	3005A			50 mL	50 mL	463143	06/24/24 16:51	MCMS	EET SEA
Total Recoverable	Analysis	6020B		5			463282	06/25/24 11:19	FCW	EET SEA
Dissolved	Filtration	FILTRATION			50 mL	50 mL	48117	06/27/24 10:48	AMB	EET SPK
Dissolved	Prep	7470A			50 mL	50 mL	48225	07/03/24 10:15	AMB	EET SPK
Dissolved	Analysis	7470A		1			48241	07/03/24 13:16	AMB	EET SPK
Total/NA	Prep	7470A			50 mL	50 mL	48224	07/03/24 10:13	AMB	EET SPK
Total/NA	Analysis	7470A		1			48241	07/03/24 12:31	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	658344	06/25/24 15:34	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	48087	06/26/24 09:37	RMA	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	48103	06/26/24 14:27	RMA	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	658294	06/25/24 06:08	ABW	EET DEN

Client Sample ID: MW-15A-061924

Date Collected: 06/19/24 13:40
Date Received: 06/19/24 16:17

Lab Sample ID: 590-25447-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	5 mL	5 mL	47991	06/20/24 15:25	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	47992	06/20/24 15:25	NMI	EET SPK
Total/NA	Prep	1633			594.2 mL	5.0 mL	775603	06/29/24 08:01	WVD	EET SAC
Total/NA	Analysis	Draft-4 1633		1	1 mL	1 mL	776597	07/05/24 02:31	EMF	EET SAC
Total/NA	Prep	1633	RE		585.7 mL	5.0 mL	777242	07/08/24 05:18	GAT	EET SAC
Total/NA	Analysis	Draft-4 1633	RE	1	1 mL	1 mL	777673	07/09/24 11:39	K1D	EET SAC
Total/NA	Analysis	PPCP NEG		1	1 mL	1 mL	103678	06/25/24 06:31	BS	EA SB
Total/NA	Analysis	PPCP NEG	DL	10	1 mL	1 mL	103678	06/25/24 13:04	BS	EA SB
Dissolved	Filtration	FILTRATION			50 mL	50 mL	48117	06/27/24 10:48	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	48188	07/02/24 11:12	AMB	EET SPK
Dissolved	Analysis	6010D		1			48257	07/03/24 13:38	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	48116	06/27/24 10:32	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			48256	07/02/24 18:29	AMB	EET SPK
Dissolved	Filtration	FILTRATION			250 mL	250 mL	463083	06/24/24 10:04	TMH	EET SEA
Dissolved	Prep	3005A			50 mL	50 mL	463243	06/25/24 15:33	MCMS	EET SEA
Dissolved	Analysis	6020B		5			463405	06/26/24 12:53	TMH	EET SEA
Total/NA	Analysis	350.1		1	10 mL	10 mL	658344	06/25/24 15:37	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	48087	06/26/24 09:37	RMA	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	48103	06/26/24 14:27	RMA	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	658294	06/25/24 06:25	ABW	EET DEN

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25447-1

Laboratory References:

EA SB = Eurofins Eaton Analytical South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777

EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Accreditation/Certification Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25447-1

Laboratory: Eurofins Spokane

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C569	01-07-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3

Laboratory: Eurofins Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-25
A2LA	ISO/IEC 17025	2907.01	10-31-25
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	06-26-24
Arizona	State	AZ0713	07-30-24
Arkansas DEQ	State	19-047-0	04-21-25
California	State	2513	01-08-25
Colorado	Petroleum Storage Tank Program	4025 (or)	01-08-25
Connecticut	State	PH-0686	09-30-24
Florida	NELAP	E87667-57	06-30-24
Georgia	State	4025-011	01-08-25
Illinois	NELAP	2000172024-9	05-31-25
Iowa	State	370	08-04-24
Kansas	NELAP	E-10166	04-30-25
Kentucky (WW)	State	KY98047	12-31-24
Louisiana	NELAP	30785	06-30-14 *
Louisiana (All)	NELAP	30785	06-30-25
Minnesota	NELAP	1788752	08-20-24
Nevada	State	CO000262024-08	07-31-24
New Hampshire	NELAP	2053	08-12-24
New Jersey	NELAP	230001	06-30-24
New York	NELAP	59923	04-01-25
Oklahoma	NELAP	8614	08-31-24
Oregon	NELAP	4025	07-16-24
Pennsylvania	NELAP	013	07-08-24
South Carolina	State	72002001	01-08-24 *
Texas	NELAP	TX104704183-08-TX	09-30-09 *
Texas	NELAP	T104704183-23-23	09-30-24
USDA	US Federal Programs	P330-20-00065	12-19-25
Utah	NELAP	QUAN5	06-30-13 *
Utah	NELAP	CO000262019-11	07-31-25
Virginia	NELAP	460232	06-30-24
Washington	State	C583	08-03-24
West Virginia DEP	State	354	11-30-24
Wisconsin	State	999615430	08-19-24
Wyoming (UST)	A2LA	2907.01	10-31-25

Laboratory: Eurofins Eaton Analytical South Bend

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25447-1

Laboratory: Eurofins Eaton Analytical South Bend (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	ISO/IEC 17025	5794.01	07-21-24
Alabama	State	40700	06-30-24
Alaska	State	IN00035	06-30-24
Arizona	State	AZ0432	07-25-24
Arkansas (DW)	State	EPA IN00035	06-30-24
California	State	2920	06-30-24
Colorado	State	IN00035	08-05-24
Connecticut	State	PH-0132	07-08-24
Delaware (DW)	State	IN00035	06-27-24
Florida	NELAP	E87775	06-30-24
Georgia (DW)	State	929	06-30-24
Guam	State	23-011R	07-15-24
Hawaii	State	IN035	06-30-24
Idaho (DW)	State	IN00035	08-15-24
IL Dept. of Public Health (Micro)	State	17767	06-30-24
Illinois	NELAP	200001	09-19-24
Indiana	State	C-71-01	12-31-25
Indiana (Micro)	State	M-76-07	12-31-25
Iowa	State	IA Lab #098	08-01-24
Kansas	NELAP	E-10233	10-31-24
Kentucky (DW)	State	KY90056	08-12-24
Louisiana (DW)	State	LA014	07-16-24
Maine	State	IN00035	05-01-25
Maryland	State	209	06-27-24
Massachusetts	State	M-IN035	07-30-24
MI - RadChem Recognition	State	9926	06-26-24
Michigan	State	9926	06-26-24
Minnesota	NELAP	1989807	12-31-24
Mississippi	State	IN00035	06-30-24
Missouri	State	880	09-30-24
Montana (DW)	State	CERT0026	07-16-24
Nebraska	State	NE-OS-05-04	06-30-24
Nevada	State	IN000352024-01	07-31-24
New Hampshire	NELAP	2124	11-05-24
New Jersey	NELAP	IN598	06-30-24
New Mexico	State	IN00035	06-30-24
New York	NELAP	11398	04-01-25
North Carolina (DW)	State	18700	06-30-24
North Dakota	State	R-035	06-30-24
Northern Mariana Islands (DW)	State	IN00035	06-30-24
Ohio	State	87775	06-27-24
Oklahoma	NELAP	D9508	08-31-24
Oregon	NELAP	4156	09-16-24
Pennsylvania	NELAP	68-00466	04-30-25
Puerto Rico	State	IN00035	07-10-24
Rhode Island	State	LAO00343	07-21-24
South Carolina	State	95005001	06-30-24
South Dakota (DW)	State	IN00035	06-30-24
Tennessee	State	TN02973	06-30-24
Texas	NELAP	T104704187-22-16	12-31-24

Accreditation/Certification Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25447-1

Laboratory: Eurofins Eaton Analytical South Bend (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Texas	TCEQ Water Supply	TX207	06-30-24
USEPA Reg X SDWA	US Federal Programs	IN00035	08-24-24
USEPA UCMR 5	US Federal Programs	IN00035	12-31-25
Utah	NELAP	IN00035	07-31-24
Vermont	State	VT-8775	07-16-24
Virginia	NELAP	460275	07-31-24
Washington	State	C837	01-01-25
West Virginia (DW)	State	9927 C	08-19-24
Wisconsin	State	999766900	08-31-24
Wisconsin (Micro)	State	10121	12-31-24
Wyoming	State	8TMS-L	06-30-24

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-27
ANAB	Dept. of Defense ELAP	L2468	01-20-27
ANAB	Dept. of Energy	L2468.01	01-20-27
ANAB	ISO/IEC 17025	L2468	01-20-27
Arizona	State	AZ0708	08-11-24
Arkansas DEQ	State	88-0691	05-18-25
California	State	2897	01-31-26
Colorado	State	CA00044	08-31-24
Florida	NELAP	E87570	06-30-25
Georgia	State	4040	01-29-25
Hawaii	State	Eurofins Sacramento	01-29-25
Illinois	NELAP	200060	03-31-25
Kansas	NELAP	E-10375	10-31-25
Louisiana	NELAP	01944	06-30-25
Louisiana (All)	NELAP	01944	06-30-25
Maine	State	CA00004	04-14-26
Michigan	State	9947	08-18-24
Nevada	State	CA00044	07-31-24
New Hampshire	NELAP	2997	04-19-25
New Jersey	NELAP	CA005	06-30-25
New York	NELAP	11666	04-01-25
Ohio	State	41252	01-29-25
Oregon	NELAP	4040	07-16-24
Texas	NELAP	T104704399-23-17	05-31-25
US Fish & Wildlife	US Federal Programs	A22139	04-30-25
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442023-16	02-28-25
Virginia	NELAP	460278	03-14-25
Washington	State	C581	05-05-25
West Virginia (DW)	State	9930C	01-31-25
Wisconsin	State	998204680	08-07-24
Wyoming	State Program	8TMS-L	01-28-19 *

Laboratory: Eurofins Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25447-1

Laboratory: Eurofins Seattle (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-004	02-19-25
ANAB	Dept. of Defense ELAP	L2236	08-07-24
ANAB	Dept. of Energy	L2236	08-07-24
ANAB	ISO/IEC 17025	L2236	08-07-24
California	State	2954	07-07-24
Florida	NELAP	E87575	06-30-24
Louisiana	NELAP	03073	06-30-24
Louisiana (All)	NELAP	03073	06-30-24
Maine	State	WA01273	05-02-26
Montana (UST)	State	NA	04-14-27
New Jersey	NELAP	WA014	06-30-24
New York	NELAP	11662	04-01-25
Oregon	NELAP	4167	07-07-24
US Fish & Wildlife	US Federal Programs	A20571	06-30-24
USDA	US Federal Programs	525-23-4-22573	01-04-26
Washington	State	C788-24	07-13-24
Wisconsin	State	399133460	08-31-24

Method Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25447-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET SPK
8270C SIM ID	Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)	SW846	EET SEA
300.0	Anions, Ion Chromatography	EPA	EET SPK
Draft-4 1633	Per- and Polyfluoroalkyl Substances by LC/MS/MS	EPA	EET SAC
PPCP NEG	Pharmaceuticals and Personal Care Products (LC/MS/MS)	Lab SOP	EA SB
6010D	Metals (ICP)	SW846	EET SPK
6020B	Metals (ICP/MS)	SW846	EET SEA
7470A	Mercury (CVAA)	SW846	EET SPK
350.1	Nitrogen, Ammonia	EPA	EET DEN
SM 2320B	Alkalinity	SM	EET SPK
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET SPK
SM 5310B	Organic Carbon, Total (TOC)	SM	EET DEN
1633	Solid-Phase Extraction (SPE)	EPA	EET SAC
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET SEA
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET SPK
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET SEA
5030C	Purge and Trap	SW846	EET SPK
7470A	Preparation, Mercury	SW846	EET SPK
FILTRATION	Sample Filtration	None	EET SEA
FILTRATION	Sample Filtration	None	EET SPK

Protocol References:

EPA = US Environmental Protection Agency
Lab SOP = Laboratory Standard Operating Procedure
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EA SB = Eurofins Eaton Analytical South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777
EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600
EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310
EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Eurofins Spokane
11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program ☐ DW ☐ NPDES ☐ RCRA ☐ Other

Eurofins Environment Testing America

Client Contact	Project Manager: Sydney Bronson	Site Contact: Alex Nelsen	Date: 6/19/24
GeoEngineers, Inc.	Email: sbronson@geoengineers.com	Lab Contact:	Carrier:
523 E 2nd Ave	Tel/Fax: 509.570.0779		
Spokane, WA 99202	**Analysis Turnaround Time**		
509.363.3125 Phone	☐ CALENDAR DAYS ☐ WORKING DAYS		
FAX	TAT if different from Below		
Project Name: Marshall Landfill GWM	☒ 2 weeks		
Site: Marshall Landfill Site Design	☐ 1 week		
P O # 0504-104-01	☐ 2 days		
	☐ 1 day		

COC No: 1 of 1 COCs
TALS Project #
Sampler:
For Lab Use Only:
Walk-in Client:
Lab Sampling
Job / SDG No.

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	PFAS / EPA 1633	Ammonia as N / EPA 350.1	Alkalinity: bicarbonate / SM 2320B	TDS / SC 2540C	TOC / SM 5310B	Total K, Mg, Na / EPA 6010D	Dissolved Ca, Mg / EPA 6010D	Chloride, sulfate, nitrate, nitrite / EPA 300.0	Diss. Fe, Mn / EPA 6020B	Total Hg / EPA 7470A	Diss Hg / 7470A	Total As, Cd, Fe, Mn, Pb, Zn / EPA 6020B	Diss As, Cd, Fe, Mn, Pb, Zn / EPA 6020B	Artificial Sweeteners (acesulfame K, sucralose	PCE, 1,1,1 TCA / EPA 8260D	1,4-dioxane / EPA 8270E SIM	Sample Specific Notes.
MW-7B-061924	6/19/24	0915	G	W				X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	
MW-12A-061924	6/19/24	1140	G	W					X	X	X	X	X	X	X	X	X	X	X	X		X	X	SJB 6/20/24
MW-15-061924	6/19/24	1340	G	W				X	X	X	X	X	X	X	X	X					X			

590-25447 Chain of Custody

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

Possible Hazard Identification
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments.
DISSOLVED METALS LAB FILTERED

37, 3.8 corr VR006

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.		Cooler Temp. (°C): Obs'd: 11.4	Corr'd: 11.5	Therm ID No.: VR006
Relinquished by:	Company:	Date/Time: 06/19/24 1617	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: EET SPK	Date/Time: 6/19/24 16:17

Eurofins Spokane
11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record

eurofins | Environment Testing America

Regulatory Program ☐ DW ☐ NPDES ☐ RCRA ☐ Other

Eurofins Environment Testing America

Client Contact	**Project Manager:** Sydney Bronson	**COC No:**
GeoEngineers, Inc.	Email: sbronson@geoengineers.com	1 of 1 COCs
523 E 2nd Ave	Tel/Fax: 509.570.0779	TALS Project #
Spokane, WA 99202	**Analysis Turnaround Time**	Sampler:
509.363.3125 Phone	☐ CALENDAR DAYS ☐ WORKING DAYS	**For Lab Use Only:**
FAX	TAT if different from Below	Walk-in Client:
Project Name: Marshall Landfill GWM	☒ 2 weeks	Lab Sampling
Site: Marshall Landfill Site Design	☐ 1 week	Job / SDG No.
P O # 0504-104-01	☐ 2 days ☐ 1 day	

Site Contact: Alex Nuraim **Date:** 6/19/24
Lab Contact: **Carrier:**

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	PFAS / EPA 1633	Ammonia as N / EPA 350.1	Alkalinity bicarbonate / SM 2320B	TDS / S< 2540C	TOC / SM 5310B	Total K, Mg, Na / EPA 6010D	Dissolved Ca, Mg / EPA 6010D	Chloride, sulfate, nitrate, nitrite / EPA 300.0	Diss. Fe Mn / EPA 6020B	Total Hg / EPA 7470A	Diss Hg / 7470A	Total As, Cd, Fe, Mn, Pb, Zn / EPA 6020B	Diss As, Cd, Fe, Mn, Pb, Zn / EPA 6020B	Artificial Sweeteners (acesulfame K, sucralose	PCE, 1 1 1 TCA / EPA 8260D	1,4-dioxane / EPA 8270E SIM	Sample Specific Notes.
MW-7B-061924	6/19/24	0915	G	W				X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	
MW-12A-061924	6/19/24	1140	G	W					X	X	X	X	X	X	X	X								
MW-15-061924	6/19/24	1340	G	W				X	X	X	X	X	X	X	X	X						X			

590-25447 Chain of Custody

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

Possible Hazard Identification
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments.
DISSOLVED METALS LAB FILTERED

37, 3.8 corr VR2006

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No. | Cooler Temp. (°C): Obs'd: 11.4 Corr'd: 11.5 | Therm ID No.: VR2016

Relinquished by:	Company:	Date/Time: 06/19/24 1617	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: EET SPO	Date/Time: 6/19/24 1617

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-9313.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Washington		Job #: 590-25447-1
Address: 4955 Yarrow Street, ,	Due Date Requested: 7/2/2024			
City: Arvada	TAT Requested (days):			
State, Zip: CO, 80002				
Phone: 303-736-0100(Tel) 303-431-7171(Fax)	PO #:			
Email:	WO #:			
Project Name: Marshall Landfill	Project #: 59002669			
Site:	SSOW#:			

Analysis Requested

Preservation Codes: -

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	350.1	SM5310B/ (MOD) TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
MW-7B-061924 (590-25447-1)	6/19/24	09:15 Pacific		Water			X	X	2	
MW-12A-061924 (590-25447-2)	6/19/24	11:40 Pacific		Water			X	X	2	
MW-15-061924 (590-25447-3)	6/19/24	13:40 Pacific		Water			X	X	1	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	6/20/24 14:42	EETSPO			
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
				6-21-24 0920	EETDEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.8°C WACA CF-02

Ver: 04/02/2024

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone. 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-9318.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note): State Program - Washington		Job #: 590-25447-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 7/2/2024			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Marshall Landfill	Project #: 59002669			
Site:	SSOW#:			

Analysis Requested

Preservation Codes: -

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1633/1633_SPE EPA 1633 Method List	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-7B-061924 (590-25447-1)	6/19/24	09:15 Pacific		Water			X	3	
MW-15-061924 (590-25447-3)	6/19/24	13.40 Pacific		Water			X	3	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)***
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		6/20/24 15:55	EET SAC		6/21/24 0730	EET SAC
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No. 3734641	Cooler Temperature(s) °C and Other Remarks: 1.3c

Ver: 04/02/2024

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-9325.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Eaton Analytical		Accreditations Required (See note): State Program - Washington		Job #: 590-25447-1
Address: 110 S Hill Street, ,	Due Date Requested: 7/2/2024			Preservation Codes: -
City: South Bend	TAT Requested (days):			
State, Zip: IN, 46617				
Phone: 574-233-4777(Tel) 574-233-8207(Fax)	PO #:			
Email:	WO #:			
Project Name: Marshall Landfill	Project #: 59002669			
Site:	SSOW#:			Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD	LCMS_PPCP_NEG/ (MOD) Acesulfame K & Sucralose	Total Number of containers	Special Instructions/Note:
				Preservation Code:					
MW-15-061924 (590-25447-3)	6/19/24	13:40 Pacific		Water			X	2	

Initial Temp: 0.0
Corrected Temp: 0.6
IR Gun #: T1

pH Acceptable <2

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC

Possible Hazard Identification: Unconfirmed	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	6/21/24 14:22	FEC80		6/22/24 0900	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 04/02/2024

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-25447-1

Login Number: 25447
List Number: 1
Creator: Morris, Mackenzie 1

List Source: Eurofins Spokane

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	False	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-25447-1

Login Number: 25447
List Number: 2
Creator: Held, Wesley

List Source: Eurofins Denver
List Creation: 06/21/24 11:34 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-25447-1

Login Number: 25447
List Number: 5
Creator: Trowbridge, Peyton

List Source: Eurofins Eaton Analytical South Bend
List Creation: 06/22/24 10:26 AM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Samples do not require splitting or compositing.	True	
Container provided by EEA	True	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-25447-1

Login Number: 25447
List Number: 4
Creator: Simmons, Jason C

List Source: Eurofins Sacramento
List Creation: 06/21/24 02:30 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	2274641
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.3c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-25447-1

Login Number: 25447
List Number: 3
Creator: Martinez, Lanea

List Source: Eurofins Seattle
List Creation: 06/21/24 11:00 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	IR14 1.0c/0.7c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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Sacramento Sample Receiving Notes (SSRN)

Job:____ 590 25447 Field Sheet

Tracking # 7391 0416 9643

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier
GSL / OnTrac / Goldstreak / USPS / Other_____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations
File in the job folder with the COC.

Therm. ID L-11 Corr. Factor (+ / -) _____ °C

Ice 1 Wet 1 Gel _____ Other _____

Cooler Custody Seal: 0074641

Cooler ID _____

Temp Observed 1.3 °C Corrected 1.3 °C

From Temp Blank ☐ Sample ☑

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Frozen samples show signs of thaw?	☐	☐	☑

Initials: _____ Date 6.21.24

Unpacking/Labeling The Samples	Yes	No	NA
Containers are not broken or leaking?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
COC is complete w/o discrepancies	☑	☐	☐
Sample custody seal?	☐	☐	☑
Sample containers have legible labels?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Is the Field Sampler's name on COC?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials _____ Date 6.21.24

Notes:_____

Trizma Lot #(s). _____

Ammonium Acetate Lot #(s) _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☑	☐	☐
NCM Filed?	☐	☐	☑
Samples received within hold time?	☐	☐	☑
Log Release checked in TALS?	☐	☐	☑

Initials _____ Date 6.21.24

Isotope Dilution Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25447-1

Method: 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	DXE (40-140)							
590-25447-1	MW-7B-061924	52							
590-25447-2	MW-12A-061924	49							
LCS 580-463156/2-A	Lab Control Sample	63							
LCSD 580-463156/3-A	Lab Control Sample Dup	58							
MB 580-463156/1-A	Method Blank	58							

Surrogate Legend

DXE = 1,4-Dioxane-d8

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (5-130)	PFPeA (40-130)	13C5PHA (40-130)	C4PFHA (40-130)	C8PFOA (40-130)	C9PFNA (40-130)	C6PFDA (40-130)	13C7PUA (30-130)
590-25447-1	MW-7B-061924	91.9	78.3	87.6	89.8	86.7	93.4	98.6	76.0
590-25447-1 - RE	MW-7B-061924								
590-25447-1 DU	MW-7B-061924	87.3	71.1	83.3	80.7	84.5	88.0	89.5	74.1
590-25447-3	MW-15A-061924	86.9	71.6	82.2	83.5	81.8	88.0	91.1	78.6
590-25447-3 - RE	MW-15A-061924								
LCS 320-775603/3-A	Lab Control Sample	96.0	78.8	89.2	92.4	90.6	101	103	94.2
LCS 320-777242/3-A	Lab Control Sample								
LCS 320-777797/3-A	Lab Control Sample								
LCSD 320-777242/4-A	Lab Control Sample Dup								
LCSD 320-777797/4-A	Lab Control Sample Dup								
LLCS 320-775603/2-A	Lab Control Sample	90.0	76.4	87.4	88.1	93.5	97.6	103	89.7
LLCS 320-777242/2-A	Lab Control Sample								
LLCS 320-777797/2-A	Lab Control Sample								
MB 320-775603/1-A	Method Blank	94.9	79.7	88.2	97.2	90.2	96.7	107	93.5
MB 320-777242/1-A	Method Blank								
MB 320-777797/1-A	Method Blank								

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (10-130)	PFTDA (10-130)	C3PFBS (40-135)	C3PFHS (40-130)	C8PFOS (40-130)	PFOSA (40-130)	d3NMFOS (40-170)	d5NEFOS (25-135)
590-25447-1	MW-7B-061924	79.8	76.4	84.0	78.9	83.0	88.9	90.9	85.2
590-25447-1 - RE	MW-7B-061924								
590-25447-1 DU	MW-7B-061924	78.9	71.5	86.6	77.0	81.3	84.2	84.3	82.5
590-25447-3	MW-15A-061924	79.4	68.4	81.4	75.8	79.7	85.8	88.6	83.1
590-25447-3 - RE	MW-15A-061924								
LCS 320-775603/3-A	Lab Control Sample	101	93.1	89.9	85.2	97.8	94.3	101	99.4
LCS 320-777242/3-A	Lab Control Sample								
LCS 320-777797/3-A	Lab Control Sample								
LCSD 320-777242/4-A	Lab Control Sample Dup								
LCSD 320-777797/4-A	Lab Control Sample Dup								
LLCS 320-775603/2-A	Lab Control Sample	98.5	99.0	85.9	77.6	90.0	93.1	94.8	96.4
LLCS 320-777242/2-A	Lab Control Sample								
LLCS 320-777797/2-A	Lab Control Sample								
MB 320-775603/1-A	Method Blank	102	96.5	91.3	82.8	89.7	92.9	100	96.2
MB 320-777242/1-A	Method Blank								
MB 320-777797/1-A	Method Blank								

Isotope Dilution Summary

Client: GeoEngineers Inc
Job ID: 590-25447-1
Project/Site: Marshall Landfill

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M242FTS (40-200)	M262FTS (40-200)	M282FTS (40-300)	HFPODA (40-130)	NMFM (10-130)	NEFM (10-130)	d5NPFSA (10-130)	d3NMFSA (10-130)
590-25447-1	MW-7B-061924	94.4	97.9	89.5	92.0	71.2	66.9	66.6	68.1
590-25447-1 - RE	MW-7B-061924				78.4				
590-25447-1 DU	MW-7B-061924	97.0	93.8	90.3	83.9	70.8	64.9	66.8	66.6
590-25447-3	MW-15A-061924	91.0	86.3	85.6	84.6	60.0	51.3	60.4	63.1
590-25447-3 - RE	MW-15A-061924				85.2				
LCS 320-775603/3-A	Lab Control Sample	95.9	99.5	97.6	95.1	86.9	83.1	75.5	68.5
LCS 320-777242/3-A	Lab Control Sample				83.6				
LCS 320-777797/3-A	Lab Control Sample				77.1				
LCSD 320-777242/4-A	Lab Control Sample Dup				86.6				
LCSD 320-777797/4-A	Lab Control Sample Dup				82.1				
LLCS 320-775603/2-A	Lab Control Sample	88.6	89.0	91.5	91.5	85.7	82.5	73.0	69.4
LLCS 320-777242/2-A	Lab Control Sample				87.0				
LLCS 320-777797/2-A	Lab Control Sample				79.3				
MB 320-775603/1-A	Method Blank	103	101	101	94.8	84.9	81.0	73.7	71.7
MB 320-777242/1-A	Method Blank				84.2				
MB 320-777797/1-A	Method Blank				73.8				

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
13C5PHA = 13C5 PFHxA
C4PFHA = 13C4 PFHpA
C8PFOA = 13C8 PFOA
C9PFNA = 13C9 PFNA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
C8PFOS = 13C8 PFOS
PFOSA = 13C8 PFOSA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
M242FTS = 13C2 4:2 FTS
M262FTS = 13C2 6:2 FTS
M282FTS = 13C2 8:2 FTS
HFPODA = 13C3 HFPO-DA
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
d5NPFSA = d5-NEtPFOSA
d3NMFSA = d3-NMePFOSA

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1 2 3 4 5 6 7 8 9 10 11 12 13 14

ANALYTICAL REPORT

PREPARED FOR

Attn: Sydney Bronson
GeoEngineers Inc
523 East Second Ave
Spokane, Washington 99202

Generated 8/28/2024 11:29:44 AM Revision 1

JOB DESCRIPTION

Marshall Landfill

JOB NUMBER

590-25479-1

Eurofins Spokane
11922 East 1st Ave
Spokane WA 99206

See page two for job notes and contact information.

my EOL

Job Notes

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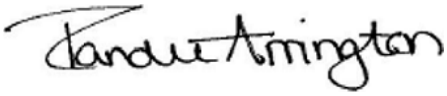
The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northwest, LLC Project Manager.

Authorization



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Revision 1

Authorized for release by
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Job Narrative
590-25479-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Revision
The report being provided is a revision of the original report sent on 7/10/2024. The report (revision 1) is being revised due to: revised the client sample ID for the following sample per the clients request:

MW-16-062024 revised to MW-16A-062024 (590-25479-1).

Receipt
The samples were received on 6/20/2024 4:27 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 3.0°C, 11.7°C and 13.7°C.

Receipt Exceptions
Container "F-2" for the following sample was received in Denver with a cracked lid on 06/25/2024. Seal is intact. No volume was lost. MW-2A-062024 (590-25479-2).

GC/MS VOA
Method 8260D: Surrogate recovery for the following sample was outside the upper control limit: DUP-062024 (590-25479-4). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS Semi VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

LCMS
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

PFAS
Method 1633: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-775603.

Method 1633: The following samples in preparation batch 320-775603 were yellow in color following extraction. MW-16-062024 (590-25479-1) and MW-2A-062024 (590-25479-2)

Method 1633: The following samples in preparation batch 320-775603 were light yellow in color following extraction. MW-5A-062024 (590-25479-3) and DUP-062024 (590-25479-4)

Method 1633: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 320-777242.

Method 1633: The following samples in preparation batch 320-777242 were light green in color following extraction. MW-16-062024 (590-25479-1) and MW-2A-062024 (590-25479-2)

Method 1633: The "I" qualifier means the transition mass ratio for the indicated analyte was outside the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, however, analyst judgment was used to positively identify the analyte: MW-2A-062024 (590-25479-2) .

MW-2A-062024 (590-25479-2)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
Method 6010D - Total Recoverable: The low level initial calibration verification (ICVL) associated with batch 590-48256 recovered above the upper control limit for Potassium and Sodium. The samples associated with this ICV were 10x the spike amount or non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
Method 2320B: The method blank for analytical batch 590-48087 contained Alkalinity and Bicarbonate Alkalinity as CaCO3 above the method detection limit (MDL). Associated samples were not re-analyzed because the method blank results were less than the reporting limit (RL).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Sample Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25479-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-25479-1	MW-16A-062024	Water	06/20/24 08:50	06/20/24 16:27
590-25479-2	MW-2A-062024	Water	06/20/24 10:20	06/20/24 16:27
590-25479-3	MW-5A-062024	Water	06/20/24 13:40	06/20/24 16:27
590-25479-4	DUP-062024	Water	06/20/24 08:00	06/20/24 16:27
590-25479-5	FB-062024	Water	06/20/24 15:30	06/20/24 16:27

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.

LCMS

Qualifier	Qualifier Description
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
^1+	Initial Calibration Verification (ICV) is outside acceptance limits, high biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25479-1

Client Sample ID: MW-16A-062024

Date Collected: 06/20/24 08:50
Date Received: 06/20/24 16:27

Lab Sample ID: 590-25479-1

Matrix: Water

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**57**		0.80	0.42	mg/L			06/21/24 11:00	1
Nitrate as N	**0.52**		0.20	0.057	mg/L			06/21/24 11:00	1
Nitrite as N	ND		0.20	0.069	mg/L			06/21/24 11:00	1
Sulfate	**16**		0.50	0.13	mg/L			06/21/24 11:00	1

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		6.9	1.7	ng/L		06/29/24 08:01	07/05/24 04:14	1
Perfluoropentanoic acid (PFPeA)	ND		3.4	0.86	ng/L		06/29/24 08:01	07/05/24 04:14	1
Perfluorohexanoic acid (PFHxA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/05/24 04:14	1
Perfluoroheptanoic acid (PFHpA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/05/24 04:14	1
Perfluorooctanoic acid (PFOA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/05/24 04:14	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/05/24 04:14	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/05/24 04:14	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/05/24 04:14	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/05/24 04:14	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/05/24 04:14	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/05/24 04:14	1
Perfluorobutanesulfonic acid (PFBS)	**3.1**		1.7	0.43	ng/L		06/29/24 08:01	07/05/24 04:14	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/05/24 04:14	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/05/24 04:14	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/05/24 04:14	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/05/24 04:14	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/05/24 04:14	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/05/24 04:14	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/05/24 04:14	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		6.9	1.7	ng/L		06/29/24 08:01	07/05/24 04:14	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		6.9	1.7	ng/L		06/29/24 08:01	07/05/24 04:14	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		6.9	1.7	ng/L		06/29/24 08:01	07/05/24 04:14	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/05/24 04:14	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/05/24 04:14	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/05/24 04:14	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/05/24 04:14	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/05/24 04:14	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		17	4.3	ng/L		06/29/24 08:01	07/05/24 04:14	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		17	4.3	ng/L		06/29/24 08:01	07/05/24 04:14	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		6.9	1.7	ng/L		06/29/24 08:01	07/05/24 04:14	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		6.9	1.7	ng/L		06/29/24 08:01	07/05/24 04:14	1

Client Sample ID: MW-16A-062024
Date Collected: 06/20/24 08:50
Date Received: 06/20/24 16:27

Lab Sample ID: 590-25479-1
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		3.4	0.86	ng/L		06/29/24 08:01	07/05/24 04:14	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		3.4	0.86	ng/L		06/29/24 08:01	07/05/24 04:14	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		3.4	0.86	ng/L		06/29/24 08:01	07/05/24 04:14	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		6.9	1.7	ng/L		06/29/24 08:01	07/05/24 04:14	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		3.4	0.86	ng/L		06/29/24 08:01	07/05/24 04:14	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		8.6	2.1	ng/L		06/29/24 08:01	07/05/24 04:14	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		43	11	ng/L		06/29/24 08:01	07/05/24 04:14	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		43	11	ng/L		06/29/24 08:01	07/05/24 04:14	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*83.5*		*5 - 130*	*06/29/24 08:01*	*07/05/24 04:14*	*1*
13C5 PFPeA	*70.8*		*40 - 130*	*06/29/24 08:01*	*07/05/24 04:14*	*1*
13C5 PFHxA	*77.8*		*40 - 130*	*06/29/24 08:01*	*07/05/24 04:14*	*1*
13C4 PFHpA	*80.8*		*40 - 130*	*06/29/24 08:01*	*07/05/24 04:14*	*1*
13C8 PFOA	*81.5*		*40 - 130*	*06/29/24 08:01*	*07/05/24 04:14*	*1*
13C9 PFNA	*88.5*		*40 - 130*	*06/29/24 08:01*	*07/05/24 04:14*	*1*
13C6 PFDA	*83.1*		*40 - 130*	*06/29/24 08:01*	*07/05/24 04:14*	*1*
13C7 PFUnA	*73.4*		*30 - 130*	*06/29/24 08:01*	*07/05/24 04:14*	*1*
13C2 PFDoA	*74.5*		*10 - 130*	*06/29/24 08:01*	*07/05/24 04:14*	*1*
13C2 PFTeDA	*64.7*		*10 - 130*	*06/29/24 08:01*	*07/05/24 04:14*	*1*
13C3 PFBS	*80.9*		*40 - 135*	*06/29/24 08:01*	*07/05/24 04:14*	*1*
13C3 PFHxS	*74.2*		*40 - 130*	*06/29/24 08:01*	*07/05/24 04:14*	*1*
13C8 PFOS	*73.3*		*40 - 130*	*06/29/24 08:01*	*07/05/24 04:14*	*1*
13C8 PFOSA	*79.9*		*40 - 130*	*06/29/24 08:01*	*07/05/24 04:14*	*1*
d3-NMeFOSAA	*80.0*		*40 - 170*	*06/29/24 08:01*	*07/05/24 04:14*	*1*
d5-NEtFOSAA	*76.6*		*25 - 135*	*06/29/24 08:01*	*07/05/24 04:14*	*1*
13C2 4:2 FTS	*95.9*		*40 - 200*	*06/29/24 08:01*	*07/05/24 04:14*	*1*
13C2 6:2 FTS	*93.4*		*40 - 200*	*06/29/24 08:01*	*07/05/24 04:14*	*1*
13C2 8:2 FTS	*86.9*		*40 - 300*	*06/29/24 08:01*	*07/05/24 04:14*	*1*
13C3 HFPO-DA	*84.1*		*40 - 130*	*06/29/24 08:01*	*07/05/24 04:14*	*1*
d7-N-MeFOSE-M	*59.5*		*10 - 130*	*06/29/24 08:01*	*07/05/24 04:14*	*1*
d9-N-EtFOSE-M	*55.1*		*10 - 130*	*06/29/24 08:01*	*07/05/24 04:14*	*1*
d5-NEtPFOSA	*57.3*		*10 - 130*	*06/29/24 08:01*	*07/05/24 04:14*	*1*
d3-NMePFOSA	*57.1*		*10 - 130*	*06/29/24 08:01*	*07/05/24 04:14*	*1*

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		6.9	1.7	ng/L		07/08/24 05:18	07/09/24 13:42	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*90.9*		*40 - 130*	*07/08/24 05:18*	*07/09/24 13:42*	*1*

Method: Lab SOP PPCP NEG - Pharmaceuticals and Personal Care Products (LC/MS/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acesulfame K	**0.56**		0.020	0.0020	ug/L			06/25/24 06:59	1

Client Sample ID: MW-16A-062024

Lab Sample ID: 590-25479-1

Date Collected: 06/20/24 08:50

Matrix: Water

Date Received: 06/20/24 16:27

Method: Lab SOP PPCP NEG - Pharmaceuticals and Personal Care Products (LC/MS/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sucralose	8.9		0.10	0.014	ug/L			06/25/24 06:59	1

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	15		0.50	0.13	mg/L		06/27/24 10:32	07/02/24 18:33	1
Potassium	6.2	^1+	2.0	0.29	mg/L		06/27/24 10:32	07/02/24 18:33	1
Sodium	36	^1+	2.0	0.20	mg/L		06/27/24 10:32	07/02/24 18:33	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	32		1.0	0.20	mg/L		07/02/24 11:12	07/03/24 13:42	1
Magnesium	14		0.50	0.13	mg/L		07/02/24 11:12	07/03/24 13:42	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.074	J	0.50	0.067	mg/L		06/25/24 15:33	06/26/24 12:20	5
Manganese	0.0044	J	0.010	0.0023	mg/L		06/25/24 15:33	06/26/24 12:20	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	ND		0.10	0.029	mg/L			07/02/24 14:14	1
Alkalinity (SM 2320B)	160	B	20	5.0	mg/L			06/26/24 09:37	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	160	B	20	5.0	mg/L			06/26/24 09:37	1
Total Dissolved Solids (SM 2540C)	250		25	13	mg/L			06/26/24 14:27	1
Total Organic Carbon - Duplicates (SM 5310B)	3.7		1.0	0.35	mg/L			06/28/24 03:07	1

Client Sample ID: MW-2A-062024

Lab Sample ID: 590-25479-2

Date Collected: 06/20/24 10:20

Matrix: Water

Date Received: 06/20/24 16:27

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			06/24/24 16:34	1
Tetrachloroethene	ND		1.0	0.22	ug/L			06/24/24 16:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 120*		*06/24/24 16:34*	*1*
4-Bromofluorobenzene (Surr)	*87*		*76 - 120*		*06/24/24 16:34*	*1*
Dibromofluoromethane (Surr)	*122*		*80 - 123*		*06/24/24 16:34*	*1*
Toluene-d8 (Surr)	*107*		*80 - 120*		*06/24/24 16:34*	*1*

Method: SW846 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.19	0.034	ug/L		06/25/24 08:16	06/26/24 18:56	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*55*		*40 - 140*	*06/25/24 08:16*	*06/26/24 18:56*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	59		0.80	0.42	mg/L			06/21/24 11:10	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25479-1

Client Sample ID: MW-2A-062024

Date Collected: 06/20/24 10:20
Date Received: 06/20/24 16:27

Lab Sample ID: 590-25479-2

Matrix: Water

Method: EPA 300.0 - Anions, Ion Chromatography (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**0.24**		0.20	0.057	mg/L			06/21/24 11:10	1
Nitrite as N	ND		0.20	0.069	mg/L			06/21/24 11:10	1
Sulfate	**14**		0.50	0.13	mg/L			06/21/24 11:10	1

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**20**		6.7	1.7	ng/L		06/29/24 08:01	07/06/24 03:25	1
Perfluoropentanoic acid (PFPeA)	ND		3.4	0.84	ng/L		06/29/24 08:01	07/06/24 03:25	1
Perfluorohexanoic acid (PFHxA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/06/24 03:25	1
Perfluoroheptanoic acid (PFHpA)	**0.45**	**J**	1.7	0.42	ng/L		06/29/24 08:01	07/06/24 03:25	1
Perfluorooctanoic acid (PFOA)	**2.1**		1.7	0.42	ng/L		06/29/24 08:01	07/06/24 03:25	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/06/24 03:25	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/06/24 03:25	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/06/24 03:25	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/06/24 03:25	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/06/24 03:25	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/06/24 03:25	1
Perfluorobutanesulfonic acid (PFBS)	**21**		1.7	0.42	ng/L		06/29/24 08:01	07/06/24 03:25	1
Perfluoropentanesulfonic acid (PFPeS)	**2.2**		1.7	0.42	ng/L		06/29/24 08:01	07/06/24 03:25	1
Perfluorohexanesulfonic acid (PFHxS)	**11**		1.7	0.42	ng/L		06/29/24 08:01	07/06/24 03:25	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/06/24 03:25	1
Perfluorooctanesulfonic acid (PFOS)	**8.7**	**I**	1.7	0.42	ng/L		06/29/24 08:01	07/06/24 03:25	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/06/24 03:25	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/06/24 03:25	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/06/24 03:25	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/06/24 03:25	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/06/24 03:25	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/06/24 03:25	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/06/24 03:25	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/06/24 03:25	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/06/24 03:25	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/06/24 03:25	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/06/24 03:25	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		17	4.2	ng/L		06/29/24 08:01	07/06/24 03:25	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		17	4.2	ng/L		06/29/24 08:01	07/06/24 03:25	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/06/24 03:25	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/06/24 03:25	1

Client Sample ID: MW-2A-062024

Date Collected: 06/20/24 10:20
Date Received: 06/20/24 16:27

Lab Sample ID: 590-25479-2

Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		3.4	0.84	ng/L		06/29/24 08:01	07/06/24 03:25	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		3.4	0.84	ng/L		06/29/24 08:01	07/06/24 03:25	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		3.4	0.84	ng/L		06/29/24 08:01	07/06/24 03:25	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/06/24 03:25	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		3.4	0.84	ng/L		06/29/24 08:01	07/06/24 03:25	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		8.4	2.1	ng/L		06/29/24 08:01	07/06/24 03:25	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		42	10	ng/L		06/29/24 08:01	07/06/24 03:25	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		42	10	ng/L		06/29/24 08:01	07/06/24 03:25	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*82.3*		*5 - 130*	*06/29/24 08:01*	*07/06/24 03:25*	*1*
13C5 PFPeA	*67.3*		*40 - 130*	*06/29/24 08:01*	*07/06/24 03:25*	*1*
13C5 PFHxA	*79.3*		*40 - 130*	*06/29/24 08:01*	*07/06/24 03:25*	*1*
13C4 PFHpA	*75.1*		*40 - 130*	*06/29/24 08:01*	*07/06/24 03:25*	*1*
13C8 PFOA	*82.0*		*40 - 130*	*06/29/24 08:01*	*07/06/24 03:25*	*1*
13C9 PFNA	*88.3*		*40 - 130*	*06/29/24 08:01*	*07/06/24 03:25*	*1*
13C6 PFDA	*91.9*		*40 - 130*	*06/29/24 08:01*	*07/06/24 03:25*	*1*
13C7 PFUnA	*77.4*		*30 - 130*	*06/29/24 08:01*	*07/06/24 03:25*	*1*
13C2 PFDoA	*81.5*		*10 - 130*	*06/29/24 08:01*	*07/06/24 03:25*	*1*
13C2 PFTeDA	*71.6*		*10 - 130*	*06/29/24 08:01*	*07/06/24 03:25*	*1*
13C3 PFBS	*85.8*		*40 - 135*	*06/29/24 08:01*	*07/06/24 03:25*	*1*
13C3 PFHxS	*77.9*		*40 - 130*	*06/29/24 08:01*	*07/06/24 03:25*	*1*
13C8 PFOS	*80.6*		*40 - 130*	*06/29/24 08:01*	*07/06/24 03:25*	*1*
13C8 PFOSA	*86.4*		*40 - 130*	*06/29/24 08:01*	*07/06/24 03:25*	*1*
d3-NMeFOSAA	*85.4*		*40 - 170*	*06/29/24 08:01*	*07/06/24 03:25*	*1*
d5-NEtFOSAA	*81.9*		*25 - 135*	*06/29/24 08:01*	*07/06/24 03:25*	*1*
13C2 4:2 FTS	*85.4*		*40 - 200*	*06/29/24 08:01*	*07/06/24 03:25*	*1*
13C2 6:2 FTS	*88.9*		*40 - 200*	*06/29/24 08:01*	*07/06/24 03:25*	*1*
13C2 8:2 FTS	*88.4*		*40 - 300*	*06/29/24 08:01*	*07/06/24 03:25*	*1*
13C3 HFPO-DA	*79.8*		*40 - 130*	*06/29/24 08:01*	*07/06/24 03:25*	*1*
d7-N-MeFOSE-M	*75.6*		*10 - 130*	*06/29/24 08:01*	*07/06/24 03:25*	*1*
d9-N-EtFOSE-M	*71.1*		*10 - 130*	*06/29/24 08:01*	*07/06/24 03:25*	*1*
d5-NEtPFOSA	*65.8*		*10 - 130*	*06/29/24 08:01*	*07/06/24 03:25*	*1*
d3-NMePFOSA	*65.4*		*10 - 130*	*06/29/24 08:01*	*07/06/24 03:25*	*1*

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		6.6	1.7	ng/L		07/08/24 05:18	07/09/24 14:02	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*85.0*		*40 - 130*	*07/08/24 05:18*	*07/09/24 14:02*	*1*

Method: Lab SOP PPCP NEG - Pharmaceuticals and Personal Care Products (LC/MS/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acesulfame K	**0.16**		0.020	0.0020	ug/L			06/25/24 07:27	1

Client Sample ID: MW-2A-062024

Date Collected: 06/20/24 10:20
Date Received: 06/20/24 16:27

Lab Sample ID: 590-25479-2

Matrix: Water

Method: Lab SOP PPCP NEG - Pharmaceuticals and Personal Care Products (LC/MS/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sucralose	**11**		1.0	0.14	ug/L			06/25/24 13:32	10

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**16**		0.50	0.13	mg/L		06/27/24 10:32	07/02/24 18:37	1
Potassium	**6.8**	**^1+**	2.0	0.29	mg/L		06/27/24 10:32	07/02/24 18:37	1
Sodium	**39**	**^1+**	2.0	0.20	mg/L		06/27/24 10:32	07/02/24 18:37	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**34**		1.0	0.20	mg/L		07/02/24 11:12	07/03/24 13:46	1
Magnesium	**14**		0.50	0.13	mg/L		07/02/24 11:12	07/03/24 13:46	1

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0024**	**J**	0.0050	0.0010	mg/L		06/24/24 16:51	06/25/24 11:21	5
Cadmium	ND		0.0020	0.00019	mg/L		06/24/24 16:51	06/25/24 11:21	5
Iron	ND		0.50	0.067	mg/L		06/24/24 16:51	06/25/24 11:21	5
Lead	**0.00034**	**J**	0.0020	0.00020	mg/L		06/24/24 16:51	06/25/24 11:21	5
Manganese	ND		0.010	0.0023	mg/L		06/24/24 16:51	06/25/24 11:21	5
Zinc	ND		0.035	0.0046	mg/L		06/24/24 16:51	06/25/24 11:21	5

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0020**	**J**	0.0050	0.0010	mg/L		06/25/24 15:33	06/26/24 12:44	5
Cadmium	ND		0.0020	0.00019	mg/L		06/25/24 15:33	06/26/24 12:44	5
Iron	ND		0.50	0.067	mg/L		06/25/24 15:33	06/26/24 12:44	5
Lead	ND		0.0020	0.00020	mg/L		06/25/24 15:33	06/26/24 12:44	5
Manganese	ND		0.010	0.0023	mg/L		06/25/24 15:33	06/26/24 12:44	5
Zinc	ND		0.035	0.0046	mg/L		06/25/24 15:33	06/26/24 12:44	5

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		07/03/24 10:13	07/03/24 12:38	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		07/03/24 10:15	07/03/24 13:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	ND		0.10	0.029	mg/L			06/27/24 14:49	1
Alkalinity (SM 2320B)	**160**	**B**	20	5.0	mg/L			06/26/24 09:37	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**160**	**B**	20	5.0	mg/L			06/26/24 09:37	1
Total Dissolved Solids (SM 2540C)	**270**		25	13	mg/L			06/26/24 14:27	1
Total Organic Carbon - Duplicates (SM 5310B)	**4.2**		1.0	0.35	mg/L			06/28/24 03:21	1

Client Sample ID: MW-5A-062024

Date Collected: 06/20/24 13:40
Date Received: 06/20/24 16:27

Lab Sample ID: 590-25479-3

Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			06/24/24 16:56	1
Tetrachloroethene	**0.47**	**J**	1.0	0.22	ug/L			06/24/24 16:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*80 - 120*		*06/24/24 16:56*	*1*
4-Bromofluorobenzene (Surr)	*86*		*76 - 120*		*06/24/24 16:56*	*1*
Dibromofluoromethane (Surr)	*122*		*80 - 123*		*06/24/24 16:56*	*1*
Toluene-d8 (Surr)	*106*		*80 - 120*		*06/24/24 16:56*	*1*

Method: SW846 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	**0.29**		0.19	0.034	ug/L		06/25/24 08:16	06/26/24 19:10	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*57*		*40 - 140*	*06/25/24 08:16*	*06/26/24 19:10*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**67**		0.80	0.42	mg/L			06/21/24 11:20	1
Nitrate as N	**3.1**		0.20	0.057	mg/L			06/21/24 11:20	1
Nitrite as N	ND		0.20	0.069	mg/L			06/21/24 11:20	1
Sulfate	**25**		0.50	0.13	mg/L			06/21/24 11:20	1

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**6.9**	**J**	7.0	1.7	ng/L		06/29/24 08:01	07/03/24 06:53	1
Perfluoropentanoic acid (PFPeA)	**8.9**		3.5	0.87	ng/L		06/29/24 08:01	07/03/24 06:53	1
Perfluorohexanoic acid (PFHxA)	**10**		1.7	0.44	ng/L		06/29/24 08:01	07/03/24 06:53	1
Perfluoroheptanoic acid (PFHpA)	**4.8**		1.7	0.44	ng/L		06/29/24 08:01	07/03/24 06:53	1
Perfluorooctanoic acid (PFOA)	**17**		1.7	0.44	ng/L		06/29/24 08:01	07/03/24 06:53	1
Perfluorononanoic acid (PFNA)	**0.94**	**J**	1.7	0.44	ng/L		06/29/24 08:01	07/03/24 06:53	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.44	ng/L		06/29/24 08:01	07/03/24 06:53	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.44	ng/L		06/29/24 08:01	07/03/24 06:53	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.44	ng/L		06/29/24 08:01	07/03/24 06:53	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.7	0.44	ng/L		06/29/24 08:01	07/03/24 06:53	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.7	0.44	ng/L		06/29/24 08:01	07/03/24 06:53	1
Perfluorobutanesulfonic acid (PFBS)	**3.8**		1.7	0.44	ng/L		06/29/24 08:01	07/03/24 06:53	1
Perfluoropentanesulfonic acid (PFPeS)	**1.9**		1.7	0.44	ng/L		06/29/24 08:01	07/03/24 06:53	1
Perfluorohexanesulfonic acid (PFHxS)	**8.7**		1.7	0.44	ng/L		06/29/24 08:01	07/03/24 06:53	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.7	0.44	ng/L		06/29/24 08:01	07/03/24 06:53	1
Perfluorooctanesulfonic acid (PFOS)	**14**		1.7	0.44	ng/L		06/29/24 08:01	07/03/24 06:53	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.44	ng/L		06/29/24 08:01	07/03/24 06:53	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.44	ng/L		06/29/24 08:01	07/03/24 06:53	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.44	ng/L		06/29/24 08:01	07/03/24 06:53	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		7.0	1.7	ng/L		06/29/24 08:01	07/03/24 06:53	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25479-1

Client Sample ID: MW-5A-062024
Date Collected: 06/20/24 13:40
Date Received: 06/20/24 16:27

Lab Sample ID: 590-25479-3
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		7.0	1.7	ng/L		06/29/24 08:01	07/03/24 06:53	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		7.0	1.7	ng/L		06/29/24 08:01	07/03/24 06:53	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.7	0.44	ng/L		06/29/24 08:01	07/03/24 06:53	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.7	0.44	ng/L		06/29/24 08:01	07/03/24 06:53	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.7	0.44	ng/L		06/29/24 08:01	07/03/24 06:53	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.7	0.44	ng/L		06/29/24 08:01	07/03/24 06:53	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.7	0.44	ng/L		06/29/24 08:01	07/03/24 06:53	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		17	4.4	ng/L		06/29/24 08:01	07/03/24 06:53	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		17	4.4	ng/L		06/29/24 08:01	07/03/24 06:53	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		7.0	1.7	ng/L		06/29/24 08:01	07/03/24 06:53	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		7.0	1.7	ng/L		06/29/24 08:01	07/03/24 06:53	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		3.5	0.87	ng/L		06/29/24 08:01	07/03/24 06:53	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		3.5	0.87	ng/L		06/29/24 08:01	07/03/24 06:53	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		3.5	0.87	ng/L		06/29/24 08:01	07/03/24 06:53	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		7.0	1.7	ng/L		06/29/24 08:01	07/03/24 06:53	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		3.5	0.87	ng/L		06/29/24 08:01	07/03/24 06:53	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		8.7	2.2	ng/L		06/29/24 08:01	07/03/24 06:53	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		44	11	ng/L		06/29/24 08:01	07/03/24 06:53	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		44	11	ng/L		06/29/24 08:01	07/03/24 06:53	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*92.3*		*5 - 130*	*06/29/24 08:01*	*07/03/24 06:53*	*1*
13C5 PFPeA	*73.9*		*40 - 130*	*06/29/24 08:01*	*07/03/24 06:53*	*1*
13C5 PFHxA	*88.8*		*40 - 130*	*06/29/24 08:01*	*07/03/24 06:53*	*1*
13C4 PFHpA	*87.1*		*40 - 130*	*06/29/24 08:01*	*07/03/24 06:53*	*1*
13C8 PFOA	*82.5*		*40 - 130*	*06/29/24 08:01*	*07/03/24 06:53*	*1*
13C9 PFNA	*99.4*		*40 - 130*	*06/29/24 08:01*	*07/03/24 06:53*	*1*
13C6 PFDA	*102*		*40 - 130*	*06/29/24 08:01*	*07/03/24 06:53*	*1*
13C7 PFUnA	*87.0*		*30 - 130*	*06/29/24 08:01*	*07/03/24 06:53*	*1*
13C2 PFDoA	*91.3*		*10 - 130*	*06/29/24 08:01*	*07/03/24 06:53*	*1*
13C2 PFTeDA	*90.0*		*10 - 130*	*06/29/24 08:01*	*07/03/24 06:53*	*1*
13C3 PFBS	*85.1*		*40 - 135*	*06/29/24 08:01*	*07/03/24 06:53*	*1*
13C3 PFHxS	*80.0*		*40 - 130*	*06/29/24 08:01*	*07/03/24 06:53*	*1*
13C8 PFOS	*94.1*		*40 - 130*	*06/29/24 08:01*	*07/03/24 06:53*	*1*
13C8 PFOSA	*92.7*		*40 - 130*	*06/29/24 08:01*	*07/03/24 06:53*	*1*
d3-NMeFOSAA	*89.7*		*40 - 170*	*06/29/24 08:01*	*07/03/24 06:53*	*1*
d5-NEtFOSAA	*92.2*		*25 - 135*	*06/29/24 08:01*	*07/03/24 06:53*	*1*

Client Sample ID: MW-5A-062024

Date Collected: 06/20/24 13:40
Date Received: 06/20/24 16:27

Lab Sample ID: 590-25479-3

Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 4:2 FTS	*97.7*		*40 - 200*	*06/29/24 08:01*	*07/03/24 06:53*	*1*
13C2 6:2 FTS	*104*		*40 - 200*	*06/29/24 08:01*	*07/03/24 06:53*	*1*
13C2 8:2 FTS	*87.2*		*40 - 300*	*06/29/24 08:01*	*07/03/24 06:53*	*1*
13C3 HFPO-DA	*89.2*		*40 - 130*	*06/29/24 08:01*	*07/03/24 06:53*	*1*
d7-N-MeFOSE-M	*82.2*		*10 - 130*	*06/29/24 08:01*	*07/03/24 06:53*	*1*
d9-N-EtFOSE-M	*78.9*		*10 - 130*	*06/29/24 08:01*	*07/03/24 06:53*	*1*
d5-NEtPFOSA	*76.2*		*10 - 130*	*06/29/24 08:01*	*07/03/24 06:53*	*1*
d3-NMePFOSA	*71.8*		*10 - 130*	*06/29/24 08:01*	*07/03/24 06:53*	*1*

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		6.9	1.7	ng/L		07/08/24 05:18	07/09/24 14:23	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*83.3*		*40 - 130*	*07/08/24 05:18*	*07/09/24 14:23*	*1*

Method: Lab SOP PPCP NEG - Pharmaceuticals and Personal Care Products (LC/MS/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acesulfame K	**0.30**		0.020	0.0020	ug/L			06/25/24 08:23	1
Sucralose	**9.8**		0.10	0.014	ug/L			06/25/24 08:23	1

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**14**		0.50	0.13	mg/L		06/27/24 10:32	07/02/24 18:41	1
Potassium	**4.9**	**^1+**	2.0	0.29	mg/L		06/27/24 10:32	07/02/24 18:41	1
Sodium	**43**	**^1+**	2.0	0.20	mg/L		06/27/24 10:32	07/02/24 18:41	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**86**		1.0	0.20	mg/L		07/02/24 11:12	07/03/24 13:50	1
Magnesium	**13**		0.50	0.13	mg/L		07/02/24 11:12	07/03/24 13:50	1

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0017**	**J**	0.0050	0.0010	mg/L		06/24/24 16:51	06/25/24 11:23	5
Cadmium	ND		0.0020	0.00019	mg/L		06/24/24 16:51	06/25/24 11:23	5
Iron	ND		0.50	0.067	mg/L		06/24/24 16:51	06/25/24 11:23	5
Lead	**0.00026**	**J**	0.0020	0.00020	mg/L		06/24/24 16:51	06/25/24 11:23	5
Manganese	ND		0.010	0.0023	mg/L		06/24/24 16:51	06/25/24 11:23	5
Zinc	ND		0.035	0.0046	mg/L		06/24/24 16:51	06/25/24 11:23	5

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0014**	**J**	0.0050	0.0010	mg/L		06/25/24 15:33	06/26/24 12:46	5
Cadmium	ND		0.0020	0.00019	mg/L		06/25/24 15:33	06/26/24 12:46	5
Iron	ND		0.50	0.067	mg/L		06/25/24 15:33	06/26/24 12:46	5
Lead	ND		0.0020	0.00020	mg/L		06/25/24 15:33	06/26/24 12:46	5
Manganese	ND		0.010	0.0023	mg/L		06/25/24 15:33	06/26/24 12:46	5
Zinc	ND		0.035	0.0046	mg/L		06/25/24 15:33	06/26/24 12:46	5

Client Sample ID: MW-5A-062024

Lab Sample ID: 590-25479-3

Date Collected: 06/20/24 13:40

Matrix: Water

Date Received: 06/20/24 16:27

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		07/03/24 10:13	07/03/24 12:46	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		07/03/24 10:16	07/03/24 13:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	ND		0.10	0.029	mg/L			06/27/24 14:51	1
Alkalinity (SM 2320B)	**260**	**B**	20	5.0	mg/L			06/26/24 09:37	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**260**	**B**	20	5.0	mg/L			06/26/24 09:37	1
Total Dissolved Solids (SM 2540C)	**410**		25	13	mg/L			06/26/24 14:27	1
Total Organic Carbon - Duplicates (SM 5310B)	**2.4**		1.0	0.35	mg/L			06/28/24 03:37	1

Client Sample ID: DUP-062024

Lab Sample ID: 590-25479-4

Date Collected: 06/20/24 08:00

Matrix: Water

Date Received: 06/20/24 16:27

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			06/24/24 17:40	1
Tetrachloroethene	**0.51**	**J**	1.0	0.22	ug/L			06/24/24 17:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 120*		*06/24/24 17:40*	*1*
4-Bromofluorobenzene (Surr)	*87*		*76 - 120*		*06/24/24 17:40*	*1*
Dibromofluoromethane (Surr)	*124*	*S1+*	*80 - 123*		*06/24/24 17:40*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*06/24/24 17:40*	*1*

Method: SW846 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	**0.29**		0.20	0.035	ug/L		06/25/24 08:16	06/26/24 19:24	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*51*		*40 - 140*	*06/25/24 08:16*	*06/26/24 19:24*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**67**		0.80	0.42	mg/L			06/21/24 11:30	1
Nitrate as N	**3.1**		0.20	0.057	mg/L			06/21/24 11:30	1
Nitrite as N	ND		0.20	0.069	mg/L			06/21/24 11:30	1
Sulfate	**25**		0.50	0.13	mg/L			06/21/24 11:30	1

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**6.7**		6.7	1.7	ng/L		06/29/24 08:01	07/03/24 07:13	1
Perfluoropentanoic acid (PFPeA)	**9.2**		3.4	0.84	ng/L		06/29/24 08:01	07/03/24 07:13	1
Perfluorohexanoic acid (PFHxA)	**11**		1.7	0.42	ng/L		06/29/24 08:01	07/03/24 07:13	1
Perfluoroheptanoic acid (PFHpA)	**4.8**		1.7	0.42	ng/L		06/29/24 08:01	07/03/24 07:13	1
Perfluorooctanoic acid (PFOA)	**16**		1.7	0.42	ng/L		06/29/24 08:01	07/03/24 07:13	1
Perfluorononanoic acid (PFNA)	**0.77**	**J**	1.7	0.42	ng/L		06/29/24 08:01	07/03/24 07:13	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25479-1

Client Sample ID: DUP-062024
Date Collected: 06/20/24 08:00
Date Received: 06/20/24 16:27

Lab Sample ID: 590-25479-4
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanoic acid (PFDA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/03/24 07:13	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/03/24 07:13	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/03/24 07:13	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/03/24 07:13	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/03/24 07:13	1
Perfluorobutanesulfonic acid (PFBS)	**4.1**		1.7	0.42	ng/L		06/29/24 08:01	07/03/24 07:13	1
Perfluoropentanesulfonic acid (PFPeS)	**1.7**		1.7	0.42	ng/L		06/29/24 08:01	07/03/24 07:13	1
Perfluorohexanesulfonic acid (PFHxS)	**8.8**		1.7	0.42	ng/L		06/29/24 08:01	07/03/24 07:13	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/03/24 07:13	1
Perfluorooctanesulfonic acid (PFOS)	**14**		1.7	0.42	ng/L		06/29/24 08:01	07/03/24 07:13	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/03/24 07:13	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/03/24 07:13	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/03/24 07:13	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/03/24 07:13	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/03/24 07:13	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/03/24 07:13	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/03/24 07:13	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/03/24 07:13	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/03/24 07:13	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/03/24 07:13	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.7	0.42	ng/L		06/29/24 08:01	07/03/24 07:13	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		17	4.2	ng/L		06/29/24 08:01	07/03/24 07:13	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		17	4.2	ng/L		06/29/24 08:01	07/03/24 07:13	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/03/24 07:13	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/03/24 07:13	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		3.4	0.84	ng/L		06/29/24 08:01	07/03/24 07:13	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		3.4	0.84	ng/L		06/29/24 08:01	07/03/24 07:13	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		3.4	0.84	ng/L		06/29/24 08:01	07/03/24 07:13	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		6.7	1.7	ng/L		06/29/24 08:01	07/03/24 07:13	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		3.4	0.84	ng/L		06/29/24 08:01	07/03/24 07:13	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		8.4	2.1	ng/L		06/29/24 08:01	07/03/24 07:13	1

Client Sample ID: DUP-062024

Date Collected: 06/20/24 08:00
Date Received: 06/20/24 16:27

Lab Sample ID: 590-25479-4

Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		42	11	ng/L		06/29/24 08:01	07/03/24 07:13	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		42	11	ng/L		06/29/24 08:01	07/03/24 07:13	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*90.4*		*5 - 130*	*06/29/24 08:01*	*07/03/24 07:13*	*1*
13C5 PFPeA	*74.9*		*40 - 130*	*06/29/24 08:01*	*07/03/24 07:13*	*1*
13C5 PFHxA	*84.1*		*40 - 130*	*06/29/24 08:01*	*07/03/24 07:13*	*1*
13C4 PFHpA	*89.4*		*40 - 130*	*06/29/24 08:01*	*07/03/24 07:13*	*1*
13C8 PFOA	*88.6*		*40 - 130*	*06/29/24 08:01*	*07/03/24 07:13*	*1*
13C9 PFNA	*90.4*		*40 - 130*	*06/29/24 08:01*	*07/03/24 07:13*	*1*
13C6 PFDA	*98.9*		*40 - 130*	*06/29/24 08:01*	*07/03/24 07:13*	*1*
13C7 PFUnA	*91.7*		*30 - 130*	*06/29/24 08:01*	*07/03/24 07:13*	*1*
13C2 PFDoA	*89.6*		*10 - 130*	*06/29/24 08:01*	*07/03/24 07:13*	*1*
13C2 PFTeDA	*82.7*		*10 - 130*	*06/29/24 08:01*	*07/03/24 07:13*	*1*
13C3 PFBS	*81.5*		*40 - 135*	*06/29/24 08:01*	*07/03/24 07:13*	*1*
13C3 PFHxS	*77.8*		*40 - 130*	*06/29/24 08:01*	*07/03/24 07:13*	*1*
13C8 PFOS	*87.3*		*40 - 130*	*06/29/24 08:01*	*07/03/24 07:13*	*1*
13C8 PFOSA	*91.3*		*40 - 130*	*06/29/24 08:01*	*07/03/24 07:13*	*1*
d3-NMeFOSAA	*86.8*		*40 - 170*	*06/29/24 08:01*	*07/03/24 07:13*	*1*
d5-NEtFOSAA	*91.7*		*25 - 135*	*06/29/24 08:01*	*07/03/24 07:13*	*1*
13C2 4:2 FTS	*89.8*		*40 - 200*	*06/29/24 08:01*	*07/03/24 07:13*	*1*
13C2 6:2 FTS	*89.4*		*40 - 200*	*06/29/24 08:01*	*07/03/24 07:13*	*1*
13C2 8:2 FTS	*86.7*		*40 - 300*	*06/29/24 08:01*	*07/03/24 07:13*	*1*
13C3 HFPO-DA	*86.2*		*40 - 130*	*06/29/24 08:01*	*07/03/24 07:13*	*1*
d7-N-MeFOSE-M	*80.3*		*10 - 130*	*06/29/24 08:01*	*07/03/24 07:13*	*1*
d9-N-EtFOSE-M	*77.6*		*10 - 130*	*06/29/24 08:01*	*07/03/24 07:13*	*1*
d5-NEtPFOSA	*75.1*		*10 - 130*	*06/29/24 08:01*	*07/03/24 07:13*	*1*
d3-NMePFOSA	*71.5*		*10 - 130*	*06/29/24 08:01*	*07/03/24 07:13*	*1*

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		7.0	1.7	ng/L		07/08/24 05:18	07/09/24 14:43	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*85.2*		*40 - 130*	*07/08/24 05:18*	*07/09/24 14:43*	*1*

Method: Lab SOP PPCP NEG - Pharmaceuticals and Personal Care Products (LC/MS/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acesulfame K	**0.30**		0.020	0.0020	ug/L			06/25/24 08:51	1
Sucralose	**9.8**		0.10	0.014	ug/L			06/25/24 08:51	1

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**14**		0.50	0.13	mg/L		06/27/24 10:32	07/02/24 18:45	1
Potassium	**4.9**	^1+	2.0	0.29	mg/L		06/27/24 10:32	07/02/24 18:45	1
Sodium	**43**	^1+	2.0	0.20	mg/L		06/27/24 10:32	07/02/24 18:45	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**87**		1.0	0.20	mg/L		07/02/24 11:12	07/03/24 13:54	1

Client Sample ID: DUP-062024

Lab Sample ID: 590-25479-4

Date Collected: 06/20/24 08:00

Matrix: Water

Date Received: 06/20/24 16:27

Method: SW846 6010D - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**13**		0.50	0.13	mg/L		07/02/24 11:12	07/03/24 13:54	1

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0014**	**J**	0.0050	0.0010	mg/L		06/24/24 16:51	06/25/24 11:26	5
Cadmium	ND		0.0020	0.00019	mg/L		06/24/24 16:51	06/25/24 11:26	5
Iron	ND		0.50	0.067	mg/L		06/24/24 16:51	06/25/24 11:26	5
Lead	**0.00023**	**J**	0.0020	0.00020	mg/L		06/24/24 16:51	06/25/24 11:26	5
Manganese	ND		0.010	0.0023	mg/L		06/24/24 16:51	06/25/24 11:26	5
Zinc	ND		0.035	0.0046	mg/L		06/24/24 16:51	06/25/24 11:26	5

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0014**	**J**	0.0050	0.0010	mg/L		06/25/24 15:33	06/26/24 12:51	5
Cadmium	ND		0.0020	0.00019	mg/L		06/25/24 15:33	06/26/24 12:51	5
Iron	**0.073**	**J**	0.50	0.067	mg/L		06/25/24 15:33	06/26/24 12:51	5
Lead	ND		0.0020	0.00020	mg/L		06/25/24 15:33	06/26/24 12:51	5
Manganese	ND		0.010	0.0023	mg/L		06/25/24 15:33	06/26/24 12:51	5
Zinc	ND		0.035	0.0046	mg/L		06/25/24 15:33	06/26/24 12:51	5

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		07/03/24 10:13	07/03/24 12:48	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		07/03/24 10:16	07/03/24 13:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	ND		0.10	0.029	mg/L			06/27/24 14:53	1
Alkalinity (SM 2320B)	**290**	**B**	20	5.0	mg/L			06/26/24 09:37	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**290**	**B**	20	5.0	mg/L			06/26/24 09:37	1
Total Dissolved Solids (SM 2540C)	**420**		25	13	mg/L			06/26/24 14:27	1
Total Organic Carbon - Duplicates (SM 5310B)	**2.4**		1.0	0.35	mg/L			06/28/24 03:53	1

Client Sample ID: FB-062024

Lab Sample ID: 590-25479-5

Date Collected: 06/20/24 15:30

Matrix: Water

Date Received: 06/20/24 16:27

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		6.9	1.7	ng/L		06/29/24 08:01	07/03/24 07:34	1
Perfluoropentanoic acid (PFPeA)	ND		3.5	0.87	ng/L		06/29/24 08:01	07/03/24 07:34	1
Perfluorohexanoic acid (PFHxA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/03/24 07:34	1
Perfluoroheptanoic acid (PFHpA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/03/24 07:34	1
Perfluorooctanoic acid (PFOA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/03/24 07:34	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/03/24 07:34	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/03/24 07:34	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/03/24 07:34	1

Client Sample ID: FB-062024
Date Collected: 06/20/24 15:30
Date Received: 06/20/24 16:27

Lab Sample ID: 590-25479-5
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/03/24 07:34	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/03/24 07:34	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/03/24 07:34	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/03/24 07:34	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/03/24 07:34	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/03/24 07:34	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/03/24 07:34	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/03/24 07:34	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/03/24 07:34	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/03/24 07:34	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/03/24 07:34	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		6.9	1.7	ng/L		06/29/24 08:01	07/03/24 07:34	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		6.9	1.7	ng/L		06/29/24 08:01	07/03/24 07:34	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		6.9	1.7	ng/L		06/29/24 08:01	07/03/24 07:34	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/03/24 07:34	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/03/24 07:34	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/03/24 07:34	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/03/24 07:34	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.7	0.43	ng/L		06/29/24 08:01	07/03/24 07:34	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		17	4.3	ng/L		06/29/24 08:01	07/03/24 07:34	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		17	4.3	ng/L		06/29/24 08:01	07/03/24 07:34	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		6.9	1.7	ng/L		06/29/24 08:01	07/03/24 07:34	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		6.9	1.7	ng/L		06/29/24 08:01	07/03/24 07:34	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		3.5	0.87	ng/L		06/29/24 08:01	07/03/24 07:34	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		3.5	0.87	ng/L		06/29/24 08:01	07/03/24 07:34	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		3.5	0.87	ng/L		06/29/24 08:01	07/03/24 07:34	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		6.9	1.7	ng/L		06/29/24 08:01	07/03/24 07:34	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		3.5	0.87	ng/L		06/29/24 08:01	07/03/24 07:34	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		8.7	2.2	ng/L		06/29/24 08:01	07/03/24 07:34	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		43	11	ng/L		06/29/24 08:01	07/03/24 07:34	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		43	11	ng/L		06/29/24 08:01	07/03/24 07:34	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*87.5*		*5 - 130*	*06/29/24 08:01*	*07/03/24 07:34*	*1*

Client Sample ID: FB-062024
Date Collected: 06/20/24 15:30
Date Received: 06/20/24 16:27

Lab Sample ID: 590-25479-5
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	73.2		40 - 130	06/29/24 08:01	07/03/24 07:34	1
13C5 PFHxA	84.7		40 - 130	06/29/24 08:01	07/03/24 07:34	1
13C4 PFHpA	86.9		40 - 130	06/29/24 08:01	07/03/24 07:34	1
13C8 PFOA	96.8		40 - 130	06/29/24 08:01	07/03/24 07:34	1
13C9 PFNA	96.0		40 - 130	06/29/24 08:01	07/03/24 07:34	1
13C6 PFDA	104		40 - 130	06/29/24 08:01	07/03/24 07:34	1
13C7 PFUnA	96.1		30 - 130	06/29/24 08:01	07/03/24 07:34	1
13C2 PFDoA	89.6		10 - 130	06/29/24 08:01	07/03/24 07:34	1
13C2 PFTeDA	83.5		10 - 130	06/29/24 08:01	07/03/24 07:34	1
13C3 PFBS	82.8		40 - 135	06/29/24 08:01	07/03/24 07:34	1
13C3 PFHxS	80.2		40 - 130	06/29/24 08:01	07/03/24 07:34	1
13C8 PFOS	88.6		40 - 130	06/29/24 08:01	07/03/24 07:34	1
13C8 PFOSA	85.9		40 - 130	06/29/24 08:01	07/03/24 07:34	1
d3-NMeFOSAA	86.5		40 - 170	06/29/24 08:01	07/03/24 07:34	1
d5-NEtFOSAA	82.9		25 - 135	06/29/24 08:01	07/03/24 07:34	1
13C2 4:2 FTS	84.3		40 - 200	06/29/24 08:01	07/03/24 07:34	1
13C2 6:2 FTS	86.2		40 - 200	06/29/24 08:01	07/03/24 07:34	1
13C2 8:2 FTS	83.7		40 - 300	06/29/24 08:01	07/03/24 07:34	1
13C3 HFPO-DA	86.5		40 - 130	06/29/24 08:01	07/03/24 07:34	1
d7-N-MeFOSE-M	80.4		10 - 130	06/29/24 08:01	07/03/24 07:34	1
d9-N-EtFOSE-M	75.6		10 - 130	06/29/24 08:01	07/03/24 07:34	1
d5-NEtPFOSA	73.1		10 - 130	06/29/24 08:01	07/03/24 07:34	1
d3-NMePFOSA	70.5		10 - 130	06/29/24 08:01	07/03/24 07:34	1

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		7.0	1.8	ng/L		07/08/24 05:18	07/09/24 15:04	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	86.8		40 - 130	07/08/24 05:18	07/09/24 15:04	1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 590-48050/10
Matrix: Water
Analysis Batch: 48050

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			06/24/24 13:35	1
Tetrachloroethene	ND		1.0	0.22	ug/L			06/24/24 13:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*		*06/24/24 13:35*	*1*
4-Bromofluorobenzene (Surr)	*91*		*76 - 120*		*06/24/24 13:35*	*1*
Dibromofluoromethane (Surr)	*120*		*80 - 123*		*06/24/24 13:35*	*1*
Toluene-d8 (Surr)	*106*		*80 - 120*		*06/24/24 13:35*	*1*

Lab Sample ID: LCS 590-48050/1005
Matrix: Water
Analysis Batch: 48050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,1,1-Trichloroethane			10.0	10.6		ug/L		106	71 - 138		
Tetrachloroethene			10.0	11.7		ug/L		117	80 - 139		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*94*		*80 - 120*
4-Bromofluorobenzene (Surr)	*86*		*76 - 120*
Dibromofluoromethane (Surr)	*107*		*80 - 123*
Toluene-d8 (Surr)	*101*		*80 - 120*

Lab Sample ID: LCSD 590-48050/6
Matrix: Water
Analysis Batch: 48050

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane			10.0	10.4		ug/L		104	71 - 138	2	17
Tetrachloroethene			10.0	11.0		ug/L		110	80 - 139	7	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*94*		*80 - 120*
4-Bromofluorobenzene (Surr)	*85*		*76 - 120*
Dibromofluoromethane (Surr)	*111*		*80 - 123*
Toluene-d8 (Surr)	*99*		*80 - 120*

Method: 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Lab Sample ID: MB 580-463156/1-A
Matrix: Water
Analysis Batch: 463356

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 463156

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.036	ug/L		06/25/24 08:16	06/26/24 17:46	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*58*		*40 - 140*	*06/25/24 08:16*	*06/26/24 17:46*	*1*

Method: 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Lab Sample ID: LCS 580-463156/2-A
Matrix: Water
Analysis Batch: 463356

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 463156

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,4-Dioxane			8.00	8.20		ug/L		102	78 - 130		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,4-Dioxane-d8	*63*		*40 - 140*

Lab Sample ID: LCSD 580-463156/3-A
Matrix: Water
Analysis Batch: 463356

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 463156

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,4-Dioxane			8.00	8.14		ug/L		102	78 - 130	1	13

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,4-Dioxane-d8	*58*		*40 - 140*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 590-48022/1003
Matrix: Water
Analysis Batch: 48022

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.80	0.42	mg/L			06/21/24 07:54	1
Sulfate	ND		0.50	0.13	mg/L			06/21/24 07:54	1

Lab Sample ID: LCS 590-48022/1004
Matrix: Water
Analysis Batch: 48022

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			12.5	12.9		mg/L		103	90 - 110		
Sulfate			12.5	12.4		mg/L		99	90 - 110		

Lab Sample ID: MB 590-48029/1003
Matrix: Water
Analysis Batch: 48029

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20	0.057	mg/L			06/21/24 07:54	1
Nitrite as N	ND		0.20	0.069	mg/L			06/21/24 07:54	1

Lab Sample ID: LCS 590-48029/1004
Matrix: Water
Analysis Batch: 48029

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate as N			5.00	5.04		mg/L		101	90 - 110		
Nitrite as N			5.00	4.97		mg/L		99	90 - 110		

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Lab Sample ID: MB 320-775603/1-A
Matrix: Water
Analysis Batch: 776597

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 775603

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		8.0	2.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluoropentanoic acid (PFPeA)	ND		4.0	1.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorotetradecanoic acid (PFTeDA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		8.0	2.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		8.0	2.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		8.0	2.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluorooctanesulfonamide (PFOSA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.50	ng/L		06/29/24 08:01	07/04/24 22:05	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		20	5.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		20	5.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		8.0	2.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		8.0	2.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		4.0	1.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		4.0	1.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		4.0	1.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		8.0	2.0	ng/L		06/29/24 08:01	07/04/24 22:05	1

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: MB 320-775603/1-A
Matrix: Water
Analysis Batch: 776597

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 775603

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		4.0	1.0	ng/L		06/29/24 08:01	07/04/24 22:05	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		10	2.5	ng/L		06/29/24 08:01	07/04/24 22:05	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		50	13	ng/L		06/29/24 08:01	07/04/24 22:05	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		50	13	ng/L		06/29/24 08:01	07/04/24 22:05	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*94.9*		*5 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C5 PFPeA	*79.7*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C5 PFHxA	*88.2*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C4 PFHpA	*97.2*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C8 PFOA	*90.2*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C9 PFNA	*96.7*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C6 PFDA	*107*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C7 PFUnA	*93.5*		*30 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C2 PFDoA	*102*		*10 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C2 PFTeDA	*96.5*		*10 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C3 PFBS	*91.3*		*40 - 135*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C3 PFHxS	*82.8*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C8 PFOS	*89.7*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C8 PFOSA	*92.9*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
d3-NMeFOSAA	*100*		*40 - 170*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
d5-NEtFOSAA	*96.2*		*25 - 135*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C2 4:2 FTS	*103*		*40 - 200*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C2 6:2 FTS	*101*		*40 - 200*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C2 8:2 FTS	*101*		*40 - 300*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
13C3 HFPO-DA	*94.8*		*40 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
d7-N-MeFOSE-M	*84.9*		*10 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
d9-N-EtFOSE-M	*81.0*		*10 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
d5-NEtPFOSA	*73.7*		*10 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*
d3-NMePFOSA	*71.7*		*10 - 130*	*06/29/24 08:01*	*07/04/24 22:05*	*1*

Lab Sample ID: LCS 320-775603/3-A
Matrix: Water
Analysis Batch: 776597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 775603

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	128	121		ng/L		94	70 - 140
Perfluoropentanoic acid (PFPeA)	64.0	58.9		ng/L		92	65 - 135
Perfluorohexanoic acid (PFHxA)	32.0	30.8		ng/L		96	70 - 145
Perfluoroheptanoic acid (PFHpA)	32.0	29.9		ng/L		94	70 - 150
Perfluorooctanoic acid (PFOA)	32.0	29.7		ng/L		93	70 - 150
Perfluorononanoic acid (PFNA)	32.0	31.8		ng/L		99	70 - 150
Perfluorodecanoic acid (PFDA)	32.0	29.1		ng/L		91	70 - 140
Perfluoroundecanoic acid (PFUnA)	32.0	31.0		ng/L		97	70 - 145

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-775603/3-A
Matrix: Water
Analysis Batch: 776597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 775603

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorododecanoic acid (PFDoA)	32.0	28.2		ng/L		88	70 - 140
Perfluorotridecanoic acid (PFTrDA)	32.0	27.9		ng/L		87	65 - 140
Perfluorotetradecanoic acid (PFTeDA)	32.0	29.2		ng/L		91	60 - 140
Perfluorobutanesulfonic acid (PFBS)	28.4	27.4		ng/L		97	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	30.1	29.5		ng/L		98	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	29.2	27.2		ng/L		93	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	30.5	26.9		ng/L		88	70 - 150
Perfluorooctanesulfonic acid (PFOS)	29.8	27.4		ng/L		92	55 - 150
Perfluorononanesulfonic acid (PFNS)	30.8	28.7		ng/L		93	65 - 145
Perfluorodecanesulfonic acid (PFDS)	30.8	28.7		ng/L		93	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	31.0	25.8		ng/L		83	50 - 145
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	113		ng/L		94	70 - 145
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	122	119		ng/L		98	65 - 155
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	123	125		ng/L		101	60 - 150
Perfluorooctanesulfonamide (PFOSA)	32.0	24.7		ng/L		77	70 - 145
N-methylperfluorooctane sulfonamide (NMeFOSA)	32.0	32.0		ng/L		100	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA)	32.0	31.2		ng/L		97	65 - 145
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	32.0	30.0		ng/L		94	50 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	32.0	28.7		ng/L		90	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	320	291		ng/L		91	70 - 145
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	320	286		ng/L		89	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	128	117		ng/L		91	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	121	110		ng/L		91	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	64.0	60.0		ng/L		94	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	64.0	64.8		ng/L		101	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	64.0	64.7		ng/L		101	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	121	100		ng/L		83	55 - 160

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-775603/3-A
Matrix: Water
Analysis Batch: 776597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 775603

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	57.1	52.8		ng/L		93	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	160	154		ng/L		96	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	799	725		ng/L		91	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	799	708		ng/L		89	50 - 145

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*96.0*		*5 - 130*
13C5 PFPeA	*78.8*		*40 - 130*
13C5 PFHxA	*89.2*		*40 - 130*
13C4 PFHpA	*92.4*		*40 - 130*
13C8 PFOA	*90.6*		*40 - 130*
13C9 PFNA	*101*		*40 - 130*
13C6 PFDA	*103*		*40 - 130*
13C7 PFUnA	*94.2*		*30 - 130*
13C2 PFDoA	*101*		*10 - 130*
13C2 PFTeDA	*93.1*		*10 - 130*
13C3 PFBS	*89.9*		*40 - 135*
13C3 PFHxS	*85.2*		*40 - 130*
13C8 PFOS	*97.8*		*40 - 130*
13C8 PFOSA	*94.3*		*40 - 130*
d3-NMeFOSAA	*101*		*40 - 170*
d5-NEtFOSAA	*99.4*		*25 - 135*
13C2 4:2 FTS	*95.9*		*40 - 200*
13C2 6:2 FTS	*99.5*		*40 - 200*
13C2 8:2 FTS	*97.6*		*40 - 300*
13C3 HFPO-DA	*95.1*		*40 - 130*
d7-N-MeFOSE-M	*86.9*		*10 - 130*
d9-N-EtFOSE-M	*83.1*		*10 - 130*
d5-NEtPFOSA	*75.5*		*10 - 130*
d3-NMePFOSA	*68.5*		*10 - 130*

Lab Sample ID: LLCS 320-775603/2-A
Matrix: Water
Analysis Batch: 776597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 775603

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	12.8	11.3		ng/L		88	70 - 140
Perfluoropentanoic acid (PFPeA)	6.40	5.52		ng/L		86	65 - 135
Perfluorohexanoic acid (PFHxA)	3.20	2.64		ng/L		83	70 - 145
Perfluoroheptanoic acid (PFHpA)	3.20	2.95		ng/L		92	70 - 150
Perfluorooctanoic acid (PFOA)	3.20	2.42		ng/L		76	70 - 150
Perfluorononanoic acid (PFNA)	3.20	3.04		ng/L		95	70 - 150
Perfluorodecanoic acid (PFDA)	3.20	2.60		ng/L		81	70 - 140
Perfluoroundecanoic acid (PFUnA)	3.20	2.98		ng/L		93	70 - 145

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-775603/2-A
Matrix: Water
Analysis Batch: 776597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 775603

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorododecanoic acid (PFDoA)	3.20	2.51		ng/L		78	70 - 140
Perfluorotridecanoic acid (PFTrDA)	3.20	2.59		ng/L		81	65 - 140
Perfluorotetradecanoic acid (PFTeDA)	3.20	2.69		ng/L		84	60 - 140
Perfluorobutanesulfonic acid (PFBS)	2.84	2.49		ng/L		88	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	3.01	2.32		ng/L		77	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	2.92	2.73		ng/L		94	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	3.05	2.27		ng/L		74	70 - 150
Perfluorooctanesulfonic acid (PFOS)	2.98	2.52		ng/L		85	55 - 150
Perfluorononanesulfonic acid (PFNS)	3.08	2.75		ng/L		89	65 - 145
Perfluorodecanesulfonic acid (PFDS)	3.08	2.49		ng/L		81	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	3.10	2.90		ng/L		93	50 - 145
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	12.0	11.2		ng/L		93	70 - 145
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	12.2	11.7		ng/L		96	65 - 155
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	12.3	11.8		ng/L		96	60 - 150
Perfluorooctanesulfonamide (PFOSA)	3.20	2.32		ng/L		72	70 - 145
N-methylperfluorooctane sulfonamide (NMeFOSA)	3.20	2.47		ng/L		77	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA)	3.20	2.54		ng/L		79	65 - 145
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.20	2.71		ng/L		85	50 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	3.20	2.76		ng/L		86	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	32.0	26.1		ng/L		82	70 - 145
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	32.0	25.8		ng/L		81	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	12.8	11.3		ng/L		88	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	12.1	10.4		ng/L		86	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	6.40	5.18		ng/L		81	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	6.40	5.96		ng/L		93	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	6.40	6.02		ng/L		94	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	12.1	9.08		ng/L		75	55 - 160

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-775603/2-A
Matrix: Water
Analysis Batch: 776597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 775603

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	5.71	4.13		ng/L		72	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	16.0	14.3		ng/L		90	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	79.9	66.3		ng/L		83	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	79.9	65.5		ng/L		82	50 - 145

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C4 PFBA	*90.0*		*5 - 130*
13C5 PFPeA	*76.4*		*40 - 130*
13C5 PFHxA	*87.4*		*40 - 130*
13C4 PFHpA	*88.1*		*40 - 130*
13C8 PFOA	*93.5*		*40 - 130*
13C9 PFNA	*97.6*		*40 - 130*
13C6 PFDA	*103*		*40 - 130*
13C7 PFUnA	*89.7*		*30 - 130*
13C2 PFDoA	*98.5*		*10 - 130*
13C2 PFTeDA	*99.0*		*10 - 130*
13C3 PFBS	*85.9*		*40 - 135*
13C3 PFHxS	*77.6*		*40 - 130*
13C8 PFOS	*90.0*		*40 - 130*
13C8 PFOSA	*93.1*		*40 - 130*
d3-NMeFOSAA	*94.8*		*40 - 170*
d5-NEtFOSAA	*96.4*		*25 - 135*
13C2 4:2 FTS	*88.6*		*40 - 200*
13C2 6:2 FTS	*89.0*		*40 - 200*
13C2 8:2 FTS	*91.5*		*40 - 300*
13C3 HFPO-DA	*91.5*		*40 - 130*
d7-N-MeFOSE-M	*85.7*		*10 - 130*
d9-N-EtFOSE-M	*82.5*		*10 - 130*
d5-NEtPFOSA	*73.0*		*10 - 130*
d3-NMePFOSA	*69.4*		*10 - 130*

Lab Sample ID: MB 320-777242/1-A
Matrix: Water
Analysis Batch: 777673

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 777242

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		8.0	2.0	ng/L		07/08/24 05:18	07/09/24 09:16	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*84.2*		*40 - 130*	*07/08/24 05:18*	*07/09/24 09:16*	*1*

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-777242/3-A
Matrix: Water
Analysis Batch: 777673

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 777242

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)			120	117		ng/L		98	70 - 155		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C3 HFPO-DA	*83.6*		*40 - 130*

Lab Sample ID: LCSD 320-777242/4-A
Matrix: Water
Analysis Batch: 777673

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 777242

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)			120	107		ng/L		90	70 - 155	8	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C3 HFPO-DA	*86.6*		*40 - 130*

Lab Sample ID: LLCS 320-777242/2-A
Matrix: Water
Analysis Batch: 777673

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 777242

Analyte			Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits		
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)			12.0	10.7		ng/L		89	70 - 155		

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C3 HFPO-DA	*87.0*		*40 - 130*

Method: PPCP NEG - Pharmaceuticals and Personal Care Products (LC/MS/MS)

Lab Sample ID: MB 810-103678/10
Matrix: Water
Analysis Batch: 103678

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acesulfame K	ND		0.020	0.0020	ug/L			06/25/24 02:47	1
Sucralose	ND		0.10	0.014	ug/L			06/25/24 02:47	1

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 590-48116/2-A
Matrix: Water
Analysis Batch: 48207

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 48116

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	ND		0.50	0.13	mg/L		06/27/24 10:32	07/02/24 12:18	1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCS 590-48116/1-A
Matrix: Water
Analysis Batch: 48207

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 48116

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Magnesium	25.0	22.5		mg/L		90	80 - 120

Lab Sample ID: MB 590-48117/2-B
Matrix: Water
Analysis Batch: 48207

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 48188

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.0	0.20	mg/L		07/02/24 11:12	07/02/24 13:10	1
Magnesium	ND		0.50	0.13	mg/L		07/02/24 11:12	07/02/24 13:10	1

Lab Sample ID: LCS 590-48117/1-B
Matrix: Water
Analysis Batch: 48207

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 48188

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	25.0	21.7		mg/L		87	80 - 120
Magnesium	25.0	21.8		mg/L		87	80 - 120

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 580-463143/10-A
Matrix: Water
Analysis Batch: 463282

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 463143

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.0010	mg/L		06/24/24 16:51	06/25/24 10:50	5
Cadmium	ND		0.0020	0.00019	mg/L		06/24/24 16:51	06/25/24 10:50	5
Iron	ND		0.50	0.067	mg/L		06/24/24 16:51	06/25/24 10:50	5
Lead	ND		0.0020	0.00020	mg/L		06/24/24 16:51	06/25/24 10:50	5
Manganese	ND		0.010	0.0023	mg/L		06/24/24 16:51	06/25/24 10:50	5
Zinc	ND		0.035	0.0046	mg/L		06/24/24 16:51	06/25/24 10:50	5

Lab Sample ID: LCS 580-463143/11-A
Matrix: Water
Analysis Batch: 463282

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 463143

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	0.988		mg/L		99	80 - 120
Cadmium	1.00	0.939		mg/L		94	80 - 120
Iron	20.0	19.7		mg/L		99	80 - 120
Lead	1.00	1.02		mg/L		102	80 - 120
Manganese	1.00	0.948		mg/L		95	80 - 120
Zinc	1.00	0.994		mg/L		99	80 - 120

Lab Sample ID: LCSD 580-463143/12-A
Matrix: Water
Analysis Batch: 463282

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 463143

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	1.00	0.957		mg/L		96	80 - 120	3	20

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 580-463143/12-A
Matrix: Water
Analysis Batch: 463282

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 463143

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	1.00	0.918		mg/L		92	80 - 120	2	20
Iron	20.0	19.0		mg/L		95	80 - 120	4	20
Lead	1.00	1.01		mg/L		101	80 - 120	1	20
Manganese	1.00	0.914		mg/L		91	80 - 120	4	20
Zinc	1.00	0.953		mg/L		95	80 - 120	4	20

Lab Sample ID: MB 580-463083/11-B
Matrix: Water
Analysis Batch: 463405

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 463243

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.0010	mg/L		06/25/24 15:33	06/26/24 12:13	5
Cadmium	ND		0.0020	0.00019	mg/L		06/25/24 15:33	06/26/24 12:13	5
Iron	ND		0.50	0.067	mg/L		06/25/24 15:33	06/26/24 12:13	5
Lead	ND		0.0020	0.00020	mg/L		06/25/24 15:33	06/26/24 12:13	5
Manganese	ND		0.010	0.0023	mg/L		06/25/24 15:33	06/26/24 12:13	5
Zinc	ND		0.035	0.0046	mg/L		06/25/24 15:33	06/26/24 12:13	5

Lab Sample ID: LCS 580-463083/12-B
Matrix: Water
Analysis Batch: 463405

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 463243

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	1.03		mg/L		103	80 - 120
Cadmium	1.00	1.02		mg/L		102	80 - 120
Iron	20.0	19.8		mg/L		99	80 - 120
Lead	1.00	1.01		mg/L		101	80 - 120
Manganese	1.00	0.978		mg/L		98	80 - 120
Zinc	1.00	0.986		mg/L		99	80 - 120

Lab Sample ID: LCSD 580-463083/13-B
Matrix: Water
Analysis Batch: 463405

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 463243

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	1.00	1.04		mg/L		104	80 - 120	0	20
Cadmium	1.00	1.03		mg/L		103	80 - 120	1	20
Iron	20.0	20.0		mg/L		100	80 - 120	1	20
Lead	1.00	1.03		mg/L		103	80 - 120	2	20
Manganese	1.00	0.992		mg/L		99	80 - 120	1	20
Zinc	1.00	0.986		mg/L		99	80 - 120	0	20

Lab Sample ID: 590-25479-1 MS
Matrix: Water
Analysis Batch: 463405

Client Sample ID: MW-16A-062024
Prep Type: Dissolved
Prep Batch: 463243

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.0023	J	1.00	1.06		mg/L		106	80 - 120
Cadmium	ND		1.00	1.02		mg/L		102	80 - 120
Iron	0.074	J	20.0	20.8		mg/L		103	80 - 120

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: 590-25479-1 MS
Matrix: Water
Analysis Batch: 463405

Client Sample ID: MW-16A-062024
Prep Type: Dissolved
Prep Batch: 463243

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Lead	ND		1.00	1.03		mg/L		103	80 - 120
Manganese	0.0044	J	1.00	1.00		mg/L		100	80 - 120
Zinc	ND		1.00	1.02		mg/L		102	80 - 120

Lab Sample ID: 590-25479-1 MSD
Matrix: Water
Analysis Batch: 463405

Client Sample ID: MW-16A-062024
Prep Type: Dissolved
Prep Batch: 463243

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	0.0023	J	1.00	1.04		mg/L		104	80 - 120	2	20
Cadmium	ND		1.00	1.02		mg/L		102	80 - 120	1	20
Iron	0.074	J	20.0	19.9		mg/L		99	80 - 120	4	20
Lead	ND		1.00	1.01		mg/L		101	80 - 120	2	20
Manganese	0.0044	J	1.00	0.980		mg/L		98	80 - 120	2	20
Zinc	ND		1.00	0.988		mg/L		99	80 - 120	3	20

Lab Sample ID: 590-25479-1 DU
Matrix: Water
Analysis Batch: 463405

Client Sample ID: MW-16A-062024
Prep Type: Dissolved
Prep Batch: 463243

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	0.0023	J	0.00222	J	mg/L		4	20
Cadmium	ND		ND		mg/L		NC	20
Iron	0.074	J	ND		mg/L		NC	20
Lead	ND		ND		mg/L		NC	20
Manganese	0.0044	J	0.00436	J	mg/L		0.7	20
Zinc	ND		ND		mg/L		NC	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 590-48224/9-A
Matrix: Water
Analysis Batch: 48241

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 48224

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		07/03/24 10:12	07/03/24 12:18	1

Lab Sample ID: LCS 590-48224/8-A
Matrix: Water
Analysis Batch: 48241

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 48224

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	2.00	1.69		ug/L		85	80 - 120

Lab Sample ID: MB 590-48117/2-C
Matrix: Water
Analysis Batch: 48241

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 48225

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		07/03/24 10:15	07/03/24 12:59	1

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 590-48117/1-C
Matrix: Water
Analysis Batch: 48241

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 48225

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			2.00	1.74		ug/L		87	80 - 120		

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 280-658667/60
Matrix: Water
Analysis Batch: 658667

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	ND		0.10	0.029	mg/L			06/27/24 13:42	1

Lab Sample ID: LCS 280-658667/61
Matrix: Water
Analysis Batch: 658667

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Ammonia as N			2.50	2.65		mg/L		106	90 - 110		

Lab Sample ID: MB 280-659155/63
Matrix: Water
Analysis Batch: 659155

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	ND		0.10	0.029	mg/L			07/02/24 13:26	1

Lab Sample ID: LCS 280-659155/64
Matrix: Water
Analysis Batch: 659155

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Ammonia as N			2.50	2.49		mg/L		100	90 - 110		

Lab Sample ID: 590-25479-1 MS
Matrix: Water
Analysis Batch: 659155

Client Sample ID: MW-16A-062024
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Ammonia as N	ND		1.00	1.06		mg/L		106	90 - 110		

Lab Sample ID: 590-25479-1 MSD
Matrix: Water
Analysis Batch: 659155

Client Sample ID: MW-16A-062024
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia as N	ND		1.00	1.10		mg/L		110	90 - 110	4	10

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 590-48087/1
Matrix: Water
Analysis Batch: 48087

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.00	J	20	5.0	mg/L			06/26/24 09:37	1
Bicarbonate Alkalinity as CaCO3	5.00	J	20	5.0	mg/L			06/26/24 09:37	1

Lab Sample ID: LCS 590-48087/2
Matrix: Water
Analysis Batch: 48087

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	501	475		mg/L		95	90 - 110

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 590-48103/1
Matrix: Water
Analysis Batch: 48103

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		25	13	mg/L			06/26/24 14:26	1

Lab Sample ID: LCS 590-48103/2
Matrix: Water
Analysis Batch: 48103

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	500	499		mg/L		100	80 - 120

Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 280-658712/36
Matrix: Water
Analysis Batch: 658712

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		1.0	0.35	mg/L			06/28/24 00:38	1

Lab Sample ID: LCS 280-658712/35
Matrix: Water
Analysis Batch: 658712

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon - Duplicates	25.0	26.4		mg/L		106	88 - 112

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25479-1

Client Sample ID: MW-16A-062024

Date Collected: 06/20/24 08:50
Date Received: 06/20/24 16:27

Lab Sample ID: 590-25479-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	5 mL	5 mL	48022	06/21/24 11:00	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	48029	06/21/24 11:00	NMI	EET SPK
Total/NA	Prep	1633			581.4 mL	5.0 mL	775603	06/29/24 08:01	WVD	EET SAC
Total/NA	Analysis	Draft-4 1633		1	1 mL	1 mL	776597	07/05/24 04:14	EMF	EET SAC
Total/NA	Prep	1633	RE		579 mL	5.0 mL	777242	07/08/24 05:18	GAT	EET SAC
Total/NA	Analysis	Draft-4 1633	RE	1	1 mL	1 mL	777673	07/09/24 13:42	K1D	EET SAC
Total/NA	Analysis	PPCP NEG		1	1 mL	1 mL	103678	06/25/24 06:59	BS	EA SB
Dissolved	Filtration	FILTRATION			50 mL	50 mL	48117	06/27/24 10:48	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	48188	07/02/24 11:12	AMB	EET SPK
Dissolved	Analysis	6010D		1			48257	07/03/24 13:42	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	48116	06/27/24 10:32	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			48256	07/02/24 18:33	AMB	EET SPK
Dissolved	Filtration	FILTRATION			250 mL	250 mL	463083	06/24/24 10:04	TMH	EET SEA
Dissolved	Prep	3005A			50 mL	50 mL	463243	06/25/24 15:33	MCMS	EET SEA
Dissolved	Analysis	6020B		5			463405	06/26/24 12:20	TMH	EET SEA
Total/NA	Analysis	350.1		1	10 mL	10 mL	659155	07/02/24 14:14	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	48087	06/26/24 09:37	RMA	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	48103	06/26/24 14:27	RMA	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	658712	06/28/24 03:07	ABW	EET DEN

Client Sample ID: MW-2A-062024

Date Collected: 06/20/24 10:20
Date Received: 06/20/24 16:27

Lab Sample ID: 590-25479-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	43 mL	43 mL	48050	06/24/24 16:34	JSP	EET SPK
Total/NA	Prep	3510C			263.7 mL	1 mL	463156	06/25/24 08:16	JW	EET SEA
Total/NA	Analysis	8270C SIM ID		1	1 mL	1 mL	463356	06/26/24 18:56	TL1	EET SEA
Total/NA	Analysis	300.0		1	5 mL	5 mL	48022	06/21/24 11:10	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	48029	06/21/24 11:10	NMI	EET SPK
Total/NA	Prep	1633			596.9 mL	5.0 mL	775603	06/29/24 08:01	WVD	EET SAC
Total/NA	Analysis	Draft-4 1633		1	1 mL	1 mL	777022	07/06/24 03:25	EMF	EET SAC
Total/NA	Prep	1633	RE		602 mL	5.0 mL	777242	07/08/24 05:18	GAT	EET SAC
Total/NA	Analysis	Draft-4 1633	RE	1	1 mL	1 mL	777673	07/09/24 14:02	K1D	EET SAC
Total/NA	Analysis	PPCP NEG		1	1 mL	1 mL	103678	06/25/24 07:27	BS	EA SB
Total/NA	Analysis	PPCP NEG	DL	10	1 mL	1 mL	103678	06/25/24 13:32	BS	EA SB
Dissolved	Filtration	FILTRATION			50 mL	50 mL	48117	06/27/24 10:48	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	48188	07/02/24 11:12	AMB	EET SPK
Dissolved	Analysis	6010D		1			48257	07/03/24 13:46	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	48116	06/27/24 10:32	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			48256	07/02/24 18:37	AMB	EET SPK
Dissolved	Filtration	FILTRATION			250 mL	250 mL	463083	06/24/24 10:04	TMH	EET SEA
Dissolved	Prep	3005A			50 mL	50 mL	463243	06/25/24 15:33	MCMS	EET SEA
Dissolved	Analysis	6020B		5			463405	06/26/24 12:44	TMH	EET SEA

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25479-1

Client Sample ID: MW-2A-062024

Date Collected: 06/20/24 10:20
Date Received: 06/20/24 16:27

Lab Sample ID: 590-25479-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	463143	06/24/24 16:51	MCMS	EET SEA
Total Recoverable	Analysis	6020B		5			463282	06/25/24 11:21	FCW	EET SEA
Dissolved	Filtration	FILTRATION			50 mL	50 mL	48117	06/27/24 10:48	AMB	EET SPK
Dissolved	Prep	7470A			50 mL	50 mL	48225	07/03/24 10:15	AMB	EET SPK
Dissolved	Analysis	7470A		1			48241	07/03/24 13:24	AMB	EET SPK
Total/NA	Prep	7470A			50 mL	50 mL	48224	07/03/24 10:13	AMB	EET SPK
Total/NA	Analysis	7470A		1			48241	07/03/24 12:38	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	658667	06/27/24 14:49	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	48087	06/26/24 09:37	RMA	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	48103	06/26/24 14:27	RMA	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	658712	06/28/24 03:21	ABW	EET DEN

Client Sample ID: MW-5A-062024

Date Collected: 06/20/24 13:40
Date Received: 06/20/24 16:27

Lab Sample ID: 590-25479-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	43 mL	43 mL	48050	06/24/24 16:56	JSP	EET SPK
Total/NA	Prep	3510C			262.8 mL	1 mL	463156	06/25/24 08:16	JW	EET SEA
Total/NA	Analysis	8270C SIM ID		1	1 mL	1 mL	463356	06/26/24 19:10	TL1	EET SEA
Total/NA	Analysis	300.0		1	5 mL	5 mL	48022	06/21/24 11:20	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	48029	06/21/24 11:20	NMI	EET SPK
Total/NA	Prep	1633			573.1 mL	5.0 mL	775603	06/29/24 08:01	WVD	EET SAC
Total/NA	Analysis	Draft-4 1633		1	1 mL	1 mL	776321	07/03/24 06:53	K1D	EET SAC
Total/NA	Prep	1633	RE		583.9 mL	5.0 mL	777242	07/08/24 05:18	GAT	EET SAC
Total/NA	Analysis	Draft-4 1633	RE	1	1 mL	1 mL	777673	07/09/24 14:23	K1D	EET SAC
Total/NA	Analysis	PPCP NEG		1	1 mL	1 mL	103678	06/25/24 08:23	BS	EA SB
Dissolved	Filtration	FILTRATION			50 mL	50 mL	48117	06/27/24 10:48	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	48188	07/02/24 11:12	AMB	EET SPK
Dissolved	Analysis	6010D		1			48257	07/03/24 13:50	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	48116	06/27/24 10:32	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			48256	07/02/24 18:41	AMB	EET SPK
Dissolved	Filtration	FILTRATION			250 mL	250 mL	463083	06/24/24 10:04	TMH	EET SEA
Dissolved	Prep	3005A			50 mL	50 mL	463243	06/25/24 15:33	MCMS	EET SEA
Dissolved	Analysis	6020B		5			463405	06/26/24 12:46	TMH	EET SEA
Total Recoverable	Prep	3005A			50 mL	50 mL	463143	06/24/24 16:51	MCMS	EET SEA
Total Recoverable	Analysis	6020B		5			463282	06/25/24 11:23	FCW	EET SEA
Dissolved	Filtration	FILTRATION			50 mL	50 mL	48117	06/27/24 10:48	AMB	EET SPK
Dissolved	Prep	7470A			50 mL	50 mL	48225	07/03/24 10:16	AMB	EET SPK
Dissolved	Analysis	7470A		1			48241	07/03/24 13:26	AMB	EET SPK
Total/NA	Prep	7470A			50 mL	50 mL	48224	07/03/24 10:13	AMB	EET SPK
Total/NA	Analysis	7470A		1			48241	07/03/24 12:46	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	658667	06/27/24 14:51	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	48087	06/26/24 09:37	RMA	EET SPK

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25479-1

Client Sample ID: MW-5A-062024

Lab Sample ID: 590-25479-3

Date Collected: 06/20/24 13:40

Matrix: Water

Date Received: 06/20/24 16:27

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	48103	06/26/24 14:27	RMA	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	658712	06/28/24 03:37	ABW	EET DEN

Client Sample ID: DUP-062024

Lab Sample ID: 590-25479-4

Date Collected: 06/20/24 08:00

Matrix: Water

Date Received: 06/20/24 16:27

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	43 mL	43 mL	48050	06/24/24 17:40	JSP	EET SPK
Total/NA	Prep	3510C			253.9 mL	1 mL	463156	06/25/24 08:16	JW	EET SEA
Total/NA	Analysis	8270C SIM ID		1	1 mL	1 mL	463356	06/26/24 19:24	TL1	EET SEA
Total/NA	Analysis	300.0		1	5 mL	5 mL	48022	06/21/24 11:30	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	48029	06/21/24 11:30	NMI	EET SPK
Total/NA	Prep	1633			593 mL	5.0 mL	775603	06/29/24 08:01	WVD	EET SAC
Total/NA	Analysis	Draft-4 1633		1	1 mL	1 mL	776321	07/03/24 07:13	K1D	EET SAC
Total/NA	Prep	1633	RE		575.1 mL	5.0 mL	777242	07/08/24 05:18	GAT	EET SAC
Total/NA	Analysis	Draft-4 1633	RE	1	1 mL	1 mL	777673	07/09/24 14:43	K1D	EET SAC
Total/NA	Analysis	PPCP NEG		1	1 mL	1 mL	103678	06/25/24 08:51	BS	EA SB
Dissolved	Filtration	FILTRATION			50 mL	50 mL	48117	06/27/24 10:48	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	48188	07/02/24 11:12	AMB	EET SPK
Dissolved	Analysis	6010D		1			48257	07/03/24 13:54	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	48116	06/27/24 10:32	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			48256	07/02/24 18:45	AMB	EET SPK
Dissolved	Filtration	FILTRATION			250 mL	250 mL	463083	06/24/24 10:04	TMH	EET SEA
Dissolved	Prep	3005A			50 mL	50 mL	463243	06/25/24 15:33	MCMS	EET SEA
Dissolved	Analysis	6020B		5			463405	06/26/24 12:51	TMH	EET SEA
Total Recoverable	Prep	3005A			50 mL	50 mL	463143	06/24/24 16:51	MCMS	EET SEA
Total Recoverable	Analysis	6020B		5			463282	06/25/24 11:26	FCW	EET SEA
Dissolved	Filtration	FILTRATION			50 mL	50 mL	48117	06/27/24 10:48	AMB	EET SPK
Dissolved	Prep	7470A			50 mL	50 mL	48225	07/03/24 10:16	AMB	EET SPK
Dissolved	Analysis	7470A		1			48241	07/03/24 13:29	AMB	EET SPK
Total/NA	Prep	7470A			50 mL	50 mL	48224	07/03/24 10:13	AMB	EET SPK
Total/NA	Analysis	7470A		1			48241	07/03/24 12:48	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	658667	06/27/24 14:53	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	48087	06/26/24 09:37	RMA	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	48103	06/26/24 14:27	RMA	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	658712	06/28/24 03:53	ABW	EET DEN

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25479-1

Client Sample ID: FB-062024

Date Collected: 06/20/24 15:30
Date Received: 06/20/24 16:27

Lab Sample ID: 590-25479-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633			576.5 mL	5.0 mL	775603	06/29/24 08:01	WVD	EET SAC
Total/NA	Analysis	Draft-4 1633		1	1 mL	1 mL	776321	07/03/24 07:34	K1D	EET SAC
Total/NA	Prep	1633	RE		567.5 mL	5.0 mL	777242	07/08/24 05:18	GAT	EET SAC
Total/NA	Analysis	Draft-4 1633	RE	1	1 mL	1 mL	777673	07/09/24 15:04	K1D	EET SAC

Laboratory References:

EA SB = Eurofins Eaton Analytical South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777
EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600
EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310
EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Accreditation/Certification Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25479-1

Laboratory: Eurofins Spokane

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C569	01-07-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3

Laboratory: Eurofins Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-25
A2LA	ISO/IEC 17025	2907.01	10-31-25
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	07-16-24
Arizona	State	AZ0713	07-30-24
Arkansas DEQ	State	19-047-0	04-21-25
California	State	2513	01-08-25
Colorado	Petroleum Storage Tank Program	4025 (or)	01-08-25
Colorado	State	CO00026	06-30-25
Connecticut	State	PH-0686	09-30-24
Florida	NELAP	E87667-57	06-30-25
Georgia	State	4025-011	01-08-25
Illinois	NELAP	2000172024-9	05-31-25
Iowa	State	370	08-04-24
Kansas	NELAP	E-10166	04-30-25
Kentucky (WW)	State	KY98047	12-31-24
Louisiana	NELAP	30785	06-30-14 *
Louisiana (All)	NELAP	30785	06-30-25
Minnesota	NELAP	1788752	08-20-24
Nevada	State	CO000262024-08	07-31-24
New Hampshire	NELAP	2053	08-12-24
New Jersey	NELAP	230001	07-07-24
New York	NELAP	59923	04-01-25
North Dakota	State	R-034	01-08-25
Oklahoma	NELAP	8614	08-31-24
Oregon	NELAP	4025	07-16-24
Pennsylvania	NELAP	013	07-08-24
South Carolina	State	72002001	01-08-24 *
Texas	NELAP	TX104704183-08-TX	09-30-09 *
Texas	NELAP	T104704183-23-23	09-30-24
USDA	US Federal Programs	P330-20-00065	12-19-25
Utah	NELAP	QUAN5	06-30-13 *
Utah	NELAP	CO000262019-11	07-31-25
Virginia	NELAP	460232	06-14-25
Washington	State	C583	08-03-24
West Virginia DEP	State	354	11-30-24
Wisconsin	State	999615430	08-19-24
Wyoming (UST)	A2LA	2907.01	10-31-25

Laboratory: Eurofins Eaton Analytical South Bend

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25479-1

Laboratory: Eurofins Eaton Analytical South Bend (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	ISO/IEC 17025	5794.01	07-21-24
Alabama	State	40700	06-30-24
Alaska	State	IN00035	06-30-24
Arizona	State	AZ0432	07-25-24
Arkansas (DW)	State	EPA IN00035	06-30-24
California	State	2920	06-30-24
Colorado	State	IN00035	08-05-24
Connecticut	State	PH-0132	07-08-24
Delaware (DW)	State	IN00035	06-27-24
Florida	NELAP	E87775	06-30-24
Georgia (DW)	State	929	06-30-24
Guam	State	23-011R	07-15-24
Hawaii	State	IN035	06-30-24
Idaho (DW)	State	IN00035	08-15-24
IL Dept. of Public Health (Micro)	State	17767	06-30-24
Illinois	NELAP	200001	09-19-24
Indiana	State	C-71-01	12-31-25
Indiana (Micro)	State	M-76-07	12-31-25
Iowa	State	IA Lab #098	08-01-24
Kansas	NELAP	E-10233	10-31-24
Kentucky (DW)	State	KY90056	08-12-24
Louisiana (DW)	State	LA014	07-16-24
Maine	State	IN00035	05-01-25
Maryland	State	209	06-27-24
Massachusetts	State	M-IN035	07-30-24
MI - RadChem Recognition	State	9926	06-26-24
Michigan	State	9926	06-26-24
Minnesota	NELAP	1989807	12-31-24
Mississippi	State	IN00035	06-30-24
Missouri	State	880	09-30-24
Montana (DW)	State	CERT0026	07-16-24
Nebraska	State	NE-OS-05-04	06-30-24
Nevada	State	IN000352024-01	07-31-24
New Hampshire	NELAP	2124	11-05-24
New Jersey	NELAP	IN598	06-30-24
New Mexico	State	IN00035	06-30-24
New York	NELAP	11398	04-01-25
North Carolina (DW)	State	18700	06-30-24
North Dakota	State	R-035	06-30-24
Northern Mariana Islands (DW)	State	IN00035	06-30-24
Ohio	State	87775	06-27-24
Oklahoma	NELAP	D9508	08-31-24
Oregon	NELAP	4156	09-16-24
Pennsylvania	NELAP	68-00466	04-30-25
Puerto Rico	State	IN00035	07-10-24
Rhode Island	State	LAO00343	07-21-24
South Carolina	State	95005001	06-30-24
South Dakota (DW)	State	IN00035	06-30-24
Tennessee	State	TN02973	06-30-24
Texas	NELAP	T104704187-22-16	12-31-24

Accreditation/Certification Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25479-1

Laboratory: Eurofins Eaton Analytical South Bend (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Texas	TCEQ Water Supply	TX207	06-30-24
USEPA Reg X SDWA	US Federal Programs	IN00035	08-24-24
USEPA UCMR 5	US Federal Programs	IN00035	12-31-25
Utah	NELAP	IN00035	07-31-24
Vermont	State	VT-8775	07-16-24
Virginia	NELAP	460275	07-31-24
Washington	State	C837	01-01-25
West Virginia (DW)	State	9927 C	08-19-24
Wisconsin	State	999766900	08-31-24
Wisconsin (Micro)	State	10121	12-31-24
Wyoming	State	8TMS-L	06-30-24

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-27
ANAB	Dept. of Defense ELAP	L2468	01-20-27
ANAB	Dept. of Energy	L2468.01	01-20-27
ANAB	ISO/IEC 17025	L2468	01-20-27
Arizona	State	AZ0708	08-11-24
Arkansas DEQ	State	88-0691	05-18-25
California	State	2897	01-31-26
Colorado	State	CA00044	08-31-24
Florida	NELAP	E87570	06-30-25
Georgia	State	4040	01-29-25
Hawaii	State	Eurofins Sacramento	01-29-25
Illinois	NELAP	200060	03-31-25
Kansas	NELAP	E-10375	10-31-25
Louisiana	NELAP	01944	06-30-25
Louisiana (All)	NELAP	01944	06-30-25
Maine	State	CA00004	04-14-26
Michigan	State	9947	08-18-24
Nevada	State	CA00044	07-31-24
New Hampshire	NELAP	2997	04-19-25
New Jersey	NELAP	CA005	06-30-25
New York	NELAP	11666	04-01-25
Ohio	State	41252	01-29-25
Oregon	NELAP	4040	07-16-24
Texas	NELAP	T104704399-23-17	05-31-25
US Fish & Wildlife	US Federal Programs	A22139	04-30-25
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442023-16	02-28-25
Virginia	NELAP	460278	03-14-25
Washington	State	C581	05-05-25
West Virginia (DW)	State	9930C	01-31-25
Wisconsin	State	998204680	08-07-24
Wyoming	State Program	8TMS-L	01-28-19 *

Laboratory: Eurofins Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25479-1

Laboratory: Eurofins Seattle (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-004	02-19-25
ANAB	Dept. of Defense ELAP	L2236	08-07-24
ANAB	Dept. of Energy	L2236	08-07-24
ANAB	ISO/IEC 17025	L2236	08-07-24
California	State	2954	07-07-24
Florida	NELAP	E87575	06-30-24
Louisiana	NELAP	03073	06-30-24
Louisiana (All)	NELAP	03073	06-30-24
Maine	State	WA01273	05-02-26
Montana (UST)	State	NA	04-14-27
New Jersey	NELAP	WA014	06-30-24
New York	NELAP	11662	04-01-25
Oregon	NELAP	4167	07-07-24
US Fish & Wildlife	US Federal Programs	A20571	06-30-24
USDA	US Federal Programs	525-23-4-22573	01-04-26
Washington	State	C788-24	07-13-24
Wisconsin	State	399133460	08-31-24

Method Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25479-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET SPK
8270C SIM ID	Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)	SW846	EET SEA
300.0	Anions, Ion Chromatography	EPA	EET SPK
Draft-4 1633	Per- and Polyfluoroalkyl Substances by LC/MS/MS	EPA	EET SAC
PPCP NEG	Pharmaceuticals and Personal Care Products (LC/MS/MS)	Lab SOP	EA SB
6010D	Metals (ICP)	SW846	EET SPK
6020B	Metals (ICP/MS)	SW846	EET SEA
7470A	Mercury (CVAA)	SW846	EET SPK
350.1	Nitrogen, Ammonia	EPA	EET DEN
SM 2320B	Alkalinity	SM	EET SPK
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET SPK
SM 5310B	Organic Carbon, Total (TOC)	SM	EET DEN
1633	Solid-Phase Extraction (SPE)	EPA	EET SAC
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET SEA
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET SPK
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET SEA
5030C	Purge and Trap	SW846	EET SPK
7470A	Preparation, Mercury	SW846	EET SPK
FILTRATION	Sample Filtration	None	EET SEA
FILTRATION	Sample Filtration	None	EET SPK

Protocol References:

EPA = US Environmental Protection Agency
Lab SOP = Laboratory Standard Operating Procedure
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EA SB = Eurofins Eaton Analytical South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777
EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600
EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310
EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Chain of Custody Record

Eurofins Spokane
11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924 9200 fax 509.924 9290

eurofins Environment Testing America

Regulatory Program ☐ DW ☐ NPDES ☐ RCRA ☐ Other

Eurofins Environment Testing America

Client Contact	**Project Manager:** Sydney Bronson	COC No:
GeoEngineers, Inc.	Email: sbronson@geoengineers.com	**Site Contact:** Alex Navarra **Date:** 6/20/24	1 of 1 COCs
523 E 2nd Ave	Tel/Fax: 509.570.0779	**Lab Contact:** **Carrier:**	TALS Project #
Spokane, WA 99202	**Analysis Turnaround Time**		Sampler:
509.363.3125 Phone	☐ CALENDAR DAYS ☐ WORKING DAYS		**For Lab Use Only**
FAX	TAT if different from Below ____		Walk-in Client.
Project Name: Marshall Landfill GWM	☐ 2 weeks		Lab Sampling
Site: Marshall Landfill Site Design	☐ 1 week		Job / SDG No.
P O # 0504-104-01	☐ 2 days ☐ 1 day		

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	PFAS / EPA 1633	Ammonia as N / EPA 350.1	Alkalinity bicarbonate / SM 2320B	TDS / SC 2540C	TOC / SM 5310B	Total K, Mg, Na / EPA 6010D	Dissolved Ca, Mg / EPA 6010D	Chloride, sulfate, nitrate, nitrite / EPA 300.0	Diss. Fe, Mn / EPA 6020B	Total Hg / EPA 7470A	Diss Hg / 7470A	Total As, Cd, Fe, Mn, Pb, Zn / EPA 6020B	Diss As, Cd, Fe, Mn, Pb, Zn / EPA 6020B	Artificial Sweeteners (acesulfame K, sucralose	PCE, 1 1 1 TCA / EPA 8260D	1,4-dioxane / EPA 8270E SIM	Sample Specific Notes:
MW-16-062024	6/20/24	0850	G	W				X	X	X	X	X	X	X	X	X						X			
MW-2A-062024	6/20/24	1020	G	W				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-5A-062024	6/20/24	1340	G	W				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
DUP-062024	6/20/24	0800	G	W				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
FB-062024	6/20/24	1530	G	W				X																	

590-25479 Chain of Custody

Preservation Used: 1= Ice, 2= HCl, 3= H_2SO_4; 4=HNO_3; 5=NaOH, 6= Other ____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments:
DISSOLVED METALS LAB FILTERED

11.7 cor (Route
30 cor (Route
13.7 cor (Route

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.		Cooler Temp. (°C): Obs'd: ____ Corr'd. ____		Therm ID No.: ____
Relinquished by:	Company:	Date/Time: 06/20/24 1630	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: EET SPK	Date/Time: ~~EET~~ 6/20/24 1107

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-9329.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Washington		Job #: 590-25479-1
Address: 4955 Yarrow Street, ,	Due Date Requested: 7/5/2024			
City: Arvada	TAT Requested (days):			
State, Zip: CO, 80002				
Phone: 303-736-0100(Tel) 303-431-7171(Fax)	PO #:			
Email:	WO #:			
Project Name: Marshall Landfill	Project #: 59002669			
Site:	SSOW#:			

Analysis Requested

Preservation Codes: -

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	350.1	SM5310B/ (MOD) TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
MW-16-062024 (590-25479-1)	6/20/24	08:50 Pacific		Water			X	X	2	
MW-2A-062024 (590-25479-2)	6/20/24	10:20 Pacific		Water			X	X	2	
MW-5A-062024 (590-25479-3)	6/20/24	13:40 Pacific		Water			X	X	2	
DUP-062024 (590-25479-4)	6/20/24	08:00 Pacific		Water			X	X	2	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	6/24/24 14:35	ET SPO		6/25/24 1245	ET SPO
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2.1, 2.3, IR Gun, NOG

Ver: 04/02/2024

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-9327 1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note): State Program - Washington		Job #: 590-25479-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 7/5/2024			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Marshall Landfill	Project #: 59002669			
Site:	SSOW#:			

Analysis Requested

Preservation Codes: -

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1633/1633_SPE EPA 1633 Method List	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-16-062024 (590-25479-1)	6/20/24	08 50 Pacific		Water			X	3	
MW-2A-062024 (590-25479-2)	6/20/24	10:20 Pacific		Water			X	3	
MW-5A-062024 (590-25479-3)	6/20/24	13.40 Pacific		Water			X	3	
DUP-062024 (590-25479-4)	6/20/24	08.00 Pacific		Water			X	3	
FB-062024 (590-25479-5)	6/20/24	15.30 Pacific		Water			X	3	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)***
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	6/21/24 15:32	EEC80	[signature]	06/22/24 0845	EEsac
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No 2274589 | Cooler Temperature(s) °C and Other Remarks: 1,8°C

Ver: 04/02/2024

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-9326.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Northwest,		Accreditations Required (See note): State Program - Washington		Job #: 590-25479-1
Address: 5755 8th Street East, ,	Due Date Requested: 7/5/2024			
City: Tacoma	TAT Requested (days):			
State, Zip: WA, 98424				
Phone: 253-922-2310(Tel)	PO #:			
Email:	WO #:			
Project Name: Marshall Landfill	Project #: 59002669			
Site:	SSOW#:			

Analysis Requested

Preservation Codes: -

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020B/FILTRATION (MOD) Dissolved Fe & Mn	6020B/3005A (MOD) Total As, Cd, Fe, Mn, Pb & Zn	6020B/FILTRATION (MOD) Diss As, Cd, Fe, Mn, Pb & Zn	8270C_SIM_MS_ID/3510C_LVI 1,4-Dioxane	Total Number of containers	Special Instructions/Note:
			Preservation Code:									
MW-16-062024 (590-25479-1)	6/20/24	08:50 Pacific		Water			X				1	
MW-2A-062024 (590-25479-2)	6/20/24	10:20 Pacific		Water				X	X	X	6	
MW-5A-062024 (590-25479-3)	6/20/24	13:40 Pacific		Water				X	X	X	6	
DUP-062024 (590-25479-4)	6/20/24	08:00 Pacific		Water				X	X	X	6	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)***
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	6/21/24 14:41	EETSB	[signature]	6/22/24 0915	EETN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: IR 11 1.6/1.1

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-9325.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Eaton Analytical		Accreditations Required (See note): State Program - Washington		Job #: 590-25479-1
Address: 110 S Hill Street, ,	Due Date Requested: 7/5/2024	Analysis Requested		Preservation Codes:
City: South Bend	TAT Requested (days):			
State, Zip: IN, 46617				
Phone: 574-233-4777(Tel) 574-233-8207(Fax)	PO #:			
Email:	WO #:			
Project Name: Marshall Landfill	Project #: 59002669			
Site:	SSOW#:			Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	LCMS_PPCP_NEG/ (MOD) Acesulfame K & Sucralose	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-16-062024 (590-25479-1)	6/20/24	08:50 Pacific		Water			X	2	
MW-2A-062024 (590-25479-2)	6/20/24	10:20 Pacific		Water			X	2	
MW-5A-062024 (590-25479-3)	6/20/24	13:40 Pacific		Water			X		
DUP-062024 (590-25479-4)	6/20/24	08:00 Pacific		Water			X		

Initial Temp: 0.0
Corrected Temp: 3.6
IR Gun #: 1

pH Acceptable KY

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	6/21/24 14:28	EEC 880		6/22/24	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 04/02/2024

Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-9325.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Eaton Analytical		Accreditations Required (See note): State Program - Washington		Job #: 590-25486-1
Address: 110 S Hill Street, ,	Due Date Requested: 7/8/2024	Analysis Requested		Preservation Codes: -
City: South Bend	TAT Requested (days):			
State, Zip: IN, 46617				
Phone: 574-233-4777(Tel) 574-233-8207(Fax)	PO #:			
Email:	WO #:			
Project Name: Marshall Landfill GWM	Project #: 59002669			Other:
Site:	SSOW#:			

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample	LCMS_PPCP_NEG/ (MOD) Acesulfame K & Sucralose	Special Instructions/Note:
			Preservation Code:				
MW-3-062124 (590-25486-1)	6/21/24	08:45 Pacific		Water		X	

Initial Temp: 0.0
Corrected Temp: 0.0
IR Gun #: 27
pH Acceptable KH

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	6/21/24 14:22	EET SAC		6/22/24 0900	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 04/02/2024

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-25479-1

Login Number: 25479
List Number: 1
Creator: Morris, Mackenzie 1

List Source: Eurofins Spokane

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	False	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-25479-1

Login Number: 25479
List Number: 5
Creator: Little, Matthew L

List Source: Eurofins Denver
List Creation: 06/25/24 02:20 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	Refer to Job Narrative for details.
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-25479-1

Login Number: 25479
List Number: 2
Creator: Trowbridge, Peyton

List Source: Eurofins Eaton Analytical South Bend
List Creation: 06/22/24 10:26 AM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Samples do not require splitting or compositing.	True	
Container provided by EEA	True	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-25479-1

Login Number: 25479
List Number: 3
Creator: Morazzini, Dominic S

List Source: Eurofins Sacramento
List Creation: 06/22/24 09:59 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	2274589
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-25479-1

Login Number: 25479
List Number: 4
Creator: Harp, Cordelia

List Source: Eurofins Seattle
List Creation: 06/22/24 01:10 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	IR 11 1.6/1.1 c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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Sacramento Sample Receiving Notes (SSRN)

590 25479 Field Sheet

Job: _____

Tracking # 7391 0416 9757

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSL / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations
File in the job folder with the COC

Therm. ID L06 Corr. Factor (+/-) NA °C

Ice 1 Wet 1 Gel _____ Other _____

Cooler Custody Seal: 2274589

Cooler ID: _____

Temp Observed: 1.8 °C Corrected: 1.8 °C

From Temp Blank ☐ Sample ☑

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Frozen samples show signs of thaw?	☐	☐	☑

Initials DM Date 06/22/24

Unpacking/Labeling The Samples	Yes	No	NA
Containers are not broken or leaking?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
COC is complete w/o discrepancies	☑	☐	☐
Sample custody seal?	☐	☐	☑
Sample containers have legible labels?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Is the Field Sampler's name on COC?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials DM Date 06/22/24

Notes: _____

Trizma Lot #(s) _____

Ammonium Acetate Lot #(s) _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☑	☐	☐
NCM Filed?	☐	☐	☑
Samples received within hold time?	☐	☐	☑
Log Release checked in TALS?	☐	☐	☑

Initials DM Date 06/22/24

Isotope Dilution Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-25479-1

Method: 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	DXE (40-140)
590-25479-2	MW-2A-062024	55
590-25479-3	MW-5A-062024	57
590-25479-4	DUP-062024	51
LCS 580-463156/2-A	Lab Control Sample	63
LCSD 580-463156/3-A	Lab Control Sample Dup	58
MB 580-463156/1-A	Method Blank	58

Surrogate Legend

DXE = 1,4-Dioxane-d8

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (5-130)	PFPeA (40-130)	13C5PHA (40-130)	C4PFHA (40-130)	C8PFOA (40-130)	C9PFNA (40-130)	C6PFDA (40-130)	13C7PUA (30-130)
590-25479-1	MW-16A-062024	83.5	70.8	77.8	80.8	81.5	88.5	83.1	73.4
590-25479-1 - RE	MW-16A-062024								
590-25479-2	MW-2A-062024	82.3	67.3	79.3	75.1	82.0	88.3	91.9	77.4
590-25479-2 - RE	MW-2A-062024								
590-25479-3	MW-5A-062024	92.3	73.9	88.8	87.1	82.5	99.4	102	87.0
590-25479-3 - RE	MW-5A-062024								
590-25479-4	DUP-062024	90.4	74.9	84.1	89.4	88.6	90.4	98.9	91.7
590-25479-4 - RE	DUP-062024								
590-25479-5	FB-062024	87.5	73.2	84.7	86.9	96.8	96.0	104	96.1
590-25479-5 - RE	FB-062024								
LCS 320-775603/3-A	Lab Control Sample	96.0	78.8	89.2	92.4	90.6	101	103	94.2
LCS 320-777242/3-A	Lab Control Sample								
LCSD 320-777242/4-A	Lab Control Sample Dup								
LLCS 320-775603/2-A	Lab Control Sample	90.0	76.4	87.4	88.1	93.5	97.6	103	89.7
LLCS 320-777242/2-A	Lab Control Sample								
MB 320-775603/1-A	Method Blank	94.9	79.7	88.2	97.2	90.2	96.7	107	93.5
MB 320-777242/1-A	Method Blank								

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (10-130)	PFTDA (10-130)	C3PFBS (40-135)	C3PFHS (40-130)	C8PFOS (40-130)	PFOSA (40-130)	d3NMFOS (40-170)	d5NEFOS (25-135)
590-25479-1	MW-16A-062024	74.5	64.7	80.9	74.2	73.3	79.9	80.0	76.6
590-25479-1 - RE	MW-16A-062024								
590-25479-2	MW-2A-062024	81.5	71.6	85.8	77.9	80.6	86.4	85.4	81.9
590-25479-2 - RE	MW-2A-062024								
590-25479-3	MW-5A-062024	91.3	90.0	85.1	80.0	94.1	92.7	89.7	92.2
590-25479-3 - RE	MW-5A-062024								
590-25479-4	DUP-062024	89.6	82.7	81.5	77.8	87.3	91.3	86.8	91.7
590-25479-4 - RE	DUP-062024								
590-25479-5	FB-062024	89.6	83.5	82.8	80.2	88.6	85.9	86.5	82.9
590-25479-5 - RE	FB-062024								
LCS 320-775603/3-A	Lab Control Sample	101	93.1	89.9	85.2	97.8	94.3	101	99.4
LCS 320-777242/3-A	Lab Control Sample								
LCSD 320-777242/4-A	Lab Control Sample Dup								
LLCS 320-775603/2-A	Lab Control Sample	98.5	99.0	85.9	77.6	90.0	93.1	94.8	96.4

Isotope Dilution Summary

Client: GeoEngineers Inc
Job ID: 590-25479-1
Project/Site: Marshall Landfill

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (10-130)	PFTDA (10-130)	C3PFBS (40-135)	C3PFHS (40-130)	C8PFOS (40-130)	PFOSA (40-130)	d3NMFOS (40-170)	d5NEFOS (25-135)
LLCS 320-777242/2-A	Lab Control Sample								
MB 320-775603/1-A	Method Blank	102	96.5	91.3	82.8	89.7	92.9	100	96.2
MB 320-777242/1-A	Method Blank								

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M242FTS (40-200)	M262FTS (40-200)	M282FTS (40-300)	HFPODA (40-130)	NMFM (10-130)	NEFM (10-130)	d5NPFSA (10-130)	d3NMFSA (10-130)
590-25479-1	MW-16A-062024	95.9	93.4	86.9	84.1	59.5	55.1	57.3	57.1
590-25479-1 - RE	MW-16A-062024				90.9				
590-25479-2	MW-2A-062024	85.4	88.9	88.4	79.8	75.6	71.1	65.8	65.4
590-25479-2 - RE	MW-2A-062024				85.0				
590-25479-3	MW-5A-062024	97.7	104	87.2	89.2	82.2	78.9	76.2	71.8
590-25479-3 - RE	MW-5A-062024				83.3				
590-25479-4	DUP-062024	89.8	89.4	86.7	86.2	80.3	77.6	75.1	71.5
590-25479-4 - RE	DUP-062024				85.2				
590-25479-5	FB-062024	84.3	86.2	83.7	86.5	80.4	75.6	73.1	70.5
590-25479-5 - RE	FB-062024				86.8				
LCS 320-775603/3-A	Lab Control Sample	95.9	99.5	97.6	95.1	86.9	83.1	75.5	68.5
LCS 320-777242/3-A	Lab Control Sample				83.6				
LCSD 320-777242/4-A	Lab Control Sample Dup				86.6				
LLCS 320-775603/2-A	Lab Control Sample	88.6	89.0	91.5	91.5	85.7	82.5	73.0	69.4
LLCS 320-777242/2-A	Lab Control Sample				87.0				
MB 320-775603/1-A	Method Blank	103	101	101	94.8	84.9	81.0	73.7	71.7
MB 320-777242/1-A	Method Blank				84.2				

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
13C5PHA = 13C5 PFHxA
C4PFHA = 13C4 PFHpA
C8PFOA = 13C8 PFOA
C9PFNA = 13C9 PFNA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
C8PFOS = 13C8 PFOS
PFOSA = 13C8 PFOSA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
M242FTS = 13C2 4:2 FTS
M262FTS = 13C2 6:2 FTS
M282FTS = 13C2 8:2 FTS
HFPODA = 13C3 HFPO-DA
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
d5NPFSA = d5-NEtPFOSA
d3NMFSA = d3-NMePFOSA

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ANALYTICAL REPORT

PREPARED FOR

Attn: Sydney Bronson
GeoEngineers Inc
523 East Second Ave
Spokane, Washington 99202

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JOB DESCRIPTION

Marshall Landfill GWM

JOB NUMBER

590-25486-1

Eurofins Spokane
11922 East 1st Ave
Spokane WA 99206

See page two for job notes and contact information.

my EOL

Job Notes

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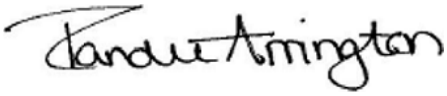
The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northwest, LLC Project Manager.

Authorization



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Job Narrative
590-25486-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 6/21/2024 11:13 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.4°C.

GC/MS VOA
Method 8260D: The continuing calibration verification (CCV) associated with batch 590-48244 recovered above the upper control limit for Chlorobromomethane, 1,1,2,2-Tetrachloroethane, 1,1-Dichloroethene, Bromomethane, Chloromethane, Methylene Chloride, Trichlorofluoromethane and Vinyl chloride. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 8260D: Surrogate recovery for the following sample was outside the upper control limit: (MB 590-48244/8). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Method 8260D: Reanalysis of the following sample was performed outside of the analytical holding time due to QC failure : TB-062124 (590-25486-3).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

LCMS
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

PFAS
Method 1633: The following samples in preparation batch 320-776445 were yellow in color following extraction. MW-3-062124 (590-25486-1)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
Method 6010D - Total Recoverable: The low level initial calibration verification (ICVL) associated with batch 590-48256 recovered above the upper control limit for Potassium and Sodium. The samples associated with this ICV were 10x the spike amount or non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
Method 2320B: The method blank for analytical batch 590-48087 contained Alkalinity and Bicarbonate Alkalinity as CaCO3 above the method detection limit (MDL). Associated samples were not re-analyzed because the method blank results were less than the reporting limit (RL).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Sample Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-25486-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-25486-1	MW-3-062124	Water	06/21/24 08:45	06/21/24 11:13
590-25486-2	Hose Bib-062124	Water	06/21/24 10:30	06/21/24 11:13
590-25486-3	TB-062124	Water	06/21/24 00:00	06/21/24 11:13

Definitions/Glossary

Client: GeoEngineers Inc
Job ID: 590-25486-1
Project/Site: Marshall Landfill GWM

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.
S1+	Surrogate recovery exceeds control limits, high biased.

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
^1+	Initial Calibration Verification (ICV) is outside acceptance limits, high biased.

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-25486-1

Client Sample ID: MW-3-062124

Date Collected: 06/21/24 08:45
Date Received: 06/21/24 11:13

Lab Sample ID: 590-25486-1

Matrix: Water

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**58**		0.80	0.42	mg/L			06/21/24 14:22	1
Nitrate as N	**0.40**		0.20	0.057	mg/L			06/21/24 14:22	1
Nitrite as N	ND		0.20	0.069	mg/L			06/21/24 14:22	1
Sulfate	**16**		0.50	0.13	mg/L			06/21/24 14:22	1

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		6.7	1.7	ng/L		07/03/24 11:07	07/07/24 09:57	1
Perfluoropentanoic acid (PFPeA)	ND		3.4	0.84	ng/L		07/03/24 11:07	07/07/24 09:57	1
Perfluorohexanoic acid (PFHxA)	ND		1.7	0.42	ng/L		07/03/24 11:07	07/07/24 09:57	1
Perfluoroheptanoic acid (PFHpA)	ND		1.7	0.42	ng/L		07/03/24 11:07	07/07/24 09:57	1
Perfluorooctanoic acid (PFOA)	**0.61**	**J**	1.7	0.42	ng/L		07/03/24 11:07	07/07/24 09:57	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.42	ng/L		07/03/24 11:07	07/07/24 09:57	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.42	ng/L		07/03/24 11:07	07/07/24 09:57	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.42	ng/L		07/03/24 11:07	07/07/24 09:57	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.7	0.42	ng/L		07/03/24 11:07	07/07/24 09:57	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.7	0.42	ng/L		07/03/24 11:07	07/07/24 09:57	1
Perfluorobutanesulfonic acid (PFBS)	**2.8**		1.7	0.42	ng/L		07/03/24 11:07	07/07/24 09:57	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.7	0.42	ng/L		07/03/24 11:07	07/07/24 09:57	1
Perfluorohexanesulfonic acid (PFHxS)	**1.5**	**J**	1.7	0.42	ng/L		07/03/24 11:07	07/07/24 09:57	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.7	0.42	ng/L		07/03/24 11:07	07/07/24 09:57	1
Perfluorooctanesulfonic acid (PFOS)	**4.4**		1.7	0.42	ng/L		07/03/24 11:07	07/07/24 09:57	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.42	ng/L		07/03/24 11:07	07/07/24 09:57	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.42	ng/L		07/03/24 11:07	07/07/24 09:57	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.42	ng/L		07/03/24 11:07	07/07/24 09:57	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		6.7	1.7	ng/L		07/03/24 11:07	07/07/24 09:57	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		6.7	1.7	ng/L		07/03/24 11:07	07/07/24 09:57	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		6.7	1.7	ng/L		07/03/24 11:07	07/07/24 09:57	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.7	0.42	ng/L		07/03/24 11:07	07/07/24 09:57	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.7	0.42	ng/L		07/03/24 11:07	07/07/24 09:57	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.7	0.42	ng/L		07/03/24 11:07	07/07/24 09:57	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.7	0.42	ng/L		07/03/24 11:07	07/07/24 09:57	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.7	0.42	ng/L		07/03/24 11:07	07/07/24 09:57	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		17	4.2	ng/L		07/03/24 11:07	07/07/24 09:57	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		17	4.2	ng/L		07/03/24 11:07	07/07/24 09:57	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		6.7	1.7	ng/L		07/03/24 11:07	07/07/24 09:57	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		6.7	1.7	ng/L		07/03/24 11:07	07/07/24 09:57	1

Client Sample ID: MW-3-062124
Date Collected: 06/21/24 08:45
Date Received: 06/21/24 11:13

Lab Sample ID: 590-25486-1
Matrix: Water

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		3.4	0.84	ng/L		07/03/24 11:07	07/07/24 09:57	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		3.4	0.84	ng/L		07/03/24 11:07	07/07/24 09:57	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		3.4	0.84	ng/L		07/03/24 11:07	07/07/24 09:57	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		6.7	1.7	ng/L		07/03/24 11:07	07/07/24 09:57	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		6.7	1.7	ng/L		07/03/24 11:07	07/07/24 09:57	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		3.4	0.84	ng/L		07/03/24 11:07	07/07/24 09:57	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		8.4	2.1	ng/L		07/03/24 11:07	07/07/24 09:57	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		42	10	ng/L		07/03/24 11:07	07/07/24 09:57	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		42	10	ng/L		07/03/24 11:07	07/07/24 09:57	1

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*79.4*		*5 - 130*	*07/03/24 11:07*	*07/07/24 09:57*	*1*
13C5 PFPeA	*80.4*		*40 - 130*	*07/03/24 11:07*	*07/07/24 09:57*	*1*
13C5 PFHxA	*75.4*		*40 - 130*	*07/03/24 11:07*	*07/07/24 09:57*	*1*
13C4 PFHpA	*74.9*		*40 - 130*	*07/03/24 11:07*	*07/07/24 09:57*	*1*
13C8 PFOA	*74.4*		*40 - 130*	*07/03/24 11:07*	*07/07/24 09:57*	*1*
13C9 PFNA	*77.0*		*40 - 130*	*07/03/24 11:07*	*07/07/24 09:57*	*1*
13C6 PFDA	*81.9*		*40 - 130*	*07/03/24 11:07*	*07/07/24 09:57*	*1*
13C7 PFUnA	*71.2*		*30 - 130*	*07/03/24 11:07*	*07/07/24 09:57*	*1*
13C2 PFDoA	*78.1*		*10 - 130*	*07/03/24 11:07*	*07/07/24 09:57*	*1*
13C2 PFTeDA	*71.7*		*10 - 130*	*07/03/24 11:07*	*07/07/24 09:57*	*1*
13C3 PFBS	*77.2*		*40 - 135*	*07/03/24 11:07*	*07/07/24 09:57*	*1*
13C3 PFHxS	*71.3*		*40 - 130*	*07/03/24 11:07*	*07/07/24 09:57*	*1*
13C8 PFOS	*86.0*		*40 - 130*	*07/03/24 11:07*	*07/07/24 09:57*	*1*
13C8 PFOSA	*80.8*		*40 - 130*	*07/03/24 11:07*	*07/07/24 09:57*	*1*
d3-NMeFOSAA	*77.3*		*40 - 170*	*07/03/24 11:07*	*07/07/24 09:57*	*1*
d5-NEtFOSAA	*78.2*		*25 - 135*	*07/03/24 11:07*	*07/07/24 09:57*	*1*
13C2 4:2 FTS	*92.6*		*40 - 200*	*07/03/24 11:07*	*07/07/24 09:57*	*1*
13C2 6:2 FTS	*80.0*		*40 - 200*	*07/03/24 11:07*	*07/07/24 09:57*	*1*
13C2 8:2 FTS	*105*		*40 - 300*	*07/03/24 11:07*	*07/07/24 09:57*	*1*
13C3 HFPO-DA	*75.6*		*40 - 130*	*07/03/24 11:07*	*07/07/24 09:57*	*1*
d7-N-MeFOSE-M	*66.1*		*10 - 130*	*07/03/24 11:07*	*07/07/24 09:57*	*1*
d9-N-EtFOSE-M	*56.5*		*10 - 130*	*07/03/24 11:07*	*07/07/24 09:57*	*1*
d5-NEtPFOSA	*61.5*		*10 - 130*	*07/03/24 11:07*	*07/07/24 09:57*	*1*
d3-NMePFOSA	*64.0*		*10 - 130*	*07/03/24 11:07*	*07/07/24 09:57*	*1*

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanoic acid (PFDA)	ND		1.7	0.42	ng/L		07/03/24 11:07	07/08/24 12:49	1

Method: EPA Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C6 PFDA	*87.5*		*40 - 130*	*07/03/24 11:07*	*07/08/24 12:49*	*1*

Client Sample ID: MW-3-062124

Lab Sample ID: 590-25486-1

Date Collected: 06/21/24 08:45

Matrix: Water

Date Received: 06/21/24 11:13

Method: Lab SOP PPCP NEG - Pharmaceuticals and Personal Care Products (LC/MS/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acesulfame K	0.31		0.020	0.0020	ug/L			06/25/24 09:19	1
Sucralose	9.9		0.10	0.014	ug/L			06/25/24 09:19	1

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	15		0.50	0.13	mg/L		06/27/24 10:32	07/02/24 18:50	1
Potassium	6.5	^1+	2.0	0.29	mg/L		06/27/24 10:32	07/02/24 18:50	1
Sodium	39	^1+	2.0	0.20	mg/L		06/27/24 10:32	07/02/24 18:50	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	32		1.0	0.20	mg/L		07/02/24 11:12	07/03/24 13:59	1
Magnesium	14		0.50	0.13	mg/L		07/02/24 11:12	07/03/24 13:59	1

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.50	0.067	mg/L		06/25/24 15:33	06/26/24 12:40	5
Manganese	ND		0.010	0.0023	mg/L		06/25/24 15:33	06/26/24 12:40	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	ND		0.10	0.029	mg/L			07/02/24 12:15	1
Alkalinity (SM 2320B)	140	B	20	5.0	mg/L			06/26/24 09:37	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	140	B	20	5.0	mg/L			06/26/24 09:37	1
Total Dissolved Solids (SM 2540C)	300		25	13	mg/L			06/28/24 17:00	1
Total Organic Carbon - Duplicates (SM 5310B)	3.7		1.0	0.35	mg/L			06/28/24 04:53	1

Client Sample ID: Hose Bib-062124

Lab Sample ID: 590-25486-2

Date Collected: 06/21/24 10:30

Matrix: Water

Date Received: 06/21/24 11:13

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	49		0.80	0.42	mg/L			06/21/24 14:32	1
Nitrate as N	2.0		0.20	0.057	mg/L			06/21/24 14:32	1
Nitrite as N	ND		0.20	0.069	mg/L			06/21/24 14:32	1
Sulfate	18		0.50	0.13	mg/L			06/21/24 14:32	1

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	16		0.50	0.13	mg/L		06/27/24 10:32	07/02/24 18:54	1
Potassium	5.8	^1+	2.0	0.29	mg/L		06/27/24 10:32	07/02/24 18:54	1
Sodium	32	^1+	2.0	0.20	mg/L		06/27/24 10:32	07/02/24 18:54	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	42		1.0	0.20	mg/L		07/02/24 11:12	07/03/24 14:03	1
Magnesium	14		0.50	0.13	mg/L		07/02/24 11:12	07/03/24 14:03	1

Client Sample ID: Hose Bib-062124

Lab Sample ID: 590-25486-2

Date Collected: 06/21/24 10:30

Matrix: Water

Date Received: 06/21/24 11:13

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	ND		0.10	0.029	mg/L			07/02/24 12:13	1
Alkalinity (SM 2320B)	180	B	20	5.0	mg/L			06/26/24 09:37	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	180	B	20	5.0	mg/L			06/26/24 09:37	1
Total Dissolved Solids (SM 2540C)	290		25	13	mg/L			06/28/24 17:00	1
Total Organic Carbon - Duplicates (SM 5310B)	2.1		1.0	0.35	mg/L			06/28/24 05:53	1

Client Sample ID: TB-062124

Lab Sample ID: 590-25486-3

Date Collected: 06/21/24 00:00

Matrix: Water

Date Received: 06/21/24 11:13

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.48	ug/L			07/03/24 16:23	1
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			07/03/24 16:23	1
1,1,2,2-Tetrachloroethane	ND		2.0	0.32	ug/L			07/03/24 16:23	1
1,1-Dichloroethane	ND		1.0	0.29	ug/L			07/03/24 16:23	1
1,1-Dichloroethene	ND		1.0	0.20	ug/L			07/03/24 16:23	1
1,1-Dichloropropene	ND		1.0	0.50	ug/L			07/03/24 16:23	1
1,2,3-Trichlorobenzene	ND		1.0	0.33	ug/L			07/03/24 16:23	1
1,2,4-Trichlorobenzene	ND		1.0	0.50	ug/L			07/03/24 16:23	1
1,2,4-Trimethylbenzene	ND		1.0	0.31	ug/L			07/03/24 16:23	1
1,2-Dibromoethane (EDB)	ND		1.0	0.20	ug/L			07/03/24 16:23	1
1,2-Dichlorobenzene	ND		1.0	0.23	ug/L			07/03/24 16:23	1
1,2-Dichloroethane	ND		1.0	0.31	ug/L			07/03/24 16:23	1
1,2-Dichloropropane	ND		1.0	0.23	ug/L			07/03/24 16:23	1
1,3,5-Trimethylbenzene	ND		1.0	0.32	ug/L			07/03/24 16:23	1
1,3-Dichlorobenzene	ND		1.0	0.14	ug/L			07/03/24 16:23	1
1,3-Dichloropropane	ND		2.0	0.21	ug/L			07/03/24 16:23	1
1,4-Dichlorobenzene	ND		1.0	0.28	ug/L			07/03/24 16:23	1
2,2-Dichloropropane	ND	*+	2.0	0.66	ug/L			07/03/24 16:23	1
2-Chlorotoluene	ND		1.0	0.36	ug/L			07/03/24 16:23	1
4-Chlorotoluene	ND		1.0	0.26	ug/L			07/03/24 16:23	1
Benzene	ND		0.40	0.093	ug/L			07/03/24 16:23	1
Bromobenzene	ND		1.0	0.28	ug/L			07/03/24 16:23	1
Bromochloromethane	ND		2.0	0.44	ug/L			07/03/24 16:23	1
Bromodichloromethane	ND		1.0	0.29	ug/L			07/03/24 16:23	1
Bromoform	ND		5.0	0.66	ug/L			07/03/24 16:23	1
Bromomethane	ND		5.0	0.76	ug/L			07/03/24 16:23	1
Carbon tetrachloride	ND		1.0	0.40	ug/L			07/03/24 16:23	1
Chlorobenzene	ND		1.0	0.32	ug/L			07/03/24 16:23	1
Chloroethane	ND		2.0	0.40	ug/L			07/03/24 16:23	1
Chloroform	ND		1.0	0.24	ug/L			07/03/24 16:23	1
Chloromethane	ND		3.0	0.50	ug/L			07/03/24 16:23	1
cis-1,2-Dichloroethene	ND		1.0	0.23	ug/L			07/03/24 16:23	1
cis-1,3-Dichloropropene	ND		1.0	0.25	ug/L			07/03/24 16:23	1
Dibromochloromethane	ND		2.0	0.33	ug/L			07/03/24 16:23	1
Dibromomethane	ND		2.0	0.50	ug/L			07/03/24 16:23	1
Dichlorodifluoromethane	ND		2.0	0.64	ug/L			07/03/24 16:23	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-25486-1

Client Sample ID: TB-062124

Date Collected: 06/21/24 00:00
Date Received: 06/21/24 11:13

Lab Sample ID: 590-25486-3

Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		1.0	0.20	ug/L			07/03/24 16:23	1
Hexachlorobutadiene	ND		2.0	0.21	ug/L			07/03/24 16:23	1
Isopropylbenzene	ND		1.0	0.24	ug/L			07/03/24 16:23	1
m,p-Xylene	ND		2.0	0.28	ug/L			07/03/24 16:23	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			07/03/24 16:23	1
Methylene Chloride	**6.0**		5.0	2.2	ug/L			07/03/24 16:23	1
Naphthalene	ND		2.0	0.63	ug/L			07/03/24 16:23	1
n-Butylbenzene	ND		1.0	0.20	ug/L			07/03/24 16:23	1
N-Propylbenzene	ND		1.0	0.25	ug/L			07/03/24 16:23	1
o-Xylene	ND		1.0	0.16	ug/L			07/03/24 16:23	1
p-Isopropyltoluene	ND		1.0	0.27	ug/L			07/03/24 16:23	1
sec-Butylbenzene	ND		1.0	0.22	ug/L			07/03/24 16:23	1
Styrene	ND		1.0	0.24	ug/L			07/03/24 16:23	1
tert-Butylbenzene	ND		1.0	0.12	ug/L			07/03/24 16:23	1
Tetrachloroethene	ND		1.0	0.22	ug/L			07/03/24 16:23	1
Toluene	ND		1.0	0.31	ug/L			07/03/24 16:23	1
trans-1,2-Dichloroethene	ND		1.0	0.20	ug/L			07/03/24 16:23	1
trans-1,3-Dichloropropene	ND		1.0	0.45	ug/L			07/03/24 16:23	1
Trichloroethene	ND	H	1.0	0.20	ug/L			07/10/24 04:18	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			07/03/24 16:23	1
Vinyl chloride	ND		0.40	0.13	ug/L			07/03/24 16:23	1

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 120*		*07/03/24 16:23*	*1*
1,2-Dichloroethane-d4 (Surr)	*108*		*80 - 120*		*07/10/24 04:18*	*1*
4-Bromofluorobenzene (Surr)	*89*		*76 - 120*		*07/03/24 16:23*	*1*
4-Bromofluorobenzene (Surr)	*107*		*76 - 120*		*07/10/24 04:18*	*1*
Dibromofluoromethane (Surr)	*123*		*80 - 123*		*07/03/24 16:23*	*1*
Dibromofluoromethane (Surr)	*108*		*80 - 123*		*07/10/24 04:18*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*07/03/24 16:23*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*07/10/24 04:18*	*1*

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-25486-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 590-48244/8
Matrix: Water
Analysis Batch: 48244

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.48	ug/L			07/03/24 16:00	1
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			07/03/24 16:00	1
1,1,2,2-Tetrachloroethane	ND		2.0	0.32	ug/L			07/03/24 16:00	1
1,1-Dichloroethane	ND		1.0	0.29	ug/L			07/03/24 16:00	1
1,1-Dichloroethene	ND		1.0	0.20	ug/L			07/03/24 16:00	1
1,1-Dichloropropene	ND		1.0	0.50	ug/L			07/03/24 16:00	1
1,2,3-Trichlorobenzene	ND		1.0	0.33	ug/L			07/03/24 16:00	1
1,2,4-Trichlorobenzene	ND		1.0	0.50	ug/L			07/03/24 16:00	1
1,2,4-Trimethylbenzene	ND		1.0	0.31	ug/L			07/03/24 16:00	1
1,2-Dibromoethane (EDB)	ND		1.0	0.20	ug/L			07/03/24 16:00	1
1,2-Dichlorobenzene	ND		1.0	0.23	ug/L			07/03/24 16:00	1
1,2-Dichloroethane	ND		1.0	0.31	ug/L			07/03/24 16:00	1
1,2-Dichloropropane	ND		1.0	0.23	ug/L			07/03/24 16:00	1
1,3,5-Trimethylbenzene	ND		1.0	0.32	ug/L			07/03/24 16:00	1
1,3-Dichlorobenzene	ND		1.0	0.14	ug/L			07/03/24 16:00	1
1,3-Dichloropropane	ND		2.0	0.21	ug/L			07/03/24 16:00	1
1,4-Dichlorobenzene	ND		1.0	0.28	ug/L			07/03/24 16:00	1
2,2-Dichloropropane	ND		2.0	0.66	ug/L			07/03/24 16:00	1
2-Chlorotoluene	ND		1.0	0.36	ug/L			07/03/24 16:00	1
4-Chlorotoluene	ND		1.0	0.26	ug/L			07/03/24 16:00	1
Benzene	ND		0.40	0.093	ug/L			07/03/24 16:00	1
Bromobenzene	ND		1.0	0.28	ug/L			07/03/24 16:00	1
Bromochloromethane	ND		2.0	0.44	ug/L			07/03/24 16:00	1
Bromodichloromethane	ND		1.0	0.29	ug/L			07/03/24 16:00	1
Bromoform	ND		5.0	0.66	ug/L			07/03/24 16:00	1
Bromomethane	ND		5.0	0.76	ug/L			07/03/24 16:00	1
Carbon tetrachloride	ND		1.0	0.40	ug/L			07/03/24 16:00	1
Chlorobenzene	ND		1.0	0.32	ug/L			07/03/24 16:00	1
Chloroethane	ND		2.0	0.40	ug/L			07/03/24 16:00	1
Chloroform	ND		1.0	0.24	ug/L			07/03/24 16:00	1
Chloromethane	ND		3.0	0.50	ug/L			07/03/24 16:00	1
cis-1,2-Dichloroethene	ND		1.0	0.23	ug/L			07/03/24 16:00	1
cis-1,3-Dichloropropene	ND		1.0	0.25	ug/L			07/03/24 16:00	1
Dibromochloromethane	ND		2.0	0.33	ug/L			07/03/24 16:00	1
Dibromomethane	ND		2.0	0.50	ug/L			07/03/24 16:00	1
Dichlorodifluoromethane	ND		2.0	0.64	ug/L			07/03/24 16:00	1
Ethylbenzene	ND		1.0	0.20	ug/L			07/03/24 16:00	1
Hexachlorobutadiene	ND		2.0	0.21	ug/L			07/03/24 16:00	1
Isopropylbenzene	ND		1.0	0.24	ug/L			07/03/24 16:00	1
m,p-Xylene	ND		2.0	0.28	ug/L			07/03/24 16:00	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			07/03/24 16:00	1
Methylene Chloride	ND		5.0	2.2	ug/L			07/03/24 16:00	1
Naphthalene	ND		2.0	0.63	ug/L			07/03/24 16:00	1
n-Butylbenzene	ND		1.0	0.20	ug/L			07/03/24 16:00	1
N-Propylbenzene	ND		1.0	0.25	ug/L			07/03/24 16:00	1
o-Xylene	ND		1.0	0.16	ug/L			07/03/24 16:00	1
p-Isopropyltoluene	ND		1.0	0.27	ug/L			07/03/24 16:00	1
sec-Butylbenzene	ND		1.0	0.22	ug/L			07/03/24 16:00	1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 590-48244/8
Matrix: Water
Analysis Batch: 48244

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Styrene	ND		1.0	0.24	ug/L			07/03/24 16:00	1
tert-Butylbenzene	ND		1.0	0.12	ug/L			07/03/24 16:00	1
Tetrachloroethene	ND		1.0	0.22	ug/L			07/03/24 16:00	1
Toluene	ND		1.0	0.31	ug/L			07/03/24 16:00	1
trans-1,2-Dichloroethene	ND		1.0	0.20	ug/L			07/03/24 16:00	1
trans-1,3-Dichloropropene	ND		1.0	0.45	ug/L			07/03/24 16:00	1
Trichloroethene	ND		1.0	0.20	ug/L			07/03/24 16:00	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			07/03/24 16:00	1
Vinyl chloride	ND		0.40	0.13	ug/L			07/03/24 16:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 120*		*07/03/24 16:00*	*1*
4-Bromofluorobenzene (Surr)	*90*		*76 - 120*		*07/03/24 16:00*	*1*
Dibromofluoromethane (Surr)	*125*	*S1+*	*80 - 123*		*07/03/24 16:00*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*07/03/24 16:00*	*1*

Lab Sample ID: LCS 590-48244/1003
Matrix: Water
Analysis Batch: 48244

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1,2-Tetrachloroethane	10.0	8.26		ug/L		83	80 - 131
1,1,1-Trichloroethane	10.0	11.2		ug/L		112	71 - 138
1,1,2,2-Tetrachloroethane	10.0	13.9		ug/L		139	60 - 150
1,1-Dichloroethane	10.0	10.6		ug/L		106	80 - 125
1,1-Dichloroethene	10.0	12.3		ug/L		123	65 - 141
1,1-Dichloropropene	10.0	9.18		ug/L		92	82 - 123
1,2,3-Trichlorobenzene	10.0	8.89		ug/L		89	70 - 137
1,2,4-Trichlorobenzene	10.0	8.88		ug/L		89	76 - 131
1,2,4-Trimethylbenzene	10.0	8.25		ug/L		82	78 - 131
1,2-Dibromoethane (EDB)	10.0	8.13		ug/L		81	80 - 124
1,2-Dichlorobenzene	10.0	9.21		ug/L		92	80 - 120
1,2-Dichloroethane	10.0	9.58		ug/L		96	80 - 120
1,2-Dichloropropane	10.0	9.15		ug/L		92	79 - 122
1,3,5-Trimethylbenzene	10.0	8.34		ug/L		83	76 - 129
1,3-Dichlorobenzene	10.0	9.46		ug/L		95	80 - 122
1,3-Dichloropropane	10.0	8.01		ug/L		80	78 - 129
1,4-Dichlorobenzene	10.0	9.29		ug/L		93	80 - 120
2,2-Dichloropropane	10.0	19.3	*+	ug/L		193	73 - 140
2-Chlorotoluene	10.0	8.58		ug/L		86	74 - 129
4-Chlorotoluene	10.0	8.65		ug/L		86	79 - 125
Benzene	10.0	9.83		ug/L		98	80 - 120
Bromobenzene	10.0	8.12		ug/L		81	73 - 125
Bromochloromethane	10.0	12.4		ug/L		124	71 - 136
Bromodichloromethane	10.0	10.1		ug/L		101	80 - 120
Bromoform	10.0	8.22		ug/L		82	73 - 139
Bromomethane	10.0	13.6		ug/L		136	66 - 149
Carbon tetrachloride	10.0	11.0		ug/L		110	72 - 138

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 590-48244/1003
Matrix: Water
Analysis Batch: 48244

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chlorobenzene	10.0	10.1		ug/L		101	80 - 124
Chloroethane	10.0	11.5		ug/L		115	64 - 134
Chloroform	10.0	10.6		ug/L		106	80 - 123
Chloromethane	10.0	12.2		ug/L		122	19 - 150
cis-1,2-Dichloroethene	10.0	11.0		ug/L		110	80 - 122
cis-1,3-Dichloropropene	10.0	9.65		ug/L		96	80 - 121
Dibromochloromethane	10.0	8.62		ug/L		86	80 - 130
Dibromomethane	10.0	10.6		ug/L		106	80 - 122
Dichlorodifluoromethane	10.0	9.64		ug/L		96	30 - 150
Ethylbenzene	10.0	10.2		ug/L		102	80 - 122
Hexachlorobutadiene	10.0	10.2		ug/L		102	77 - 132
Isopropylbenzene	10.0	10.7		ug/L		107	80 - 122
m,p-Xylene	10.0	11.3		ug/L		113	80 - 125
Methyl tert-butyl ether	10.0	8.63		ug/L		86	68 - 134
Methylene Chloride	10.0	12.5		ug/L		125	30 - 150
Naphthalene	10.0	8.01		ug/L		80	61 - 140
n-Butylbenzene	10.0	8.37		ug/L		84	75 - 121
N-Propylbenzene	10.0	8.84		ug/L		88	73 - 136
o-Xylene	10.0	10.1		ug/L		101	80 - 130
p-Isopropyltoluene	10.0	9.01		ug/L		90	78 - 128
sec-Butylbenzene	10.0	9.17		ug/L		92	73 - 138
Styrene	10.0	10.3		ug/L		103	79 - 134
tert-Butylbenzene	10.0	9.29		ug/L		93	76 - 131
Tetrachloroethene	10.0	10.2		ug/L		102	80 - 139
Toluene	10.0	10.3		ug/L		103	80 - 129
trans-1,2-Dichloroethene	10.0	10.9		ug/L		109	73 - 137
trans-1,3-Dichloropropene	10.0	8.50		ug/L		85	73 - 138
Trichloroethene	10.0	6.97	*-	ug/L		70	80 - 123
Trichlorofluoromethane	10.0	13.6		ug/L		136	71 - 147
Vinyl chloride	10.0	12.3		ug/L		123	50 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*99*		*80 - 120*
4-Bromofluorobenzene (Surr)	*88*		*76 - 120*
Dibromofluoromethane (Surr)	*119*		*80 - 123*
Toluene-d8 (Surr)	*100*		*80 - 120*

Lab Sample ID: LCSD 590-48244/4
Matrix: Water
Analysis Batch: 48244

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	10.0	8.70		ug/L		87	80 - 131	5	17
1,1,1-Trichloroethane	10.0	11.2		ug/L		112	71 - 138	0	17
1,1,2,2-Tetrachloroethane	10.0	14.5		ug/L		145	60 - 150	4	17
1,1-Dichloroethane	10.0	10.7		ug/L		107	80 - 125	1	20
1,1-Dichloroethene	10.0	12.1		ug/L		121	65 - 141	1	19
1,1-Dichloropropene	10.0	9.15		ug/L		91	82 - 123	0	20

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 590-48244/4
Matrix: Water
Analysis Batch: 48244

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,2,3-Trichlorobenzene	10.0	9.36		ug/L		94	70 - 137	5	30
1,2,4-Trichlorobenzene	10.0	9.18		ug/L		92	76 - 131	3	24
1,2,4-Trimethylbenzene	10.0	8.38		ug/L		84	78 - 131	2	16
1,2-Dibromoethane (EDB)	10.0	8.08		ug/L		81	80 - 124	1	14
1,2-Dichlorobenzene	10.0	9.44		ug/L		94	80 - 120	2	14
1,2-Dichloroethane	10.0	9.65		ug/L		97	80 - 120	1	14
1,2-Dichloropropane	10.0	9.28		ug/L		93	79 - 122	1	15
1,3,5-Trimethylbenzene	10.0	8.41		ug/L		84	76 - 129	1	17
1,3-Dichlorobenzene	10.0	9.63		ug/L		96	80 - 122	2	15
1,3-Dichloropropane	10.0	8.40		ug/L		84	78 - 129	5	17
1,4-Dichlorobenzene	10.0	9.61		ug/L		96	80 - 120	3	14
2,2-Dichloropropane	10.0	19.1	*+	ug/L		191	73 - 140	1	18
2-Chlorotoluene	10.0	8.87		ug/L		89	74 - 129	3	19
4-Chlorotoluene	10.0	8.90		ug/L		89	79 - 125	3	16
Benzene	10.0	9.91		ug/L		99	80 - 120	1	15
Bromobenzene	10.0	8.21		ug/L		82	73 - 125	1	16
Bromochloromethane	10.0	12.8		ug/L		128	71 - 136	4	21
Bromodichloromethane	10.0	10.1		ug/L		101	80 - 120	0	16
Bromoform	10.0	8.51		ug/L		85	73 - 139	3	17
Bromomethane	10.0	12.8		ug/L		128	66 - 149	6	24
Carbon tetrachloride	10.0	10.6		ug/L		106	72 - 138	3	28
Chlorobenzene	10.0	10.1		ug/L		101	80 - 124	1	14
Chloroethane	10.0	11.8		ug/L		118	64 - 134	2	24
Chloroform	10.0	10.5		ug/L		105	80 - 123	1	18
Chloromethane	10.0	11.3		ug/L		113	19 - 150	7	35
cis-1,2-Dichloroethene	10.0	10.5		ug/L		105	80 - 122	4	17
cis-1,3-Dichloropropene	10.0	9.84		ug/L		98	80 - 121	2	16
Dibromochloromethane	10.0	8.98		ug/L		90	80 - 130	4	15
Dibromomethane	10.0	10.8		ug/L		108	80 - 122	2	16
Dichlorodifluoromethane	10.0	12.1		ug/L		121	30 - 150	22	22
Ethylbenzene	10.0	10.2		ug/L		102	80 - 122	0	35
Hexachlorobutadiene	10.0	10.8		ug/L		108	77 - 132	5	25
Isopropylbenzene	10.0	10.7		ug/L		107	80 - 122	0	16
m,p-Xylene	10.0	11.3		ug/L		113	80 - 125	1	35
Methyl tert-butyl ether	10.0	8.71		ug/L		87	68 - 134	1	18
Methylene Chloride	10.0	12.4		ug/L		124	30 - 150	1	25
Naphthalene	10.0	8.36		ug/L		84	61 - 140	4	25
n-Butylbenzene	10.0	8.58		ug/L		86	75 - 121	3	16
N-Propylbenzene	10.0	8.94		ug/L		89	73 - 136	1	18
o-Xylene	10.0	10.1		ug/L		101	80 - 130	0	35
p-Isopropyltoluene	10.0	9.18		ug/L		92	78 - 128	2	17
sec-Butylbenzene	10.0	9.25		ug/L		93	73 - 138	1	17
Styrene	10.0	10.4		ug/L		104	79 - 134	1	17
tert-Butylbenzene	10.0	9.35		ug/L		93	76 - 131	1	18
Tetrachloroethene	10.0	10.1		ug/L		101	80 - 139	1	20
Toluene	10.0	10.3		ug/L		103	80 - 129	0	35
trans-1,2-Dichloroethene	10.0	10.7		ug/L		107	73 - 137	2	18
trans-1,3-Dichloropropene	10.0	8.84		ug/L		88	73 - 138	4	17
Trichloroethene	10.0	6.98	*-	ug/L		70	80 - 123	0	14

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 590-48244/4
Matrix: Water
Analysis Batch: 48244

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Trichlorofluoromethane			10.0	13.8		ug/L		138	71 - 147	1	24
Vinyl chloride			10.0	12.3		ug/L		123	50 - 150	1	26

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*88*		*76 - 120*
Dibromofluoromethane (Surr)	*117*		*80 - 123*
Toluene-d8 (Surr)	*102*		*80 - 120*

Lab Sample ID: MB 590-48327/6
Matrix: Water
Analysis Batch: 48327

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	ND		1.0	0.20	ug/L			07/10/24 01:33	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*80 - 120*		*07/10/24 01:33*	*1*
4-Bromofluorobenzene (Surr)	*95*		*76 - 120*		*07/10/24 01:33*	*1*
Dibromofluoromethane (Surr)	*107*		*80 - 123*		*07/10/24 01:33*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*07/10/24 01:33*	*1*

Lab Sample ID: LCS 590-48327/1003
Matrix: Water
Analysis Batch: 48327

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Trichloroethene			10.0	10.5		ug/L		105	80 - 123		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 120*
4-Bromofluorobenzene (Surr)	*96*		*76 - 120*
Dibromofluoromethane (Surr)	*97*		*80 - 123*
Toluene-d8 (Surr)	*97*		*80 - 120*

Lab Sample ID: LCSD 590-48327/4
Matrix: Water
Analysis Batch: 48327

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Trichloroethene			10.0	10.5		ug/L		105	80 - 123	0	14

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 120*
4-Bromofluorobenzene (Surr)	*96*		*76 - 120*
Dibromofluoromethane (Surr)	*98*		*80 - 123*
Toluene-d8 (Surr)	*99*		*80 - 120*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 590-48022/1003
Matrix: Water
Analysis Batch: 48022

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.80	0.42	mg/L			06/21/24 07:54	1
Sulfate	ND		0.50	0.13	mg/L			06/21/24 07:54	1

Lab Sample ID: LCS 590-48022/1004
Matrix: Water
Analysis Batch: 48022

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	12.5	12.9		mg/L		103	90 - 110
Sulfate	12.5	12.4		mg/L		99	90 - 110

Lab Sample ID: MB 590-48029/1003
Matrix: Water
Analysis Batch: 48029

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20	0.057	mg/L			06/21/24 07:54	1
Nitrite as N	ND		0.20	0.069	mg/L			06/21/24 07:54	1

Lab Sample ID: LCS 590-48029/1004
Matrix: Water
Analysis Batch: 48029

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	5.00	5.04		mg/L		101	90 - 110
Nitrite as N	5.00	4.97		mg/L		99	90 - 110

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Lab Sample ID: MB 320-776445/1-A
Matrix: Water
Analysis Batch: 776849

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 776445

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		8.0	2.0	ng/L		07/03/24 11:07	07/07/24 06:26	1
Perfluoropentanoic acid (PFPeA)	ND		4.0	1.0	ng/L		07/03/24 11:07	07/07/24 06:26	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.50	ng/L		07/03/24 11:07	07/07/24 06:26	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.50	ng/L		07/03/24 11:07	07/07/24 06:26	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.50	ng/L		07/03/24 11:07	07/07/24 06:26	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.50	ng/L		07/03/24 11:07	07/07/24 06:26	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.50	ng/L		07/03/24 11:07	07/07/24 06:26	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.50	ng/L		07/03/24 11:07	07/07/24 06:26	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.50	ng/L		07/03/24 11:07	07/07/24 06:26	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	0.50	ng/L		07/03/24 11:07	07/07/24 06:26	1
Perfluorotetradecanoic acid (PFTeDA)	ND		2.0	0.50	ng/L		07/03/24 11:07	07/07/24 06:26	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.50	ng/L		07/03/24 11:07	07/07/24 06:26	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.50	ng/L		07/03/24 11:07	07/07/24 06:26	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.50	ng/L		07/03/24 11:07	07/07/24 06:26	1

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: MB 320-776445/1-A
Matrix: Water
Analysis Batch: 776849

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 776445

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.50	ng/L		07/03/24 11:07	07/07/24 06:26	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.50	ng/L		07/03/24 11:07	07/07/24 06:26	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.50	ng/L		07/03/24 11:07	07/07/24 06:26	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.50	ng/L		07/03/24 11:07	07/07/24 06:26	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.50	ng/L		07/03/24 11:07	07/07/24 06:26	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		8.0	2.0	ng/L		07/03/24 11:07	07/07/24 06:26	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		8.0	2.0	ng/L		07/03/24 11:07	07/07/24 06:26	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		8.0	2.0	ng/L		07/03/24 11:07	07/07/24 06:26	1
Perfluorooctanesulfonamide (PFOSA)	ND		2.0	0.50	ng/L		07/03/24 11:07	07/07/24 06:26	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		2.0	0.50	ng/L		07/03/24 11:07	07/07/24 06:26	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		2.0	0.50	ng/L		07/03/24 11:07	07/07/24 06:26	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.50	ng/L		07/03/24 11:07	07/07/24 06:26	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.50	ng/L		07/03/24 11:07	07/07/24 06:26	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		20	5.0	ng/L		07/03/24 11:07	07/07/24 06:26	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		20	5.0	ng/L		07/03/24 11:07	07/07/24 06:26	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		8.0	2.0	ng/L		07/03/24 11:07	07/07/24 06:26	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		8.0	2.0	ng/L		07/03/24 11:07	07/07/24 06:26	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		4.0	1.0	ng/L		07/03/24 11:07	07/07/24 06:26	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		4.0	1.0	ng/L		07/03/24 11:07	07/07/24 06:26	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		4.0	1.0	ng/L		07/03/24 11:07	07/07/24 06:26	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		8.0	2.0	ng/L		07/03/24 11:07	07/07/24 06:26	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		8.0	2.0	ng/L		07/03/24 11:07	07/07/24 06:26	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		4.0	1.0	ng/L		07/03/24 11:07	07/07/24 06:26	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		10	2.5	ng/L		07/03/24 11:07	07/07/24 06:26	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		50	13	ng/L		07/03/24 11:07	07/07/24 06:26	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		50	13	ng/L		07/03/24 11:07	07/07/24 06:26	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*80.5*		*5 - 130*	*07/03/24 11:07*	*07/07/24 06:26*	*1*
13C5 PFPeA	*75.8*		*40 - 130*	*07/03/24 11:07*	*07/07/24 06:26*	*1*
13C5 PFHxA	*74.1*		*40 - 130*	*07/03/24 11:07*	*07/07/24 06:26*	*1*
13C4 PFHpA	*69.2*		*40 - 130*	*07/03/24 11:07*	*07/07/24 06:26*	*1*

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: MB 320-776445/1-A
Matrix: Water
Analysis Batch: 776849

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 776445

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	78.6		40 - 130	07/03/24 11:07	07/07/24 06:26	1
13C9 PFNA	75.0		40 - 130	07/03/24 11:07	07/07/24 06:26	1
13C6 PFDA	94.0		40 - 130	07/03/24 11:07	07/07/24 06:26	1
13C7 PFUnA	83.8		30 - 130	07/03/24 11:07	07/07/24 06:26	1
13C2 PFDoA	77.1		10 - 130	07/03/24 11:07	07/07/24 06:26	1
13C2 PFTeDA	73.8		10 - 130	07/03/24 11:07	07/07/24 06:26	1
13C3 PFBS	74.7		40 - 135	07/03/24 11:07	07/07/24 06:26	1
13C3 PFHxS	68.9		40 - 130	07/03/24 11:07	07/07/24 06:26	1
13C8 PFOS	83.4		40 - 130	07/03/24 11:07	07/07/24 06:26	1
13C8 PFOSA	76.8		40 - 130	07/03/24 11:07	07/07/24 06:26	1
d3-NMeFOSAA	79.8		40 - 170	07/03/24 11:07	07/07/24 06:26	1
d5-NEtFOSAA	77.0		25 - 135	07/03/24 11:07	07/07/24 06:26	1
13C2 4:2 FTS	86.2		40 - 200	07/03/24 11:07	07/07/24 06:26	1
13C2 6:2 FTS	81.0		40 - 200	07/03/24 11:07	07/07/24 06:26	1
13C2 8:2 FTS	110		40 - 300	07/03/24 11:07	07/07/24 06:26	1
13C3 HFPO-DA	78.2		40 - 130	07/03/24 11:07	07/07/24 06:26	1
d7-N-MeFOSE-M	73.6		10 - 130	07/03/24 11:07	07/07/24 06:26	1
d9-N-EtFOSE-M	67.2		10 - 130	07/03/24 11:07	07/07/24 06:26	1
d5-NEtPFOSA	66.9		10 - 130	07/03/24 11:07	07/07/24 06:26	1
d3-NMePFOSA	62.2		10 - 130	07/03/24 11:07	07/07/24 06:26	1

Lab Sample ID: LCS 320-776445/3-A
Matrix: Water
Analysis Batch: 776849

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 776445

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	128	118		ng/L		92	70 - 140
Perfluoropentanoic acid (PFPeA)	64.0	59.7		ng/L		93	65 - 135
Perfluorohexanoic acid (PFHxA)	32.0	29.6		ng/L		93	70 - 145
Perfluoroheptanoic acid (PFHpA)	32.0	29.8		ng/L		93	70 - 150
Perfluorooctanoic acid (PFOA)	32.0	27.3		ng/L		85	70 - 150
Perfluorononanoic acid (PFNA)	32.0	23.0		ng/L		72	70 - 150
Perfluorodecanoic acid (PFDA)	32.0	27.8		ng/L		87	70 - 140
Perfluoroundecanoic acid (PFUnA)	32.0	28.5		ng/L		89	70 - 145
Perfluorododecanoic acid (PFDoA)	32.0	29.3		ng/L		92	70 - 140
Perfluorotridecanoic acid (PFTrDA)	32.0	29.8		ng/L		93	65 - 140
Perfluorotetradecanoic acid (PFTeDA)	32.0	28.9		ng/L		90	60 - 140
Perfluorobutanesulfonic acid (PFBS)	28.4	26.2		ng/L		92	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	30.1	29.9		ng/L		99	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	29.2	27.8		ng/L		95	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	30.5	26.6		ng/L		87	70 - 150
Perfluorooctanesulfonic acid (PFOS)	29.8	26.1		ng/L		88	55 - 150

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-776445/3-A
Matrix: Water
Analysis Batch: 776849

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 776445

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorononanesulfonic acid (PFNS)	30.8	29.2		ng/L		95	65 - 145
Perfluorodecanesulfonic acid (PFDS)	30.8	27.4		ng/L		89	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	31.0	24.5		ng/L		79	50 - 145
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	120		ng/L		100	70 - 145
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	122	117		ng/L		96	65 - 155
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	123	113		ng/L		92	60 - 150
Perfluorooctanesulfonamide (PFOSA)	32.0	24.7		ng/L		77	70 - 145
N-methylperfluorooctane sulfonamide (NMeFOSA)	32.0	29.2		ng/L		91	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA)	32.0	28.4		ng/L		89	65 - 145
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	32.0	28.9		ng/L		90	50 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	32.0	27.0		ng/L		84	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	320	284		ng/L		89	70 - 145
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	320	288		ng/L		90	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	128	126		ng/L		98	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	121	114		ng/L		94	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	64.0	59.7		ng/L		93	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	64.0	61.6		ng/L		96	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	64.0	65.9		ng/L		103	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	120	116		ng/L		97	70 - 155
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	121	97.5		ng/L		81	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	57.1	57.3		ng/L		100	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	160	147		ng/L		92	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	799	753		ng/L		94	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	799	681		ng/L		85	50 - 145

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*89.5*		*5 - 130*
13C5 PFPeA	*86.0*		*40 - 130*
13C5 PFHxA	*83.3*		*40 - 130*

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-776445/3-A
Matrix: Water
Analysis Batch: 776849

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 776445

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFHpA	86.7		40 - 130
13C8 PFOA	85.1		40 - 130
13C9 PFNA	106		40 - 130
13C6 PFDA	99.0		40 - 130
13C7 PFUnA	94.2		30 - 130
13C2 PFDoA	82.6		10 - 130
13C2 PFTeDA	82.8		10 - 130
13C3 PFBS	86.1		40 - 135
13C3 PFHxS	78.8		40 - 130
13C8 PFOS	89.3		40 - 130
13C8 PFOSA	85.2		40 - 130
d3-NMeFOSAA	80.5		40 - 170
d5-NEtFOSAA	82.1		25 - 135
13C2 4:2 FTS	87.1		40 - 200
13C2 6:2 FTS	84.4		40 - 200
13C2 8:2 FTS	121		40 - 300
13C3 HFPO-DA	87.0		40 - 130
d7-N-MeFOSE-M	77.3		10 - 130
d9-N-EtFOSE-M	72.6		10 - 130
d5-NEtPFOSA	71.8		10 - 130
d3-NMePFOSA	69.5		10 - 130

Lab Sample ID: LLCS 320-776445/2-A
Matrix: Water
Analysis Batch: 776849

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 776445

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	12.8	12.1		ng/L		94	70 - 140
Perfluoropentanoic acid (PFPeA)	6.40	6.15		ng/L		96	65 - 135
Perfluorohexanoic acid (PFHxA)	3.20	3.07		ng/L		96	70 - 145
Perfluoroheptanoic acid (PFHpA)	3.20	2.99		ng/L		94	70 - 150
Perfluorooctanoic acid (PFOA)	3.20	2.38		ng/L		75	70 - 150
Perfluorononanoic acid (PFNA)	3.20	3.34		ng/L		104	70 - 150
Perfluorodecanoic acid (PFDA)	3.20	2.76		ng/L		86	70 - 140
Perfluoroundecanoic acid (PFUnA)	3.20	2.82		ng/L		88	70 - 145
Perfluorododecanoic acid (PFDoA)	3.20	2.45		ng/L		76	70 - 140
Perfluorotridecanoic acid (PFTrDA)	3.20	2.89		ng/L		90	65 - 140
Perfluorotetradecanoic acid (PFTeDA)	3.20	3.12		ng/L		98	60 - 140
Perfluorobutanesulfonic acid (PFBS)	2.84	2.71		ng/L		96	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	3.01	3.10		ng/L		103	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	2.92	3.07		ng/L		105	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	3.05	2.66		ng/L		87	70 - 150

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-776445/2-A
Matrix: Water
Analysis Batch: 776849

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 776445

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonic acid (PFOS)	2.98	2.58		ng/L		87	55 - 150
Perfluorononanesulfonic acid (PFNS)	3.08	2.78		ng/L		90	65 - 145
Perfluorodecanesulfonic acid (PFDS)	3.08	2.91		ng/L		94	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	3.10	2.63		ng/L		85	50 - 145
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	12.0	10.7		ng/L		89	70 - 145
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	12.2	11.0		ng/L		90	65 - 155
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	12.3	11.0		ng/L		89	60 - 150
Perfluorooctanesulfonamide (PFOSA)	3.20	2.52		ng/L		79	70 - 145
N-methylperfluorooctane sulfonamide (NMeFOSA)	3.20	2.65		ng/L		83	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA)	3.20	2.96		ng/L		92	65 - 145
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.20	2.48		ng/L		78	50 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	3.20	2.75		ng/L		86	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	32.0	27.7		ng/L		87	70 - 145
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	32.0	28.5		ng/L		89	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	12.8	11.2		ng/L		88	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	12.1	10.9		ng/L		90	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	6.40	6.05		ng/L		95	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	6.40	6.12		ng/L		96	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	6.40	6.15		ng/L		96	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	12.0	10.6		ng/L		89	70 - 155
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	12.1	9.60		ng/L		79	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	5.71	5.37		ng/L		94	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	16.0	14.7		ng/L		92	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	79.9	72.0		ng/L		90	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	79.9	67.1		ng/L		84	50 - 145

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C4 PFBA	*86.1*		*5 - 130*

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-776445/2-A
Matrix: Water
Analysis Batch: 776849

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 776445

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C5 PFPeA	*81.1*		*40 - 130*
13C5 PFHxA	*77.6*		*40 - 130*
13C4 PFHpA	*72.9*		*40 - 130*
13C8 PFOA	*79.0*		*40 - 130*
13C9 PFNA	*88.0*		*40 - 130*
13C6 PFDA	*109*		*40 - 130*
13C7 PFUnA	*93.2*		*30 - 130*
13C2 PFDoA	*100*		*10 - 130*
13C2 PFTeDA	*89.0*		*10 - 130*
13C3 PFBS	*84.9*		*40 - 135*
13C3 PFHxS	*77.7*		*40 - 130*
13C8 PFOS	*87.4*		*40 - 130*
13C8 PFOSA	*87.8*		*40 - 130*
d3-NMeFOSAA	*93.2*		*40 - 170*
d5-NEtFOSAA	*85.0*		*25 - 135*
13C2 4:2 FTS	*91.4*		*40 - 200*
13C2 6:2 FTS	*84.9*		*40 - 200*
13C2 8:2 FTS	*119*		*40 - 300*
13C3 HFPO-DA	*83.2*		*40 - 130*
d7-N-MeFOSE-M	*81.2*		*10 - 130*
d9-N-EtFOSE-M	*72.7*		*10 - 130*
d5-NEtPFOSA	*75.2*		*10 - 130*
d3-NMePFOSA	*70.9*		*10 - 130*

Method: PPCP NEG - Pharmaceuticals and Personal Care Products (LC/MS/MS)

Lab Sample ID: MB 810-103678/10
Matrix: Water
Analysis Batch: 103678

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acesulfame K	ND		0.020	0.0020	ug/L			06/25/24 02:47	1
Sucralose	ND		0.10	0.014	ug/L			06/25/24 02:47	1

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 590-48116/2-A
Matrix: Water
Analysis Batch: 48207

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 48116

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	ND		0.50	0.13	mg/L		06/27/24 10:32	07/02/24 12:18	1

Lab Sample ID: LCS 590-48116/1-A
Matrix: Water
Analysis Batch: 48207

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 48116

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Magnesium			25.0	22.5		mg/L		90	80 - 120		

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: MB 590-48117/2-B
Matrix: Water
Analysis Batch: 48207

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 48188

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.0	0.20	mg/L		07/02/24 11:12	07/02/24 13:10	1
Magnesium	ND		0.50	0.13	mg/L		07/02/24 11:12	07/02/24 13:10	1

Lab Sample ID: LCS 590-48117/1-B
Matrix: Water
Analysis Batch: 48207

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 48188

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	25.0	21.7		mg/L		87	80 - 120
Magnesium	25.0	21.8		mg/L		87	80 - 120

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 580-463083/11-B
Matrix: Water
Analysis Batch: 463405

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 463243

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.50	0.067	mg/L		06/25/24 15:33	06/26/24 12:13	5
Manganese	ND		0.010	0.0023	mg/L		06/25/24 15:33	06/26/24 12:13	5

Lab Sample ID: LCS 580-463083/12-B
Matrix: Water
Analysis Batch: 463405

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 463243

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Iron	20.0	19.8		mg/L		99	80 - 120
Manganese	1.00	0.978		mg/L		98	80 - 120

Lab Sample ID: LCSD 580-463083/13-B
Matrix: Water
Analysis Batch: 463405

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 463243

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Iron	20.0	20.0		mg/L		100	80 - 120	1	20
Manganese	1.00	0.992		mg/L		99	80 - 120	1	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 280-659155/19
Matrix: Water
Analysis Batch: 659155

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	ND		0.10	0.029	mg/L			07/02/24 11:51	1

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: LCS 280-659155/20
Matrix: Water
Analysis Batch: 659155

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	2.50	2.47		mg/L		99	90 - 110

Lab Sample ID: LCSD 280-659155/21
Matrix: Water
Analysis Batch: 659155

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia as N	2.50	2.51		mg/L		100	90 - 110	2	10

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 590-48087/1
Matrix: Water
Analysis Batch: 48087

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.00	J	20	5.0	mg/L			06/26/24 09:37	1
Bicarbonate Alkalinity as CaCO3	5.00	J	20	5.0	mg/L			06/26/24 09:37	1

Lab Sample ID: LCS 590-48087/2
Matrix: Water
Analysis Batch: 48087

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	501	475		mg/L		95	90 - 110

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 590-48151/1
Matrix: Water
Analysis Batch: 48151

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		25	13	mg/L			06/28/24 16:58	1

Lab Sample ID: LCS 590-48151/2
Matrix: Water
Analysis Batch: 48151

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	500	502		mg/L		100	80 - 120

Lab Sample ID: 590-25486-1 DU
Matrix: Water
Analysis Batch: 48151

Client Sample ID: MW-3-062124
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	300		302		mg/L		0	10

Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 280-658712/36
Matrix: Water
Analysis Batch: 658712

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		1.0	0.35	mg/L			06/28/24 00:38	1

Lab Sample ID: LCS 280-658712/35
Matrix: Water
Analysis Batch: 658712

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Organic Carbon - Duplicates			25.0	26.4		mg/L		106	88 - 112		

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-25486-1

Client Sample ID: MW-3-062124
Date Collected: 06/21/24 08:45
Date Received: 06/21/24 11:13

Lab Sample ID: 590-25486-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	5 mL	5 mL	48022	06/21/24 14:22	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	48029	06/21/24 14:22	NMI	EET SPK
Total/NA	Prep	1633			595.3 mL	5.0 mL	776445	07/03/24 11:07	ATB	EET SAC
Total/NA	Analysis	Draft-4 1633		1	1 mL	1 mL	776849	07/07/24 09:57	S1M	EET SAC
Total/NA	Prep	1633	RA		595.3 mL	5.0 mL	776445	07/03/24 11:07	ATB	EET SAC
Total/NA	Analysis	Draft-4 1633	RA	1	1 mL	1 mL	777333	07/08/24 12:49	RS1	EET SAC
Total/NA	Analysis	PPCP NEG		1	1 mL	1 mL	103678	06/25/24 09:19	BS	EA SB
Dissolved	Filtration	FILTRATION			50 mL	50 mL	48117	06/27/24 10:48	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	48188	07/02/24 11:12	AMB	EET SPK
Dissolved	Analysis	6010D		1			48257	07/03/24 13:59	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	48116	06/27/24 10:32	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			48256	07/02/24 18:50	AMB	EET SPK
Dissolved	Filtration	FILTRATION			250 mL	250 mL	463083	06/24/24 10:04	TMH	EET SEA
Dissolved	Prep	3005A			50 mL	50 mL	463243	06/25/24 15:33	MCMS	EET SEA
Dissolved	Analysis	6020B		5			463405	06/26/24 12:40	TMH	EET SEA
Total/NA	Analysis	350.1		1	10 mL	10 mL	659155	07/02/24 12:15	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	48087	06/26/24 09:37	RMA	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	48151	06/28/24 17:00	RMA	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	658712	06/28/24 04:53	ABW	EET DEN

Client Sample ID: Hose Bib-062124
Date Collected: 06/21/24 10:30
Date Received: 06/21/24 11:13

Lab Sample ID: 590-25486-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	5 mL	5 mL	48022	06/21/24 14:32	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	48029	06/21/24 14:32	NMI	EET SPK
Dissolved	Filtration	FILTRATION			50 mL	50 mL	48117	06/27/24 10:48	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	48188	07/02/24 11:12	AMB	EET SPK
Dissolved	Analysis	6010D		1			48257	07/03/24 14:03	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	48116	06/27/24 10:32	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			48256	07/02/24 18:54	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	659155	07/02/24 12:13	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	48087	06/26/24 09:37	RMA	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	48151	06/28/24 17:00	RMA	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	658712	06/28/24 05:53	ABW	EET DEN

Client Sample ID: TB-062124
Date Collected: 06/21/24 00:00
Date Received: 06/21/24 11:13

Lab Sample ID: 590-25486-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	43 mL	43 mL	48244	07/03/24 16:23	JSP	EET SPK
Total/NA	Analysis	8260D		1	43 mL	43 mL	48327	07/10/24 04:18	JSP	EET SPK

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-25486-1

Laboratory References:

EA SB = Eurofins Eaton Analytical South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777

EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Accreditation/Certification Summary

Client: GeoEngineers Inc
Job ID: 590-25486-1
Project/Site: Marshall Landfill GWM

Laboratory: Eurofins Spokane

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C569	01-07-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3

Laboratory: Eurofins Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-25
A2LA	ISO/IEC 17025	2907.01	10-31-25
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	11-30-25
Arizona	State	AZ0713	12-20-24
Arkansas DEQ	State	19-047-0	04-21-25
California	State	2513	01-08-25
Colorado	State	CO00026	06-30-25
Connecticut	State	PH-0686	09-30-24
Florida	NELAP	E87667-57	06-30-24 *
Georgia	State	4025-011	01-08-25
Illinois	NELAP	2000172024-9	05-31-25
Iowa	State	370	12-01-24
Kansas	NELAP	E-10166	04-30-25
Kentucky (WW)	State	KY98047	12-31-24
Louisiana	NELAP	30785	06-30-14 *
Louisiana (All)	NELAP	30785	06-30-25
Minnesota	NELAP	1788752	12-31-24
Nevada	State	CO000262024-08	08-02-24
New Hampshire	NELAP	2053	04-28-25
New Jersey	NELAP	230001	07-02-24
New York	NELAP	59923	04-01-25
North Dakota	State	R-034	01-08-24 *
Oklahoma	NELAP	8614	08-31-24
Oregon	NELAP	4025-020	01-08-25
Pennsylvania	NELAP	013	07-31-24
South Carolina	State	72002001	01-08-24 *
Texas	NELAP	TX104704183-08-TX	09-30-09 *
Texas	NELAP	T104704183-23-23	09-30-24
USDA	US Federal Programs	P330-20-00065	12-19-25
Utah	NELAP	QUAN5	06-30-13 *
Utah	NELAP	CO000262019-11	07-31-24
Virginia	NELAP	460232	06-14-25
Washington	State	C583	08-03-24
West Virginia DEP	State	354	11-30-24
Wisconsin	State	999615430	08-31-24
Wyoming (UST)	A2LA	2907.01	10-31-25

Laboratory: Eurofins Eaton Analytical South Bend

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-25486-1

Laboratory: Eurofins Eaton Analytical South Bend (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	ISO/IEC 17025	5794.01	07-31-24
Alabama	State	40700	06-30-24
Alaska	State	IN00035	06-30-24
Arizona	State	AZ0432	07-26-24
Arkansas (DW)	State	EPA IN00035	06-30-24
California	State	2920	06-30-24
Colorado	State	IN00035	02-28-25
Connecticut	State	PH-0132	03-31-26
Delaware (DW)	State	IN00035	06-27-24
Florida	NELAP	E87775	06-30-24
Georgia (DW)	State	929	06-30-24
Guam	State	23-011R	07-15-24
Hawaii	State	IN035	06-30-24
Idaho (DW)	State	IN00035	12-31-24
IL Dept. of Public Health (Micro)	State	17767	06-30-24
Illinois	NELAP	200001	09-19-24
Indiana	State	C-71-01	12-31-25
Indiana (Micro)	State	M-76-07	12-31-25
Iowa	State	IA Lab #098	11-01-25
Kansas	NELAP	E-10233	10-31-24
Kentucky (DW)	State	KY90056	12-31-24
Louisiana (DW)	State	LA014	12-31-24
Maine	State	IN00035	05-01-25
Maryland	State	209	06-27-24
Massachusetts	State	M-IN035	06-30-25
MI - RadChem Recognition	State	9926	06-30-24
Michigan	State	9926	03-22-25
Minnesota	NELAP	1989807	12-31-24
Mississippi	State	IN00035	06-30-24
Missouri	State	880	09-30-24
Montana (DW)	State	CERT0026	01-01-25
Nebraska	State	NE-OS-05-04	06-30-24
Nevada	State	IN000352024-01	07-31-24
New Hampshire	NELAP	2124	11-05-24
New Jersey	NELAP	IN598	06-30-24
New Mexico	State	IN00035	06-30-24
New York	NELAP	11398	04-01-25
North Carolina (DW)	State	18700	07-31-24
North Dakota	State	R-035	06-30-24
Northern Mariana Islands (DW)	State	IN00035	06-30-24
Ohio	State	87775	06-27-24
Oklahoma	NELAP	D9508	08-31-24
Oregon	NELAP	4156	09-16-24
Pennsylvania	NELAP	68-00466	04-30-25
Puerto Rico	State	IN00035	04-01-25
Rhode Island	State	LAO00343	12-30-24
South Carolina	State	95005001	07-01-25
South Dakota (DW)	State	IN00035	06-30-24
Tennessee	State	TN02973	06-30-24
Texas	NELAP	T104704187-22-16	12-31-24

Accreditation/Certification Summary

Client: GeoEngineers Inc
Job ID: 590-25486-1
Project/Site: Marshall Landfill GWM

Laboratory: Eurofins Eaton Analytical South Bend (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Texas	TCEQ Water Supply	TX207	06-30-24
USEPA Reg X SDWA	US Federal Programs	IN00035	08-24-24
USEPA UCMR 5	US Federal Programs	IN00035	12-31-25
Utah	NELAP	IN00035	07-31-24
Vermont	State	VT-8775	11-15-24
Virginia	NELAP	460275	03-14-25
Washington	State	C837	01-01-25
West Virginia (DW)	State	9927 C	01-31-25
Wisconsin	State	999766900	08-31-24
Wisconsin (Micro)	State	10121	12-31-24
Wyoming	State	8TMS-L	06-30-24

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-27
ANAB	Dept. of Defense ELAP	L2468	01-20-27
ANAB	Dept. of Energy	L2468.01	01-20-27
ANAB	ISO/IEC 17025	L2468	01-20-27
Arizona	State	AZ0708	08-11-24
Arkansas DEQ	State	88-0691	05-18-25
California	State	2897	01-31-26
Colorado	State	CA00044	08-31-24
Florida	NELAP	E87570	06-30-25
Georgia	State	4040	01-29-25
Hawaii	State	Eurofins Sacramento	01-29-25
Illinois	NELAP	200060	03-31-25
Kansas	NELAP	E-10375	10-31-25
Louisiana (All)	NELAP	01944	06-30-25
Maine	State	CA00004	04-14-26
Michigan	State	9947	01-29-25
Nevada	State	CA00044	07-31-25
New Hampshire	NELAP	2997	04-19-25
New Jersey	NELAP	CA005	06-30-25
New York	NELAP	11666	04-01-25
Ohio	State	41252	01-29-25
Oregon	NELAP	4040	01-29-25
Texas	NELAP	T104704399-23-17	05-31-25
US Fish & Wildlife	US Federal Programs	A22139	04-30-25
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442023-16	02-28-25
Virginia	NELAP	460278	03-14-25
Washington	State	C581	05-05-25
West Virginia (DW)	State	9930C	01-31-25
Wisconsin	State	998204680	08-31-25
Wyoming	State Program	8TMS-L	01-28-19 *

Laboratory: Eurofins Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-25486-1

Laboratory: Eurofins Seattle (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-004	02-19-25
ANAB	Dept. of Defense ELAP	L2236	01-19-25
ANAB	Dept. of Energy	L2236	01-19-25
ANAB	ISO/IEC 17025	L2236	01-19-25
California	State	2954	07-07-24
Florida	NELAP	E87575	06-30-24
Louisiana	NELAP	03073	07-01-24
Louisiana (All)	NELAP	03073	07-01-24
Maine	State	WA01273	05-02-26
Montana (UST)	State	NA	04-14-27
New Jersey	NELAP	WA014	06-30-24
New York	NELAP	11662	04-01-25
Oregon	NELAP	4167	07-07-24
US Fish & Wildlife	US Federal Programs	A20571	06-30-24
USDA	US Federal Programs	525-23-4-22573	01-04-26
Washington	State	C788	07-13-24
Wisconsin	State	399133460	08-31-24

Method Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-25486-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET SPK
300.0	Anions, Ion Chromatography	EPA	EET SPK
Draft-4 1633	Per- and Polyfluoroalkyl Substances by LC/MS/MS	EPA	EET SAC
PPCP NEG	Pharmaceuticals and Personal Care Products (LC/MS/MS)	Lab SOP	EA SB
6010D	Metals (ICP)	SW846	EET SPK
6020B	Metals (ICP/MS)	SW846	EET SEA
350.1	Nitrogen, Ammonia	EPA	EET DEN
SM 2320B	Alkalinity	SM	EET SPK
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET SPK
SM 5310B	Organic Carbon, Total (TOC)	SM	EET DEN
1633	Solid-Phase Extraction (SPE)	EPA	EET SAC
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET SEA
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET SPK
5030C	Purge and Trap	SW846	EET SPK
FILTRATION	Sample Filtration	None	EET SEA
FILTRATION	Sample Filtration	None	EET SPK

Protocol References:

EPA = US Environmental Protection Agency
Lab SOP = Laboratory Standard Operating Procedure
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EA SB = Eurofins Eaton Analytical South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777
EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600
EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310
EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Email: sbronson@geoengineers.com
Telfax: 509.570.0779

Site Contact: Alex Navarro
Lab Contact:

Date: 6/21/24
Carrier:

____ of ____ COCs
TALS Project #:
Sampler:

Analysis Turnaround Time
☐ CALENDAR DAYS ☐ WORKING DAYS
TAT if different from Below _____
☐ 2 weeks
☐ 1 week
☐ 2 days
☐ 1 day

For Lab Use Only
Walk-in Client:
Lab Sampling:

Job / SDG No.

Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	PFAS / EPA 1633	Ammonia as N / EPA 350.1	Alkalinity bicarbonate / SM 2320B	TDS / SC 2540C	TOC / SM 5310B	Total K, Mg, Na / EPA 6010D	Dissolved Ca, Mg / EPA 6010D	Chloride, sulfate, nitrate nitrite / EPA 300.0	Diss. Fe, Mn / EPA 6020B	Total Hg / EPA 7470A	Diss Hg / 7470A	Total As, Cd, Fe, Mn Pb, Zn / EPA 6020B	Diss As, Cd, Fe, Mn, Pb, Zn / EPA 6020B	Artificial Sweeteners (acesulfame K, sucralose	PCE, 1 1 1 TCA / EPA 8260D	1,4-dioxane / EPA 8270E SIM	VOCs 8260D	Sample Specific Notes:
6/21/24	0845	G	W				X	X	X	X	X	X	X	X	X					X				
6/21/24	1030	G	W					X	X	X	X	X	X	X										
6/21/24	—	G	W																		X	X	SJB 6/21/24	

590-25486 Chain of Custody

04; 4=HNO3; 5=NaOH; 6= Other _____

Waste? Please List any EPA Waste Codes for the sample in the
e sample
☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

mments

No | Custody Seal No. | Cooler Temp. (°C): Obs'd: 5.4 Corr'd: 5.4 Therm ID No.: IR005

Company:	Date/Time:	Received by:	Company:	Date/Time:
06/21/24 1130				
Company:	Date/Time:	Received by:	Company:	Date/Time:
Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:
			ECS	6/21/24 1113

Eurofins Spokane
11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program ☐ DW ☐ NPDES ☐ RCRA ☐ Other

Eurofins Environment Testing America

Client Contact	**Project Manager:** Sydney Bronson	**Site Contact:** Alex Navarra **Date:** 6/21/24
GeoEngineers, Inc.	Email: sbronson@geoengineers.com	**Lab Contact:** **Carrier:**
523 E 2nd Ave	Tel/Fax: 509.570.0779	**COC No:** ____ of ____ COCs
Spokane, WA 99202	**Analysis Turnaround Time**	**TALS Project #:**
509.363.3125 Phone	☐ CALENDAR DAYS ☐ WORKING DAYS	**Sampler:**
FAX	TAT if different from Below ____	**For Lab Use Only**
Project Name: Marshall Landfill GWM	☐ 2 weeks	Walk-in Client:
Site: Marshall Landfill Site Design	☐ 1 week	Lab Sampling:
P O # 0504-104-01	☐ 2 days	**Job / SDG No.**
	☐ 1 day	

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	PFAS / EPA 1633	Ammonia as N / EPA 350.1	Alkalinity bicarbonate / SM 2320B	TDS / SM 2540C	TOC / SM 5310B	Total K, Mg, Na / EPA 6010D	Dissolved Ca, Mg / EPA 6010D	Chloride, sulfate, nitrate nitrite / EPA 300.0	Diss. Fe, Mn / EPA 6020B	Total Hg / EPA 7470A	Diss Hg / 7470A	Total As, Cd, Fe, Mn Pb, Zn / EPA 6020B	Diss As, Cd, Fe, Mn, Pb, Zn / EPA 6020B	Artificial Sweeteners (acesulfame K, sucralose	PCE, 1 1 1 TCA / EPA 8260D	1,4-dioxane / EPA 8270E SIM	Sample Specific Notes:
MW-3-062124	6/21/24	0845	G	W				X	X	X	X	X	X	X	X	X						X		
Hose Bib-062124	6/21/24	1030	G	W					X	X	X	X	X	X	X									
TB-062124	6/21/24	—	G	W																		X		

590-25486 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= Other ____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments
DISSOLVED METALS LAB FILTERED

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No. | Cooler Temp. (°C): Obs'd: 5.4 Corr'd: 5.4 | Therm ID No.: IR005

Relinquished by	Company:	06/21/24 1130 Date/Time:	Received by	Company	Date/Time:
Relinquished by	Company	Date/Time:	Received by	Company	Date/Time:
Relinquished by	Company	Date/Time:	Received in Laboratory by	Company: ECS PO	Date/Time: 6/21/24 11:13

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-9329.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Washington		Job #: 590-25486-1
Address: 4955 Yarrow Street, ,	Due Date Requested: 7/8/2024			Preservation Codes: -
City: Arvada	TAT Requested (days):			
State, Zip: CO, 80002				
Phone: 303-736-0100(Tel) 303-431-7171(Fax)	PO #:			
Email:	WO #:			
Project Name: Marshall Landfill GWM	Project #: 59002669			
Site:	SSOW#:			Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Analysis Requested: 350.1	SM5310B/ (MOD) TOC	Total Number of containers	Special Instructions/Note:
MW-3-062124 (590-25486-1)	6/21/24	08:45 Pacific		Water				X	X	2	
Hose Bib-062124 (590-25486-2)	6/21/24	10:30 Pacific		Water				X	X	2	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	6/21/24 14:35	ELEC		06/21/24 1845	EET
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2.1, 0.1+0.2, IR: NA92

Ver: 04/02/2024

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone. 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler	Lab PM: Arrington, Randee E	Carrier Tracking No(s).	COC No: 590-9327 1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note): State Program - Washington		Job #: 590-25486-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 7/8/2024			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Marshall Landfill GWM	Project #: 59002669			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1633/1633_SPE EPA 1633 Method List	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-3-062124 (590-25486-1)	6/21/24	08.45 Pacific		Water			X	3	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	6/21/24 15:32	EET SAC	[signature]	06/22/24 0845	EET SAC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No 2274589	Cooler Temperature(s) °C and Other Remarks: 1.8°C

Ver: 04/02/2024

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-9326.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Northwest,		Accreditations Required (See note): State Program - Washington		Job #: 590-25486-1
Address: 5755 8th Street East, ,	Due Date Requested: 7/8/2024			
City: Tacoma	TAT Requested (days):			
State, Zip: WA, 98424				
Phone: 253-922-2310(Tel)	PO #:			
Email:	WO #:			
Project Name: Marshall Landfill GWM	Project #: 59002669			
Site:	SSOW#:			

Analysis Requested

Preservation Codes: -

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020B/FILTRATION (MOD) Dissolved Fe & Mn	Total Number of containers	Special Instructions/Note:
Preservation Code:									
MW-3-062124 (590-25486-1)	6/21/24	08:45 Pacific		Water			X	1	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)***
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		6/21/24 14:41	BEC880		6/22/24 0915	EETN
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: IR 11 1.6/1.1

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-25486-1

Login Number: 25486
List Number: 1
Creator: Morris, Mackenzie 1

List Source: Eurofins Spokane

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-25486-1

Login Number: 25486
List Number: 5
Creator: Little, Matthew L

List Source: Eurofins Denver
List Creation: 06/25/24 02:20 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-25486-1

Login Number: 25486
List Number: 2
Creator: Trowbridge, Peyton

List Source: Eurofins Eaton Analytical South Bend
List Creation: 06/22/24 10:26 AM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Samples do not require splitting or compositing.	True	
Container provided by EEA	True	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-25486-1

Login Number: 25486
List Number: 3
Creator: Morazzini, Dominic S

List Source: Eurofins Sacramento
List Creation: 06/22/24 09:59 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	2274589
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-25486-1

Login Number: 25486
List Number: 4
Creator: Harp, Cordelia

List Source: Eurofins Seattle
List Creation: 06/22/24 01:12 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	IR 11 1.6/1.1 c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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Sacramento Sample Receiving Notes (SSRN)

590-25486 Field Sheet

Tracking # : 7391 0416 9757

Job _____

SO / PO / FO / (SAT) / 2-Day / Ground / UPS / CDO / Courier

GSL / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Therm. ID. L06 Corr. Factor (+/-) NA °C

Ice 1 Wet 1 Gel _____ Other _____

Cooler Custody Seal 2274589

Cooler ID _____

Temp Observed 1.8 °C Corrected 1.8 °C

From Temp Blank ☐ Sample ☑

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Frozen samples show signs of thaw?	☐	☐	☑

Initials DM Date 06/22/24

Unpacking/Labeling The Samples	Yes	No	NA
Containers are not broken or leaking?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
COC is complete w/o discrepancies	☑	☐	☐
Sample custody seal?	☐	☐	☑
Sample containers have legible labels?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Is the Field Sampler's name on COC?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials DM Date 06/22/24

Notes: _____

Trizma Lot #(s): _____

Ammonium Acetate Lot #(s): _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☑	☐	☐
NCM Filed?	☐	☐	☑
Samples received within hold time?	☐	☐	☑
Log Release checked in TALS?	☐	☐	☑

Initials DM Date 06/22/24

Isotope Dilution Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-25486-1

Method: Draft-4 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA	PFPeA	13C5PHA	C4PFHA	C8PFOA	C9PFNA	C6PFDA	13C7PUA
Lab Sample ID	Client Sample ID	(5-130)	(40-130)	(40-130)	(40-130)	(40-130)	(40-130)	(40-130)	(30-130)
590-25486-1	MW-3-062124	79.4	80.4	75.4	74.9	74.4	77.0	81.9	71.2
590-25486-1 - RA	MW-3-062124							87.5	
LCS 320-776445/3-A	Lab Control Sample	89.5	86.0	83.3	86.7	85.1	106	99.0	94.2
LLCS 320-776445/2-A	Lab Control Sample	86.1	81.1	77.6	72.9	79.0	88.0	109	93.2
MB 320-776445/1-A	Method Blank	80.5	75.8	74.1	69.2	78.6	75.0	94.0	83.8

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFDoA	PFTDA	C3PFBS	C3PFHS	C8PFOS	PFOSA	d3NMFOS	d5NEFOS
Lab Sample ID	Client Sample ID	(10-130)	(10-130)	(40-135)	(40-130)	(40-130)	(40-130)	(40-170)	(25-135)
590-25486-1	MW-3-062124	78.1	71.7	77.2	71.3	86.0	80.8	77.3	78.2
590-25486-1 - RA	MW-3-062124								
LCS 320-776445/3-A	Lab Control Sample	82.6	82.8	86.1	78.8	89.3	85.2	80.5	82.1
LLCS 320-776445/2-A	Lab Control Sample	100	89.0	84.9	77.7	87.4	87.8	93.2	85.0
MB 320-776445/1-A	Method Blank	77.1	73.8	74.7	68.9	83.4	76.8	79.8	77.0

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		M242FTS	M262FTS	M282FTS	HFPODA	NMFM	NEFM	d5NPFSA	d3NMFSA
Lab Sample ID	Client Sample ID	(40-200)	(40-200)	(40-300)	(40-130)	(10-130)	(10-130)	(10-130)	(10-130)
590-25486-1	MW-3-062124	92.6	80.0	105	75.6	66.1	56.5	61.5	64.0
590-25486-1 - RA	MW-3-062124								
LCS 320-776445/3-A	Lab Control Sample	87.1	84.4	121	87.0	77.3	72.6	71.8	69.5
LLCS 320-776445/2-A	Lab Control Sample	91.4	84.9	119	83.2	81.2	72.7	75.2	70.9
MB 320-776445/1-A	Method Blank	86.2	81.0	110	78.2	73.6	67.2	66.9	62.2

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
13C5PHA = 13C5 PFHxA
C4PFHA = 13C4 PFHpA
C8PFOA = 13C8 PFOA
C9PFNA = 13C9 PFNA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
C8PFOS = 13C8 PFOS
PFOSA = 13C8 PFOSA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
M242FTS = 13C2 4:2 FTS
M262FTS = 13C2 6:2 FTS
M282FTS = 13C2 8:2 FTS
HFPODA = 13C3 HFPO-DA
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
d5NPFSA = d5-NEtPFOSA
d3NMFSA = d3-NMePFOSA

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ANALYTICAL REPORT

PREPARED FOR

Attn: Sydney Bronson
GeoEngineers Inc
523 East Second Ave
Spokane, Washington 99202

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JOB DESCRIPTION

Marshall Landfill GWM

JOB NUMBER

590-27742-1

Eurofins Spokane
11922 East 1st Ave
Spokane WA 99206

See page two for job notes and contact information.

my EOL

Job Notes

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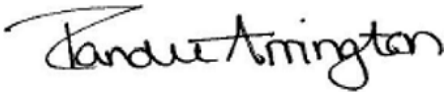

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Job ID: 590-27742-1 — Eurofins Spokane

Job Narrative
590-27742-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 10/25/2024 12:26 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.6°C.

GC/MS VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS Semi VOA
Method 8270E_SIM_MS_ID: Surrogate recovery for the following samples were outside of acceptance limits: MW-2A:102524 (590-27742-2) and (LCS 580-476289/2-A). There was insufficient sample to perform a re-extraction; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
Method 300_ORGFMS: The following samples were analyzed outside of analytical holding time due to instrument error during the in-hold run: MW-3:102524 (590-27742-1), MW-2A:102524 (590-27742-2) and MW-12A:102524 (590-27742-3).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

PFAS
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
Method 6010D - Total Recoverable: The low level initial calibration verification (ICVL) associated with batch 590-50607 recovered above the upper control limit for Potassium and Sodium. The samples associated with this ICVL were either 10x the spike amount, have hits below the RL, or non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
Method 2320B: The method blank for analytical batch 590-50757 contained Alkalinity and Bicarbonate Alkalinity as CaCO3 above the method detection limit (MDL) but below the reporting limit (RL). Associated sample(s) were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the method blank.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Sample Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-27742-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-27742-1	MW-3:102524	Water	10/25/24 08:25	10/25/24 12:26
590-27742-2	MW-2A:102524	Water	10/25/24 09:25	10/25/24 12:26
590-27742-3	MW-12A:102524	Water	10/25/24 10:25	10/25/24 12:26
590-27742-4	Trip Blank	Water	10/25/24 08:00	10/25/24 12:26

Definitions/Glossary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-27742-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.

HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

LCMS

Qualifier	Qualifier Description
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
^1+	Initial Calibration Verification (ICV) is outside acceptance limits, high biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Client Sample ID: MW-3:102524
Date Collected: 10/25/24 08:25
Date Received: 10/25/24 12:26

Lab Sample ID: 590-27742-1
Matrix: Water

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**60**		0.80	0.42	mg/L			10/28/24 11:04	1
Nitrate as N	**0.080**	**J H**	0.20	0.057	mg/L			10/28/24 11:04	1
Nitrite as N	ND	H	0.20	0.069	mg/L			10/28/24 11:04	1
Sulfate	**12**		0.50	0.13	mg/L			10/28/24 11:04	1

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.4	0.34	ng/L		11/05/24 07:42	11/07/24 10:03	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
d3-NMeFOSAA	*108*		*40 - 170*	*11/05/24 07:42*	*11/07/24 10:03*	*1*

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**1.0**	**J**	2.8	0.69	ng/L		11/05/24 07:42	11/08/24 12:20	1
Perfluoropentanoic acid (PFPeA)	ND		1.4	0.34	ng/L		11/05/24 07:42	11/08/24 12:20	1
Perfluorohexanoic acid (PFHxA)	ND		1.4	0.34	ng/L		11/05/24 07:42	11/08/24 12:20	1
Perfluoroheptanoic acid (PFHpA)	ND		1.4	0.34	ng/L		11/05/24 07:42	11/08/24 12:20	1
Perfluorooctanoic acid (PFOA)	**1.1**	**J**	1.4	0.34	ng/L		11/05/24 07:42	11/08/24 12:20	1
Perfluorononanoic acid (PFNA)	**0.62**	**J**	1.4	0.34	ng/L		11/05/24 07:42	11/08/24 12:20	1
Perfluorodecanoic acid (PFDA)	ND		1.4	0.34	ng/L		11/05/24 07:42	11/08/24 12:20	1
Perfluoroundecanoic acid (PFUnA)	ND		1.4	0.34	ng/L		11/05/24 07:42	11/08/24 12:20	1
Perfluorododecanoic acid (PFDoA)	ND		1.4	0.38	ng/L		11/05/24 07:42	11/08/24 12:20	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.4	0.40	ng/L		11/05/24 07:42	11/08/24 12:20	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.4	0.56	ng/L		11/05/24 07:42	11/08/24 12:20	1
Perfluorobutanesulfonic acid (PFBS)	**4.6**		1.4	0.34	ng/L		11/05/24 07:42	11/08/24 12:20	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.4	0.34	ng/L		11/05/24 07:42	11/08/24 12:20	1
Perfluorohexanesulfonic acid (PFHxS)	**1.6**		1.4	0.34	ng/L		11/05/24 07:42	11/08/24 12:20	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.4	0.34	ng/L		11/05/24 07:42	11/08/24 12:20	1
Perfluorooctanesulfonic acid (PFOS)	**4.9**		1.4	0.34	ng/L		11/05/24 07:42	11/08/24 12:20	1
Perfluorononanesulfonic acid (PFNS)	ND		1.4	0.34	ng/L		11/05/24 07:42	11/08/24 12:20	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.4	0.34	ng/L		11/05/24 07:42	11/08/24 12:20	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.4	0.37	ng/L		11/05/24 07:42	11/08/24 12:20	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		2.8	0.69	ng/L		11/05/24 07:42	11/08/24 12:20	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		2.8	0.69	ng/L		11/05/24 07:42	11/08/24 12:20	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		2.8	0.69	ng/L		11/05/24 07:42	11/08/24 12:20	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.4	0.34	ng/L		11/05/24 07:42	11/08/24 12:20	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.4	0.34	ng/L		11/05/24 07:42	11/08/24 12:20	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.4	0.34	ng/L		11/05/24 07:42	11/08/24 12:20	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.4	0.34	ng/L		11/05/24 07:42	11/08/24 12:20	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-27742-1

Client Sample ID: MW-3:102524
Date Collected: 10/25/24 08:25
Date Received: 10/25/24 12:26

Lab Sample ID: 590-27742-1
Matrix: Water

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		6.9	1.7	ng/L		11/05/24 07:42	11/08/24 12:20	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		6.9	1.7	ng/L		11/05/24 07:42	11/08/24 12:20	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.0	0.27	ng/L		11/05/24 07:42	11/08/24 12:20	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.4	0.34	ng/L		11/05/24 07:42	11/08/24 12:20	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.4	0.34	ng/L		11/05/24 07:42	11/08/24 12:20	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.4	0.34	ng/L		11/05/24 07:42	11/08/24 12:20	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.4	0.50	ng/L		11/05/24 07:42	11/08/24 12:20	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1.4	0.40	ng/L		11/05/24 07:42	11/08/24 12:20	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1.4	0.34	ng/L		11/05/24 07:42	11/08/24 12:20	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.4	0.34	ng/L		11/05/24 07:42	11/08/24 12:20	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		2.8	0.69	ng/L		11/05/24 07:42	11/08/24 12:20	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		6.9	1.7	ng/L		11/05/24 07:42	11/08/24 12:20	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		6.9	1.7	ng/L		11/05/24 07:42	11/08/24 12:20	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*116*		*5 - 130*	*11/05/24 07:42*	*11/08/24 12:20*	*1*
13C5 PFPeA	*101*		*40 - 130*	*11/05/24 07:42*	*11/08/24 12:20*	*1*
13C5 PFHxA	*104*		*40 - 130*	*11/05/24 07:42*	*11/08/24 12:20*	*1*
13C4 PFHpA	*97.5*		*40 - 130*	*11/05/24 07:42*	*11/08/24 12:20*	*1*
13C8 PFOA	*114*		*40 - 130*	*11/05/24 07:42*	*11/08/24 12:20*	*1*
13C9 PFNA	*113*		*40 - 130*	*11/05/24 07:42*	*11/08/24 12:20*	*1*
13C6 PFDA	*104*		*40 - 130*	*11/05/24 07:42*	*11/08/24 12:20*	*1*
13C7 PFUnA	*97.0*		*30 - 130*	*11/05/24 07:42*	*11/08/24 12:20*	*1*
13C2 PFDoA	*86.1*		*10 - 130*	*11/05/24 07:42*	*11/08/24 12:20*	*1*
13C2 PFTeDA	*68.4*		*10 - 130*	*11/05/24 07:42*	*11/08/24 12:20*	*1*
13C3 PFBS	*108*		*40 - 135*	*11/05/24 07:42*	*11/08/24 12:20*	*1*
13C3 PFHxS	*106*		*40 - 130*	*11/05/24 07:42*	*11/08/24 12:20*	*1*
13C8 PFOS	*112*		*40 - 130*	*11/05/24 07:42*	*11/08/24 12:20*	*1*
13C8 FOSA	*112*		*40 - 130*	*11/05/24 07:42*	*11/08/24 12:20*	*1*
d5-NEtFOSAA	*106*		*25 - 135*	*11/05/24 07:42*	*11/08/24 12:20*	*1*
13C2 4:2 FTS	*102*		*40 - 200*	*11/05/24 07:42*	*11/08/24 12:20*	*1*
13C2 6:2 FTS	*107*		*40 - 200*	*11/05/24 07:42*	*11/08/24 12:20*	*1*
13C2 8:2 FTS	*87.1*		*40 - 300*	*11/05/24 07:42*	*11/08/24 12:20*	*1*
13C3 HFPO-DA	*109*		*40 - 130*	*11/05/24 07:42*	*11/08/24 12:20*	*1*
d7-N-MeFOSE-M	*74.0*		*10 - 130*	*11/05/24 07:42*	*11/08/24 12:20*	*1*
d9-N-EtFOSE-M	*64.7*		*10 - 130*	*11/05/24 07:42*	*11/08/24 12:20*	*1*
d5-NEtPFOSA	*88.3*		*10 - 130*	*11/05/24 07:42*	*11/08/24 12:20*	*1*
d3-NMePFOSA	*91.2*		*10 - 130*	*11/05/24 07:42*	*11/08/24 12:20*	*1*

Client Sample ID: MW-3:102524

Lab Sample ID: 590-27742-1

Date Collected: 10/25/24 08:25

Matrix: Water

Date Received: 10/25/24 12:26

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**17**		0.50	0.13	mg/L		10/29/24 09:10	10/29/24 12:25	1
Potassium	**6.4**	**^1+**	2.0	0.29	mg/L		10/29/24 09:10	10/30/24 18:04	1
Sodium	**36**	**^1+**	2.0	0.20	mg/L		10/29/24 09:10	10/30/24 18:04	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**34**		1.0	0.20	mg/L		11/08/24 09:54	11/08/24 13:31	1
Iron	ND		2.0	0.074	mg/L		11/08/24 09:54	11/08/24 13:31	1
Magnesium	**14**		0.50	0.13	mg/L		11/08/24 09:54	11/08/24 13:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	ND		0.10	0.029	mg/L			10/30/24 12:59	1
Alkalinity (SM 2320B)	**170**	**B**	20	5.0	mg/L			11/08/24 11:28	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**170**	**B**	20	5.0	mg/L			11/08/24 11:28	1
Total Dissolved Solids (SM 2540C)	**250**		25	13	mg/L			10/30/24 11:09	1
Total Organic Carbon - Duplicates (SM 5310B)	**3.8**		1.0	0.35	mg/L			11/06/24 01:29	1

Client Sample ID: MW-2A:102524

Lab Sample ID: 590-27742-2

Date Collected: 10/25/24 09:25

Matrix: Water

Date Received: 10/25/24 12:26

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			11/04/24 16:11	1
Tetrachloroethene	ND		1.0	0.22	ug/L			11/04/24 16:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*		*11/04/24 16:11*	*1*
4-Bromofluorobenzene (Surr)	*108*		*76 - 120*		*11/04/24 16:11*	*1*
Dibromofluoromethane (Surr)	*102*		*80 - 123*		*11/04/24 16:11*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*11/04/24 16:11*	*1*

Method: SW846 8270E SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.19	0.034	ug/L		10/30/24 09:05	11/01/24 13:06	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*39*	**5-*	*40 - 140*	*10/30/24 09:05*	*11/01/24 13:06*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**59**		0.80	0.42	mg/L			10/28/24 11:44	1
Nitrate as N	ND	H	0.20	0.057	mg/L			10/28/24 11:44	1
Nitrite as N	ND	H	0.20	0.069	mg/L			10/28/24 11:44	1
Sulfate	**9.4**		0.50	0.13	mg/L			10/28/24 11:44	1

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**23**		2.9	0.72	ng/L		11/05/24 07:42	11/08/24 13:29	1
Perfluoropentanoic acid (PFPeA)	**22**		1.4	0.36	ng/L		11/05/24 07:42	11/08/24 13:29	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-27742-1

Client Sample ID: MW-2A:102524
Date Collected: 10/25/24 09:25
Date Received: 10/25/24 12:26

Lab Sample ID: 590-27742-2
Matrix: Water

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**11**		1.4	0.36	ng/L		11/05/24 07:42	11/08/24 13:29	1
Perfluoroheptanoic acid (PFHpA)	**3.3**		1.4	0.36	ng/L		11/05/24 07:42	11/08/24 13:29	1
Perfluorooctanoic acid (PFOA)	**14**		1.4	0.36	ng/L		11/05/24 07:42	11/08/24 13:29	1
Perfluorononanoic acid (PFNA)	**1.2**	**J**	1.4	0.36	ng/L		11/05/24 07:42	11/08/24 13:29	1
Perfluorodecanoic acid (PFDA)	ND		1.4	0.36	ng/L		11/05/24 07:42	11/08/24 13:29	1
Perfluoroundecanoic acid (PFUnA)	ND		1.4	0.36	ng/L		11/05/24 07:42	11/08/24 13:29	1
Perfluorododecanoic acid (PFDoA)	ND		1.4	0.39	ng/L		11/05/24 07:42	11/08/24 13:29	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.4	0.42	ng/L		11/05/24 07:42	11/08/24 13:29	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.4	0.58	ng/L		11/05/24 07:42	11/08/24 13:29	1
Perfluorobutanesulfonic acid (PFBS)	**8.5**		1.4	0.36	ng/L		11/05/24 07:42	11/08/24 13:29	1
Perfluoropentanesulfonic acid (PFPeS)	**0.63**	**J**	1.4	0.36	ng/L		11/05/24 07:42	11/08/24 13:29	1
Perfluorohexanesulfonic acid (PFHxS)	**6.3**		1.4	0.36	ng/L		11/05/24 07:42	11/08/24 13:29	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.4	0.36	ng/L		11/05/24 07:42	11/08/24 13:29	1
Perfluorooctanesulfonic acid (PFOS)	**11**		1.4	0.36	ng/L		11/05/24 07:42	11/08/24 13:29	1
Perfluorononanesulfonic acid (PFNS)	ND		1.4	0.36	ng/L		11/05/24 07:42	11/08/24 13:29	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.4	0.36	ng/L		11/05/24 07:42	11/08/24 13:29	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.4	0.38	ng/L		11/05/24 07:42	11/08/24 13:29	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		2.9	0.72	ng/L		11/05/24 07:42	11/08/24 13:29	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		2.9	0.72	ng/L		11/05/24 07:42	11/08/24 13:29	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		2.9	0.72	ng/L		11/05/24 07:42	11/08/24 13:29	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.4	0.36	ng/L		11/05/24 07:42	11/08/24 13:29	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.4	0.36	ng/L		11/05/24 07:42	11/08/24 13:29	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.4	0.36	ng/L		11/05/24 07:42	11/08/24 13:29	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.4	0.36	ng/L		11/05/24 07:42	11/08/24 13:29	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.4	0.36	ng/L		11/05/24 07:42	11/08/24 13:29	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		7.2	1.8	ng/L		11/05/24 07:42	11/08/24 13:29	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		7.2	1.8	ng/L		11/05/24 07:42	11/08/24 13:29	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.1	0.28	ng/L		11/05/24 07:42	11/08/24 13:29	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.4	0.36	ng/L		11/05/24 07:42	11/08/24 13:29	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.4	0.36	ng/L		11/05/24 07:42	11/08/24 13:29	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.4	0.36	ng/L		11/05/24 07:42	11/08/24 13:29	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.4	0.52	ng/L		11/05/24 07:42	11/08/24 13:29	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1.4	0.42	ng/L		11/05/24 07:42	11/08/24 13:29	1

Client Sample ID: MW-2A:102524
Date Collected: 10/25/24 09:25
Date Received: 10/25/24 12:26

Lab Sample ID: 590-27742-2
Matrix: Water

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1.4	0.36	ng/L		11/05/24 07:42	11/08/24 13:29	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.4	0.36	ng/L		11/05/24 07:42	11/08/24 13:29	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		2.9	0.72	ng/L		11/05/24 07:42	11/08/24 13:29	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		7.2	1.8	ng/L		11/05/24 07:42	11/08/24 13:29	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		7.2	1.8	ng/L		11/05/24 07:42	11/08/24 13:29	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*120*		*5 - 130*	*11/05/24 07:42*	*11/08/24 13:29*	*1*
13C5 PFPeA	*120*		*40 - 130*	*11/05/24 07:42*	*11/08/24 13:29*	*1*
13C5 PFHxA	*116*		*40 - 130*	*11/05/24 07:42*	*11/08/24 13:29*	*1*
13C4 PFHpA	*104*		*40 - 130*	*11/05/24 07:42*	*11/08/24 13:29*	*1*
13C8 PFOA	*109*		*40 - 130*	*11/05/24 07:42*	*11/08/24 13:29*	*1*
13C9 PFNA	*102*		*40 - 130*	*11/05/24 07:42*	*11/08/24 13:29*	*1*
13C6 PFDA	*110*		*40 - 130*	*11/05/24 07:42*	*11/08/24 13:29*	*1*
13C7 PFUnA	*88.7*		*30 - 130*	*11/05/24 07:42*	*11/08/24 13:29*	*1*
13C2 PFDoA	*84.3*		*10 - 130*	*11/05/24 07:42*	*11/08/24 13:29*	*1*
13C2 PFTeDA	*59.6*		*10 - 130*	*11/05/24 07:42*	*11/08/24 13:29*	*1*
13C3 PFBS	*117*		*40 - 135*	*11/05/24 07:42*	*11/08/24 13:29*	*1*
13C3 PFHxS	*111*		*40 - 130*	*11/05/24 07:42*	*11/08/24 13:29*	*1*
13C8 PFOS	*109*		*40 - 130*	*11/05/24 07:42*	*11/08/24 13:29*	*1*
13C8 FOSA	*111*		*40 - 130*	*11/05/24 07:42*	*11/08/24 13:29*	*1*
d3-NMeFOSAA	*120*		*40 - 170*	*11/05/24 07:42*	*11/08/24 13:29*	*1*
d5-NEtFOSAA	*110*		*25 - 135*	*11/05/24 07:42*	*11/08/24 13:29*	*1*
13C2 4:2 FTS	*104*		*40 - 200*	*11/05/24 07:42*	*11/08/24 13:29*	*1*
13C2 6:2 FTS	*111*		*40 - 200*	*11/05/24 07:42*	*11/08/24 13:29*	*1*
13C2 8:2 FTS	*104*		*40 - 300*	*11/05/24 07:42*	*11/08/24 13:29*	*1*
13C3 HFPO-DA	*116*		*40 - 130*	*11/05/24 07:42*	*11/08/24 13:29*	*1*
d7-N-MeFOSE-M	*95.8*		*10 - 130*	*11/05/24 07:42*	*11/08/24 13:29*	*1*
d9-N-EtFOSE-M	*87.4*		*10 - 130*	*11/05/24 07:42*	*11/08/24 13:29*	*1*
d5-NEtPFOSA	*95.0*		*10 - 130*	*11/05/24 07:42*	*11/08/24 13:29*	*1*
d3-NMePFOSA	*93.8*		*10 - 130*	*11/05/24 07:42*	*11/08/24 13:29*	*1*

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**17**		0.50	0.13	mg/L		10/29/24 09:10	10/30/24 18:34	1
Potassium	**7.2**	**^1+**	2.0	0.29	mg/L		10/29/24 09:10	10/30/24 18:34	1
Sodium	**38**	**^1+**	2.0	0.20	mg/L		10/29/24 09:10	10/30/24 18:34	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**36**		1.0	0.20	mg/L		11/08/24 09:54	11/08/24 14:01	1
Iron	ND		2.0	0.074	mg/L		11/08/24 09:54	11/08/24 14:01	1
Magnesium	**15**		0.50	0.13	mg/L		11/08/24 09:54	11/08/24 14:01	1

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0022**	**J**	0.0050	0.0010	mg/L		10/29/24 19:19	10/30/24 16:00	5

Client Sample ID: MW-2A:102524

Date Collected: 10/25/24 09:25
Date Received: 10/25/24 12:26

Lab Sample ID: 590-27742-2
Matrix: Water

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.0020	0.00019	mg/L		10/29/24 19:19	10/30/24 16:00	5
Iron	ND		0.50	0.067	mg/L		10/29/24 19:19	10/30/24 16:00	5
Lead	ND		0.0020	0.00020	mg/L		10/29/24 19:19	10/30/24 16:00	5
Manganese	ND		0.010	0.0023	mg/L		10/29/24 19:19	10/30/24 16:00	5
Zinc	ND		0.035	0.0046	mg/L		10/29/24 19:19	10/30/24 16:00	5

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0020**	**J**	0.0050	0.0010	mg/L		11/04/24 17:02	11/05/24 18:54	5
Cadmium	ND		0.0020	0.00019	mg/L		11/04/24 17:02	11/05/24 18:54	5
Iron	ND		0.50	0.067	mg/L		11/04/24 17:02	11/05/24 18:54	5
Lead	ND		0.0020	0.00020	mg/L		11/04/24 17:02	11/05/24 18:54	5
Manganese	ND		0.010	0.0023	mg/L		11/04/24 17:02	11/05/24 18:54	5
Zinc	ND		0.035	0.0046	mg/L		11/04/24 17:02	11/05/24 18:54	5

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		10/29/24 09:11	10/29/24 11:49	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		11/08/24 09:59	11/08/24 16:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	ND		0.10	0.029	mg/L			10/30/24 13:01	1
Alkalinity (SM 2320B)	**190**	**B**	20	5.0	mg/L			11/08/24 11:28	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**190**	**B**	20	5.0	mg/L			11/08/24 11:28	1
Total Dissolved Solids (SM 2540C)	**250**		25	13	mg/L			10/30/24 11:09	1
Total Organic Carbon - Duplicates (SM 5310B)	**4.5**		1.0	0.35	mg/L			11/06/24 01:43	1

Client Sample ID: MW-12A:102524

Date Collected: 10/25/24 10:25
Date Received: 10/25/24 12:26

Lab Sample ID: 590-27742-3
Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			11/04/24 16:33	1
Tetrachloroethene	ND		1.0	0.22	ug/L			11/04/24 16:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*		*11/04/24 16:33*	*1*
4-Bromofluorobenzene (Surr)	*108*		*76 - 120*		*11/04/24 16:33*	*1*
Dibromofluoromethane (Surr)	*102*		*80 - 123*		*11/04/24 16:33*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*11/04/24 16:33*	*1*

Method: SW846 8270E SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.19	0.034	ug/L		10/30/24 09:05	11/01/24 13:20	1

Client Sample ID: MW-12A:102524

Lab Sample ID: 590-27742-3

Date Collected: 10/25/24 10:25

Matrix: Water

Date Received: 10/25/24 12:26

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	44		40 - 140	10/30/24 09:05	11/01/24 13:20	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**6.3**		0.80	0.42	mg/L			10/28/24 12:14	1
Nitrate as N	**7.3**	**H**	0.20	0.057	mg/L			10/28/24 12:14	1
Nitrite as N	ND	H	0.20	0.069	mg/L			10/28/24 12:14	1
Sulfate	**14**		0.50	0.13	mg/L			10/28/24 12:14	1

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**4.0**		2.8	0.71	ng/L		11/05/24 07:42	11/08/24 13:43	1
Perfluoropentanoic acid (PFPeA)	**1.5**		1.4	0.35	ng/L		11/05/24 07:42	11/08/24 13:43	1
Perfluorohexanoic acid (PFHxA)	**1.4**		1.4	0.35	ng/L		11/05/24 07:42	11/08/24 13:43	1
Perfluoroheptanoic acid (PFHpA)	**0.65**	**J**	1.4	0.35	ng/L		11/05/24 07:42	11/08/24 13:43	1
Perfluorooctanoic acid (PFOA)	**1.1**	**J**	1.4	0.35	ng/L		11/05/24 07:42	11/08/24 13:43	1
Perfluorononanoic acid (PFNA)	ND		1.4	0.35	ng/L		11/05/24 07:42	11/08/24 13:43	1
Perfluorodecanoic acid (PFDA)	ND		1.4	0.35	ng/L		11/05/24 07:42	11/08/24 13:43	1
Perfluoroundecanoic acid (PFUnA)	ND		1.4	0.35	ng/L		11/05/24 07:42	11/08/24 13:43	1
Perfluorododecanoic acid (PFDoA)	ND		1.4	0.39	ng/L		11/05/24 07:42	11/08/24 13:43	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.4	0.41	ng/L		11/05/24 07:42	11/08/24 13:43	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.4	0.57	ng/L		11/05/24 07:42	11/08/24 13:43	1
Perfluorobutanesulfonic acid (PFBS)	**1.2**	**J**	1.4	0.35	ng/L		11/05/24 07:42	11/08/24 13:43	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.4	0.35	ng/L		11/05/24 07:42	11/08/24 13:43	1
Perfluorohexanesulfonic acid (PFHxS)	**0.39**	**J**	1.4	0.35	ng/L		11/05/24 07:42	11/08/24 13:43	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.4	0.35	ng/L		11/05/24 07:42	11/08/24 13:43	1
Perfluorooctanesulfonic acid (PFOS)	**0.60**	**J**	1.4	0.35	ng/L		11/05/24 07:42	11/08/24 13:43	1
Perfluorononanesulfonic acid (PFNS)	ND		1.4	0.35	ng/L		11/05/24 07:42	11/08/24 13:43	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.4	0.35	ng/L		11/05/24 07:42	11/08/24 13:43	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.4	0.38	ng/L		11/05/24 07:42	11/08/24 13:43	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		2.8	0.71	ng/L		11/05/24 07:42	11/08/24 13:43	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		2.8	0.71	ng/L		11/05/24 07:42	11/08/24 13:43	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		2.8	0.71	ng/L		11/05/24 07:42	11/08/24 13:43	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.4	0.35	ng/L		11/05/24 07:42	11/08/24 13:43	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.4	0.35	ng/L		11/05/24 07:42	11/08/24 13:43	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.4	0.35	ng/L		11/05/24 07:42	11/08/24 13:43	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.4	0.35	ng/L		11/05/24 07:42	11/08/24 13:43	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.4	0.35	ng/L		11/05/24 07:42	11/08/24 13:43	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		7.1	1.8	ng/L		11/05/24 07:42	11/08/24 13:43	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		7.1	1.8	ng/L		11/05/24 07:42	11/08/24 13:43	1

Client Sample ID: MW-12A:102524
Date Collected: 10/25/24 10:25
Date Received: 10/25/24 12:26

Lab Sample ID: 590-27742-3
Matrix: Water

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.1	0.28	ng/L		11/05/24 07:42	11/08/24 13:43	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.4	0.35	ng/L		11/05/24 07:42	11/08/24 13:43	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.4	0.35	ng/L		11/05/24 07:42	11/08/24 13:43	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.4	0.35	ng/L		11/05/24 07:42	11/08/24 13:43	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.4	0.51	ng/L		11/05/24 07:42	11/08/24 13:43	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1.4	0.41	ng/L		11/05/24 07:42	11/08/24 13:43	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1.4	0.35	ng/L		11/05/24 07:42	11/08/24 13:43	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.4	0.35	ng/L		11/05/24 07:42	11/08/24 13:43	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		2.8	0.71	ng/L		11/05/24 07:42	11/08/24 13:43	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		7.1	1.8	ng/L		11/05/24 07:42	11/08/24 13:43	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		7.1	1.8	ng/L		11/05/24 07:42	11/08/24 13:43	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*109*		*5 - 130*	*11/05/24 07:42*	*11/08/24 13:43*	*1*
13C5 PFPeA	*109*		*40 - 130*	*11/05/24 07:42*	*11/08/24 13:43*	*1*
13C5 PFHxA	*98.8*		*40 - 130*	*11/05/24 07:42*	*11/08/24 13:43*	*1*
13C4 PFHpA	*86.4*		*40 - 130*	*11/05/24 07:42*	*11/08/24 13:43*	*1*
13C8 PFOA	*108*		*40 - 130*	*11/05/24 07:42*	*11/08/24 13:43*	*1*
13C9 PFNA	*101*		*40 - 130*	*11/05/24 07:42*	*11/08/24 13:43*	*1*
13C6 PFDA	*99.2*		*40 - 130*	*11/05/24 07:42*	*11/08/24 13:43*	*1*
13C7 PFUnA	*84.1*		*30 - 130*	*11/05/24 07:42*	*11/08/24 13:43*	*1*
13C2 PFDoA	*74.1*		*10 - 130*	*11/05/24 07:42*	*11/08/24 13:43*	*1*
13C2 PFTeDA	*65.6*		*10 - 130*	*11/05/24 07:42*	*11/08/24 13:43*	*1*
13C3 PFBS	*101*		*40 - 135*	*11/05/24 07:42*	*11/08/24 13:43*	*1*
13C3 PFHxS	*102*		*40 - 130*	*11/05/24 07:42*	*11/08/24 13:43*	*1*
13C8 PFOS	*94.5*		*40 - 130*	*11/05/24 07:42*	*11/08/24 13:43*	*1*
13C8 FOSA	*93.9*		*40 - 130*	*11/05/24 07:42*	*11/08/24 13:43*	*1*
d3-NMeFOSAA	*116*		*40 - 170*	*11/05/24 07:42*	*11/08/24 13:43*	*1*
d5-NEtFOSAA	*83.9*		*25 - 135*	*11/05/24 07:42*	*11/08/24 13:43*	*1*
13C2 4:2 FTS	*92.3*		*40 - 200*	*11/05/24 07:42*	*11/08/24 13:43*	*1*
13C2 6:2 FTS	*90.3*		*40 - 200*	*11/05/24 07:42*	*11/08/24 13:43*	*1*
13C2 8:2 FTS	*71.1*		*40 - 300*	*11/05/24 07:42*	*11/08/24 13:43*	*1*
13C3 HFPO-DA	*100*		*40 - 130*	*11/05/24 07:42*	*11/08/24 13:43*	*1*
d7-N-MeFOSE-M	*76.1*		*10 - 130*	*11/05/24 07:42*	*11/08/24 13:43*	*1*
d9-N-EtFOSE-M	*76.3*		*10 - 130*	*11/05/24 07:42*	*11/08/24 13:43*	*1*
d5-NEtPFOSA	*80.5*		*10 - 130*	*11/05/24 07:42*	*11/08/24 13:43*	*1*
d3-NMePFOSA	*83.4*		*10 - 130*	*11/05/24 07:42*	*11/08/24 13:43*	*1*

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**10**		0.50	0.13	mg/L		10/29/24 09:10	10/30/24 18:39	1
Potassium	**2.7**	**^1+**	2.0	0.29	mg/L		10/29/24 09:10	10/30/24 18:39	1

Client Sample ID: MW-12A:102524

Lab Sample ID: 590-27742-3

Date Collected: 10/25/24 10:25
Date Received: 10/25/24 12:26

Matrix: Water

Method: SW846 6010D - Metals (ICP) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	**8.1**	**^1+**	2.0	0.20	mg/L		10/29/24 09:10	10/30/24 18:39	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**26**		1.0	0.20	mg/L		11/08/24 09:54	11/08/24 14:06	1
Iron	ND		2.0	0.074	mg/L		11/08/24 09:54	11/08/24 14:06	1
Magnesium	**9.4**		0.50	0.13	mg/L		11/08/24 09:54	11/08/24 14:06	1

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0011**	**J**	0.0050	0.0010	mg/L		10/29/24 19:19	10/30/24 15:57	5
Cadmium	ND		0.0020	0.00019	mg/L		10/29/24 19:19	10/30/24 15:57	5
Iron	ND		0.50	0.067	mg/L		10/29/24 19:19	10/30/24 15:57	5
Lead	ND		0.0020	0.00020	mg/L		10/29/24 19:19	10/30/24 15:57	5
Manganese	**0.0038**	**J**	0.010	0.0023	mg/L		10/29/24 19:19	10/30/24 15:57	5
Zinc	**0.0053**	**J**	0.035	0.0046	mg/L		10/29/24 19:19	10/30/24 15:57	5

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.0010	mg/L		11/04/24 17:02	11/05/24 19:08	5
Cadmium	ND		0.0020	0.00019	mg/L		11/04/24 17:02	11/05/24 19:08	5
Iron	ND		0.50	0.067	mg/L		11/04/24 17:02	11/05/24 19:08	5
Lead	ND		0.0020	0.00020	mg/L		11/04/24 17:02	11/05/24 19:08	5
Manganese	ND		0.010	0.0023	mg/L		11/04/24 17:02	11/05/24 19:08	5
Zinc	ND		0.035	0.0046	mg/L		11/04/24 17:02	11/05/24 19:08	5

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.14**	**J**	0.20	0.090	ug/L		10/29/24 09:11	10/29/24 11:59	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		11/08/24 09:59	11/08/24 16:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	ND		0.10	0.029	mg/L			10/30/24 13:03	1
Alkalinity (SM 2320B)	**90**	**B**	20	5.0	mg/L			11/08/24 11:28	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**90**	**B**	20	5.0	mg/L			11/08/24 11:28	1
Total Dissolved Solids (SM 2540C)	**150**		25	13	mg/L			10/30/24 11:09	1
Total Organic Carbon - Duplicates (SM 5310B)	**2.6**		1.0	0.35	mg/L			11/06/24 02:00	1

Client Sample ID: Trip Blank

Lab Sample ID: 590-27742-4

Date Collected: 10/25/24 08:00
Date Received: 10/25/24 12:26

Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			11/04/24 16:54	1
Tetrachloroethene	ND		1.0	0.22	ug/L			11/04/24 16:54	1

Client: GeoEngineers Inc
Job ID: 590-27742-1
Project/Site: Marshall Landfill GWM

Client Sample ID: Trip Blank
Lab Sample ID: 590-27742-4
Date Collected: 10/25/24 08:00
Matrix: Water
Date Received: 10/25/24 12:26

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		80 - 120		11/04/24 16:54	1
4-Bromofluorobenzene (Surr)	107		76 - 120		11/04/24 16:54	1
Dibromofluoromethane (Surr)	107		80 - 123		11/04/24 16:54	1
Toluene-d8 (Surr)	98		80 - 120		11/04/24 16:54	1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 590-50648/8
Matrix: Water
Analysis Batch: 50648

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			11/04/24 14:21	1
Tetrachloroethene	ND		1.0	0.22	ug/L			11/04/24 14:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*80 - 120*		*11/04/24 14:21*	*1*
4-Bromofluorobenzene (Surr)	*105*		*76 - 120*		*11/04/24 14:21*	*1*
Dibromofluoromethane (Surr)	*112*		*80 - 123*		*11/04/24 14:21*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*11/04/24 14:21*	*1*

Lab Sample ID: LCS 590-50648/1005
Matrix: Water
Analysis Batch: 50648

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,1,1-Trichloroethane			10.0	9.85		ug/L		99	71 - 138		
Tetrachloroethene			10.0	9.68		ug/L		97	80 - 139		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*97*		*80 - 120*
4-Bromofluorobenzene (Surr)	*112*		*76 - 120*
Dibromofluoromethane (Surr)	*97*		*80 - 123*
Toluene-d8 (Surr)	*100*		*80 - 120*

Lab Sample ID: LCSD 590-50648/6
Matrix: Water
Analysis Batch: 50648

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane			10.0	9.60		ug/L		96	71 - 138	3	17
Tetrachloroethene			10.0	9.86		ug/L		99	80 - 139	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*99*		*80 - 120*
4-Bromofluorobenzene (Surr)	*110*		*76 - 120*
Dibromofluoromethane (Surr)	*94*		*80 - 123*
Toluene-d8 (Surr)	*99*		*80 - 120*

Method: 8270E SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Lab Sample ID: MB 580-476289/1-A
Matrix: Water
Analysis Batch: 476565

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 476289

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.036	ug/L		10/30/24 09:05	11/01/24 12:25	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*44*		*40 - 140*	*10/30/24 09:05*	*11/01/24 12:25*	*1*

Method: 8270E SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Lab Sample ID: LCS 580-476289/2-A
Matrix: Water
Analysis Batch: 476565

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 476289

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,4-Dioxane			8.00	8.75		ug/L		109	78 - 130		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,4-Dioxane-d8	*39*	*5-	*40 - 140*

Lab Sample ID: LCSD 580-476289/3-A
Matrix: Water
Analysis Batch: 476565

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 476289

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,4-Dioxane			8.00	8.83		ug/L		110	78 - 130	1	13

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,4-Dioxane-d8	*45*		*40 - 140*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 590-50506/1003
Matrix: Water
Analysis Batch: 50506

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.80	0.42	mg/L			10/28/24 09:54	1
Sulfate	ND		0.50	0.13	mg/L			10/28/24 09:54	1

Lab Sample ID: LCS 590-50506/1004
Matrix: Water
Analysis Batch: 50506

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			12.5	12.3		mg/L		99	90 - 110		
Sulfate			12.5	11.6		mg/L		93	90 - 110		

Lab Sample ID: 590-27742-1 MS
Matrix: Water
Analysis Batch: 50506

Client Sample ID: MW-3:102524
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	60		11.4	62.6	4	mg/L		20	80 - 120		
Sulfate	12		11.4	23.0		mg/L		94	80 - 120		

Lab Sample ID: 590-27742-1 MSD
Matrix: Water
Analysis Batch: 50506

Client Sample ID: MW-3:102524
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	60		11.4	62.7	4	mg/L		21	80 - 120	0	10
Sulfate	12		11.4	23.5		mg/L		99	80 - 120	2	10

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 590-27742-1 DU
Matrix: Water
Analysis Batch: 50506

Client Sample ID: MW-3:102524
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chloride	60			60.2		mg/L				0.2	18.8
Sulfate	12			12.3		mg/L				0.4	15.7

Lab Sample ID: MB 590-50507/1003
Matrix: Water
Analysis Batch: 50507

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20	0.057	mg/L			10/28/24 09:54	1
Nitrite as N	ND		0.20	0.069	mg/L			10/28/24 09:54	1

Lab Sample ID: LCS 590-50507/1004
Matrix: Water
Analysis Batch: 50507

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate as N			5.00	5.02		mg/L		100	90 - 110		
Nitrite as N			5.00	4.75		mg/L		95	90 - 110		

Lab Sample ID: 590-27742-1 MS
Matrix: Water
Analysis Batch: 50507

Client Sample ID: MW-3:102524
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate as N	0.080	J H	4.55	4.77		mg/L		103	80 - 120		
Nitrite as N	ND	H	4.55	3.80		mg/L		84	80 - 120		

Lab Sample ID: 590-27742-1 MSD
Matrix: Water
Analysis Batch: 50507

Client Sample ID: MW-3:102524
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate as N	0.080	J H	4.55	4.78		mg/L		103	80 - 120	0	12.1
Nitrite as N	ND	H	4.55	3.79		mg/L		83	80 - 120	0	10

Lab Sample ID: 590-27742-1 DU
Matrix: Water
Analysis Batch: 50507

Client Sample ID: MW-3:102524
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Nitrate as N	0.080	J H		0.0796	J	mg/L				0.6	13.1
Nitrite as N	ND	H		ND		mg/L				NC	10

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Lab Sample ID: MB 320-812281/1-A
Matrix: Water
Analysis Batch: 813083

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 812281

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.50	ng/L		11/05/24 07:42	11/07/24 08:41	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
d3-NMeFOSAA	*118*		*40 - 170*	*11/05/24 07:42*	*11/07/24 08:41*	*1*

Lab Sample ID: LCS 320-812281/3-A
Matrix: Water
Analysis Batch: 813083

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 812281

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	40.5		ng/L		101	50 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	80.0	84.0		ng/L		105	65 - 130

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C5 PFPeA	*88.1*		*40 - 130*
d3-NMeFOSAA	*96.3*		*40 - 170*

Lab Sample ID: LCSD 320-812281/4-A
Matrix: Water
Analysis Batch: 813083

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 812281

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	37.7		ng/L		94	50 - 140	7	30
3-Perfluoropropylpropanoic acid (3:3 FTCA)	80.0	73.5		ng/L		92	65 - 130	13	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C5 PFPeA	*109*		*40 - 130*
d3-NMeFOSAA	*103*		*40 - 170*

Lab Sample ID: LLCS 320-812281/2-A
Matrix: Water
Analysis Batch: 813083

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 812281

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	4.00	4.13		ng/L		103	50 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	8.00	7.74		ng/L		97	65 - 130

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C5 PFPeA	*96.6*		*40 - 130*
d3-NMeFOSAA	*103*		*40 - 170*

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Lab Sample ID: MB 320-812281/1-A
Matrix: Water
Analysis Batch: 813242

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 812281

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA) - RA	ND		4.0	1.0	ng/L		11/05/24 07:42	11/08/24 11:11	1
Perfluoropentanoic acid (PFPeA) - RA	ND		2.0	0.50	ng/L		11/05/24 07:42	11/08/24 11:11	1
Perfluorohexanoic acid (PFHxA) - RA	ND		2.0	0.50	ng/L		11/05/24 07:42	11/08/24 11:11	1
Perfluoroheptanoic acid (PFHpA) - RA	ND		2.0	0.50	ng/L		11/05/24 07:42	11/08/24 11:11	1
Perfluorooctanoic acid (PFOA) - RA	ND		2.0	0.50	ng/L		11/05/24 07:42	11/08/24 11:11	1
Perfluorononanoic acid (PFNA) - RA	ND		2.0	0.50	ng/L		11/05/24 07:42	11/08/24 11:11	1
Perfluorodecanoic acid (PFDA) - RA	ND		2.0	0.50	ng/L		11/05/24 07:42	11/08/24 11:11	1
Perfluoroundecanoic acid (PFUnA) - RA	ND		2.0	0.50	ng/L		11/05/24 07:42	11/08/24 11:11	1
Perfluorododecanoic acid (PFDoA) - RA	ND		2.0	0.55	ng/L		11/05/24 07:42	11/08/24 11:11	1
Perfluorotridecanoic acid (PFTrDA) - RA	ND		2.0	0.58	ng/L		11/05/24 07:42	11/08/24 11:11	1
Perfluorotetradecanoic acid (PFTeDA) - RA	ND		2.0	0.81	ng/L		11/05/24 07:42	11/08/24 11:11	1
Perfluorobutanesulfonic acid (PFBS) - RA	ND		2.0	0.50	ng/L		11/05/24 07:42	11/08/24 11:11	1
Perfluoropentanesulfonic acid (PFPeS) - RA	ND		2.0	0.50	ng/L		11/05/24 07:42	11/08/24 11:11	1
Perfluorohexanesulfonic acid (PFHxS) - RA	ND		2.0	0.50	ng/L		11/05/24 07:42	11/08/24 11:11	1
Perfluoroheptanesulfonic acid (PFHpS) - RA	ND		2.0	0.50	ng/L		11/05/24 07:42	11/08/24 11:11	1
Perfluorooctanesulfonic acid (PFOS) - RA	ND		2.0	0.50	ng/L		11/05/24 07:42	11/08/24 11:11	1
Perfluorononanesulfonic acid (PFNS) - RA	ND		2.0	0.50	ng/L		11/05/24 07:42	11/08/24 11:11	1
Perfluorodecanesulfonic acid (PFDS) - RA	ND		2.0	0.50	ng/L		11/05/24 07:42	11/08/24 11:11	1
Perfluorododecanesulfonic acid (PFDoS) - RA	ND		2.0	0.53	ng/L		11/05/24 07:42	11/08/24 11:11	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS) - RA	ND		4.0	1.0	ng/L		11/05/24 07:42	11/08/24 11:11	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS) - RA	ND		4.0	1.0	ng/L		11/05/24 07:42	11/08/24 11:11	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) - RA	ND		4.0	1.0	ng/L		11/05/24 07:42	11/08/24 11:11	1
Perfluorooctanesulfonamide (PFOSA) - RA	ND		2.0	0.50	ng/L		11/05/24 07:42	11/08/24 11:11	1
N-methylperfluorooctane sulfonamide (NMeFOSA) - RA	ND		2.0	0.50	ng/L		11/05/24 07:42	11/08/24 11:11	1
N-ethylperfluorooctane sulfonamide (NEtFOSA) - RA	ND		2.0	0.50	ng/L		11/05/24 07:42	11/08/24 11:11	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA) - RA	ND		2.0	0.50	ng/L		11/05/24 07:42	11/08/24 11:11	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE) - RA	ND		10	2.5	ng/L		11/05/24 07:42	11/08/24 11:11	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE) - RA	ND		10	2.5	ng/L		11/05/24 07:42	11/08/24 11:11	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) - RA	ND		1.5	0.39	ng/L		11/05/24 07:42	11/08/24 11:11	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA) - RA	ND		2.0	0.50	ng/L		11/05/24 07:42	11/08/24 11:11	1

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA (Continued)

Lab Sample ID: MB 320-812281/1-A
Matrix: Water
Analysis Batch: 813242

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 812281

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-3-methoxypropanoic acid (PFMPA) - RA	ND		2.0	0.50	ng/L		11/05/24 07:42	11/08/24 11:11	1
Perfluoro-4-methoxybutanoic acid (PFMBA) - RA	ND		2.0	0.50	ng/L		11/05/24 07:42	11/08/24 11:11	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) - RA	ND		2.0	0.72	ng/L		11/05/24 07:42	11/08/24 11:11	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS) - RA	ND		2.0	0.58	ng/L		11/05/24 07:42	11/08/24 11:11	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) - RA	ND		2.0	0.50	ng/L		11/05/24 07:42	11/08/24 11:11	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA) - RA	ND		2.0	0.50	ng/L		11/05/24 07:42	11/08/24 11:11	1
3-Perfluoropropylpropanoic acid (3:3 FTCA) - RA	ND		4.0	1.0	ng/L		11/05/24 07:42	11/08/24 11:11	1
3-Perfluoropentylpropanoic acid (5:3 FTCA) - RA	ND		10	2.5	ng/L		11/05/24 07:42	11/08/24 11:11	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA) - RA	ND		10	2.5	ng/L		11/05/24 07:42	11/08/24 11:11	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA - RA	*132*	*5+*	*5 - 130*	*11/05/24 07:42*	*11/08/24 11:11*	*1*
13C5 PFPeA - RA	*124*		*40 - 130*	*11/05/24 07:42*	*11/08/24 11:11*	*1*
13C5 PFHxA - RA	*119*		*40 - 130*	*11/05/24 07:42*	*11/08/24 11:11*	*1*
13C4 PFHpA - RA	*117*		*40 - 130*	*11/05/24 07:42*	*11/08/24 11:11*	*1*
13C8 PFOA - RA	*122*		*40 - 130*	*11/05/24 07:42*	*11/08/24 11:11*	*1*
13C9 PFNA - RA	*122*		*40 - 130*	*11/05/24 07:42*	*11/08/24 11:11*	*1*
13C6 PFDA - RA	*126*		*40 - 130*	*11/05/24 07:42*	*11/08/24 11:11*	*1*
13C7 PFUnA - RA	*112*		*30 - 130*	*11/05/24 07:42*	*11/08/24 11:11*	*1*
13C2 PFDoA - RA	*102*		*10 - 130*	*11/05/24 07:42*	*11/08/24 11:11*	*1*
13C2 PFTeDA - RA	*96.9*		*10 - 130*	*11/05/24 07:42*	*11/08/24 11:11*	*1*
13C3 PFBS - RA	*126*		*40 - 135*	*11/05/24 07:42*	*11/08/24 11:11*	*1*
13C3 PFHxS - RA	*125*		*40 - 130*	*11/05/24 07:42*	*11/08/24 11:11*	*1*
13C8 PFOS - RA	*121*		*40 - 130*	*11/05/24 07:42*	*11/08/24 11:11*	*1*
13C8 FOSA - RA	*119*		*40 - 130*	*11/05/24 07:42*	*11/08/24 11:11*	*1*
d5-NEtFOSAA - RA	*134*		*25 - 135*	*11/05/24 07:42*	*11/08/24 11:11*	*1*
13C2 4:2 FTS - RA	*96.7*		*40 - 200*	*11/05/24 07:42*	*11/08/24 11:11*	*1*
13C2 6:2 FTS - RA	*105*		*40 - 200*	*11/05/24 07:42*	*11/08/24 11:11*	*1*
13C2 8:2 FTS - RA	*110*		*40 - 300*	*11/05/24 07:42*	*11/08/24 11:11*	*1*
13C3 HFPO-DA - RA	*119*		*40 - 130*	*11/05/24 07:42*	*11/08/24 11:11*	*1*
d7-N-MeFOSE-M - RA	*109*		*10 - 130*	*11/05/24 07:42*	*11/08/24 11:11*	*1*
d9-N-EtFOSE-M - RA	*112*		*10 - 130*	*11/05/24 07:42*	*11/08/24 11:11*	*1*
d5-NEtPFOSA - RA	*98.3*		*10 - 130*	*11/05/24 07:42*	*11/08/24 11:11*	*1*
d3-NMePFOSA - RA	*103*		*10 - 130*	*11/05/24 07:42*	*11/08/24 11:11*	*1*

Lab Sample ID: LCS 320-812281/3-A
Matrix: Water
Analysis Batch: 813242

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 812281

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA) - RA	80.0	80.8		ng/L		101	70 - 140

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA (Continued)

Lab Sample ID: LCS 320-812281/3-A
Matrix: Water
Analysis Batch: 813242

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 812281

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanoic acid (PFPeA) - RA	40.0	47.4		ng/L		119	65 - 135
Perfluorohexanoic acid (PFHxA) - RA	40.0	38.8		ng/L		97	70 - 145
Perfluoroheptanoic acid (PFHpA) - RA	40.0	40.0		ng/L		100	70 - 150
Perfluorooctanoic acid (PFOA) - RA	40.0	38.6		ng/L		97	70 - 150
Perfluorononanoic acid (PFNA) - RA	40.0	37.3		ng/L		93	70 - 150
Perfluorodecanoic acid (PFDA) - RA	40.0	42.3		ng/L		106	70 - 140
Perfluoroundecanoic acid (PFUnA) - RA	40.0	39.2		ng/L		98	70 - 145
Perfluorododecanoic acid (PFDoA) - RA	40.0	43.2		ng/L		108	70 - 140
Perfluorotridecanoic acid (PFTrDA) - RA	40.0	41.9		ng/L		105	65 - 140
Perfluorotetradecanoic acid (PFTeDA) - RA	40.0	46.5		ng/L		116	60 - 140
Perfluorobutanesulfonic acid (PFBS) - RA	35.5	37.3		ng/L		105	60 - 145
Perfluoropentanesulfonic acid (PFPeS) - RA	37.6	35.5		ng/L		95	65 - 140
Perfluorohexanesulfonic acid (PFHxS) - RA	36.5	34.2		ng/L		94	65 - 145
Perfluoroheptanesulfonic acid (PFHpS) - RA	38.2	41.0		ng/L		107	70 - 150
Perfluorooctanesulfonic acid (PFOS) - RA	37.2	35.4		ng/L		95	55 - 150
Perfluorononanesulfonic acid (PFNS) - RA	38.5	38.5		ng/L		100	65 - 145
Perfluorodecanesulfonic acid (PFDS) - RA	38.6	34.3		ng/L		89	60 - 145
Perfluorododecanesulfonic acid (PFDoS) - RA	38.8	36.5		ng/L		94	50 - 145
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS) - RA	75.0	75.3		ng/L		100	70 - 145
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS) - RA	76.2	82.3		ng/L		108	65 - 155
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) - RA	76.8	84.5		ng/L		110	60 - 150
Perfluorooctanesulfonamide (PFOSA) - RA	40.0	42.3		ng/L		106	70 - 145
N-methylperfluorooctane sulfonamide (NMeFOSA) - RA	40.0	41.0		ng/L		102	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA) - RA	40.0	42.5		ng/L		106	65 - 145
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA) - RA	40.0	40.6		ng/L		101	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE) - RA	200	203		ng/L		102	70 - 145
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE) - RA	200	204		ng/L		102	70 - 135

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA (Continued)

Lab Sample ID: LCS 320-812281/3-A
Matrix: Water
Analysis Batch: 813242

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 812281

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) - RA	30.0	30.6		ng/L		102	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA) - RA	37.8	36.0		ng/L		95	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA) - RA	40.0	49.9		ng/L		125	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA) - RA	40.0	46.1		ng/L		115	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) - RA	40.0	29.6		ng/L		74	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS) - RA	37.4	36.3		ng/L		97	70 - 155
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) - RA	37.8	34.8		ng/L		92	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA) - RA	35.7	34.9		ng/L		98	70 - 140
3-Perfluoropentylpropanoic acid (5:3 FTCA) - RA	200	192		ng/L		96	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA) - RA	200	182		ng/L		91	50 - 145

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA - RA	*111*		*5 - 130*
13C5 PFPeA - RA	*96.4*		*40 - 130*
13C5 PFHxA - RA	*106*		*40 - 130*
13C4 PFHpA - RA	*96.7*		*40 - 130*
13C8 PFOA - RA	*98.3*		*40 - 130*
13C9 PFNA - RA	*103*		*40 - 130*
13C6 PFDA - RA	*101*		*40 - 130*
13C7 PFUnA - RA	*109*		*30 - 130*
13C2 PFDoA - RA	*92.1*		*10 - 130*
13C2 PFTeDA - RA	*80.7*		*10 - 130*
13C3 PFBS - RA	*101*		*40 - 135*
13C3 PFHxS - RA	*107*		*40 - 130*
13C8 PFOS - RA	*105*		*40 - 130*
13C8 FOSA - RA	*98.4*		*40 - 130*
d5-NEtFOSAA - RA	*109*		*25 - 135*
13C2 4:2 FTS - RA	*81.8*		*40 - 200*
13C2 6:2 FTS - RA	*89.5*		*40 - 200*
13C2 8:2 FTS - RA	*83.7*		*40 - 300*
13C3 HFPO-DA - RA	*103*		*40 - 130*
d7-N-MeFOSE-M - RA	*95.9*		*10 - 130*
d9-N-EtFOSE-M - RA	*95.3*		*10 - 130*
d5-NEtPFOSA - RA	*86.6*		*10 - 130*
d3-NMePFOSA - RA	*89.5*		*10 - 130*

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA (Continued)

Lab Sample ID: LCSD 320-812281/4-A
Matrix: Water
Analysis Batch: 813242

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 812281

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA) - RA			80.0	76.7		ng/L		96	70 - 140	5	30
Perfluoropentanoic acid (PFPeA) - RA			40.0	43.0		ng/L		107	65 - 135	10	30
Perfluorohexanoic acid (PFHxA) - RA			40.0	39.6		ng/L		99	70 - 145	2	30
Perfluoroheptanoic acid (PFHpA) - RA			40.0	38.4		ng/L		96	70 - 150	4	30
Perfluorooctanoic acid (PFOA) - RA			40.0	37.5		ng/L		94	70 - 150	3	30
Perfluorononanoic acid (PFNA) - RA			40.0	38.6		ng/L		97	70 - 150	3	30
Perfluorodecanoic acid (PFDA) - RA			40.0	36.8		ng/L		92	70 - 140	14	30
Perfluoroundecanoic acid (PFUnA) - RA			40.0	40.2		ng/L		100	70 - 145	2	30
Perfluorododecanoic acid (PFDoA) - RA			40.0	42.5		ng/L		106	70 - 140	1	30
Perfluorotridecanoic acid (PFTrDA) - RA			40.0	40.0		ng/L		100	65 - 140	5	30
Perfluorotetradecanoic acid (PFTeDA) - RA			40.0	36.5		ng/L		91	60 - 140	24	30
Perfluorobutanesulfonic acid (PFBS) - RA			35.5	34.9		ng/L		98	60 - 145	7	30
Perfluoropentanesulfonic acid (PFPeS) - RA			37.6	37.1		ng/L		99	65 - 140	4	30
Perfluorohexanesulfonic acid (PFHxS) - RA			36.5	35.6		ng/L		98	65 - 145	4	30
Perfluoroheptanesulfonic acid (PFHpS) - RA			38.2	38.8		ng/L		102	70 - 150	6	30
Perfluorooctanesulfonic acid (PFOS) - RA			37.2	35.3		ng/L		95	55 - 150	0	30
Perfluorononanesulfonic acid (PFNS) - RA			38.5	37.5		ng/L		97	65 - 145	3	30
Perfluorodecanesulfonic acid (PFDS) - RA			38.6	37.4		ng/L		97	60 - 145	9	30
Perfluorododecanesulfonic acid (PFDoS) - RA			38.8	32.2		ng/L		83	50 - 145	12	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS) - RA			75.0	73.9		ng/L		99	70 - 145	2	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS) - RA			76.2	70.0		ng/L		92	65 - 155	16	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) - RA			76.8	72.4		ng/L		94	60 - 150	15	30
Perfluorooctanesulfonamide (PFOSA) - RA			40.0	41.0		ng/L		102	70 - 145	3	30
N-methylperfluorooctane sulfonamide (NMeFOSA) - RA			40.0	41.0		ng/L		103	60 - 150	0	30
N-ethylperfluorooctane sulfonamide (NEtFOSA) - RA			40.0	41.6		ng/L		104	65 - 145	2	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA) - RA			40.0	39.4		ng/L		98	70 - 145	3	30
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE) - RA			200	200		ng/L		100	70 - 145	1	30

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA (Continued)

Lab Sample ID: LCSD 320-812281/4-A
Matrix: Water
Analysis Batch: 813242

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 812281

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE) - RA			200	195		ng/L		98	70 - 135	4	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) - RA			30.0	28.5		ng/L		95	70 - 140	7	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA) - RA			37.8	35.3		ng/L		93	65 - 145	2	30
Perfluoro-3-methoxypropanoic acid (PFMPA) - RA			40.0	46.3		ng/L		116	55 - 140	8	30
Perfluoro-4-methoxybutanoic acid (PFMBA) - RA			40.0	39.2		ng/L		98	60 - 150	16	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) - RA			40.0	38.0		ng/L		95	50 - 150	25	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS) - RA			37.4	33.2		ng/L		89	70 - 155	9	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) - RA			37.8	34.8		ng/L		92	55 - 160	0	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA) - RA			35.7	35.8		ng/L		100	70 - 140	3	30
3-Perfluoropentylpropanoic acid (5:3 FTCA) - RA			200	176		ng/L		88	70 - 135	9	30
3-Perfluoroheptylpropanoic acid (7:3 FTCA) - RA			200	165		ng/L		82	50 - 145	10	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA - RA	*115*		*5 - 130*
13C5 PFPeA - RA	*95.7*		*40 - 130*
13C5 PFHxA - RA	*102*		*40 - 130*
13C4 PFHpA - RA	*96.6*		*40 - 130*
13C8 PFOA - RA	*106*		*40 - 130*
13C9 PFNA - RA	*101*		*40 - 130*
13C6 PFDA - RA	*109*		*40 - 130*
13C7 PFUnA - RA	*112*		*30 - 130*
13C2 PFDoA - RA	*98.4*		*10 - 130*
13C2 PFTeDA - RA	*94.6*		*10 - 130*
13C3 PFBS - RA	*113*		*40 - 135*
13C3 PFHxS - RA	*107*		*40 - 130*
13C8 PFOS - RA	*107*		*40 - 130*
13C8 FOSA - RA	*100*		*40 - 130*
d5-NEtFOSAA - RA	*110*		*25 - 135*
13C2 4:2 FTS - RA	*87.7*		*40 - 200*
13C2 6:2 FTS - RA	*107*		*40 - 200*
13C2 8:2 FTS - RA	*90.3*		*40 - 300*
13C3 HFPO-DA - RA	*105*		*40 - 130*
d7-N-MeFOSE-M - RA	*99.3*		*10 - 130*
d9-N-EtFOSE-M - RA	*96.0*		*10 - 130*
d5-NEtPFOSA - RA	*88.0*		*10 - 130*
d3-NMePFOSA - RA	*88.4*		*10 - 130*

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA (Continued)

Lab Sample ID: LLCS 320-812281/2-A
Matrix: Water
Analysis Batch: 813242

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 812281

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA) - RA	8.00	8.37		ng/L		105	70 - 140
Perfluoropentanoic acid (PFPeA) - RA	4.00	4.72		ng/L		118	65 - 135
Perfluorohexanoic acid (PFHxA) - RA	4.00	4.50		ng/L		113	70 - 145
Perfluoroheptanoic acid (PFHpA) - RA	4.00	3.93		ng/L		98	70 - 150
Perfluorooctanoic acid (PFOA) - RA	4.00	3.88		ng/L		97	70 - 150
Perfluorononanoic acid (PFNA) - RA	4.00	4.48		ng/L		112	70 - 150
Perfluorodecanoic acid (PFDA) - RA	4.00	4.16		ng/L		104	70 - 140
Perfluoroundecanoic acid (PFUnA) - RA	4.00	4.57		ng/L		114	70 - 145
Perfluorododecanoic acid (PFDoA) - RA	4.00	4.27		ng/L		107	70 - 140
Perfluorotridecanoic acid (PFTrDA) - RA	4.00	4.32		ng/L		108	65 - 140
Perfluorotetradecanoic acid (PFTeDA) - RA	4.00	4.40		ng/L		110	60 - 140
Perfluorobutanesulfonic acid (PFBS) - RA	3.55	3.86		ng/L		109	60 - 145
Perfluoropentanesulfonic acid (PFPeS) - RA	3.76	3.67		ng/L		98	65 - 140
Perfluorohexanesulfonic acid (PFHxS) - RA	3.65	3.66		ng/L		100	65 - 145
Perfluoroheptanesulfonic acid (PFHpS) - RA	3.82	3.99		ng/L		105	70 - 150
Perfluorooctanesulfonic acid (PFOS) - RA	3.72	3.91		ng/L		105	55 - 150
Perfluorononanesulfonic acid (PFNS) - RA	3.85	4.10		ng/L		106	65 - 145
Perfluorodecanesulfonic acid (PFDS) - RA	3.86	3.57		ng/L		93	60 - 145
Perfluorododecanesulfonic acid (PFDoS) - RA	3.88	3.12		ng/L		80	50 - 145
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS) - RA	7.50	8.34		ng/L		111	70 - 145
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS) - RA	7.62	7.26		ng/L		95	65 - 155
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) - RA	7.68	8.27		ng/L		108	60 - 150
Perfluorooctanesulfonamide (PFOSA) - RA	4.00	3.73		ng/L		93	70 - 145
N-methylperfluorooctane sulfonamide (NMeFOSA) - RA	4.00	3.80		ng/L		95	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA) - RA	4.00	4.18		ng/L		104	65 - 145
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA) - RA	4.00	3.89		ng/L		97	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE) - RA	20.0	19.4		ng/L		97	70 - 145

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA (Continued)

Lab Sample ID: LLCS 320-812281/2-A
Matrix: Water
Analysis Batch: 813242

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 812281

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE) - RA	20.0	19.0		ng/L		95	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) - RA	3.00	2.89		ng/L		96	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA) - RA	3.78	3.92		ng/L		104	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA) - RA	4.00	4.74		ng/L		119	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA) - RA	4.00	4.09		ng/L		102	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) - RA	4.00	4.52		ng/L		113	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS) - RA	3.74	3.62		ng/L		97	70 - 155
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) - RA	3.78	3.24		ng/L		86	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA) - RA	3.57	3.79		ng/L		106	70 - 140
3-Perfluoropentylpropanoic acid (5:3 FTCA) - RA	20.0	17.7		ng/L		88	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA) - RA	20.0	16.2		ng/L		81	50 - 145

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C4 PFBA - RA	*109*		*5 - 130*
13C5 PFPeA - RA	*93.6*		*40 - 130*
13C5 PFHxA - RA	*99.5*		*40 - 130*
13C4 PFHpA - RA	*95.3*		*40 - 130*
13C8 PFOA - RA	*105*		*40 - 130*
13C9 PFNA - RA	*98.3*		*40 - 130*
13C6 PFDA - RA	*102*		*40 - 130*
13C7 PFUnA - RA	*94.7*		*30 - 130*
13C2 PFDoA - RA	*93.3*		*10 - 130*
13C2 PFTeDA - RA	*81.7*		*10 - 130*
13C3 PFBS - RA	*108*		*40 - 135*
13C3 PFHxS - RA	*108*		*40 - 130*
13C8 PFOS - RA	*99.5*		*40 - 130*
13C8 FOSA - RA	*94.7*		*40 - 130*
d5-NEtFOSAA - RA	*99.7*		*25 - 135*
13C2 4:2 FTS - RA	*79.1*		*40 - 200*
13C2 6:2 FTS - RA	*97.4*		*40 - 200*
13C2 8:2 FTS - RA	*92.3*		*40 - 300*
13C3 HFPO-DA - RA	*102*		*40 - 130*
d7-N-MeFOSE-M - RA	*86.8*		*10 - 130*
d9-N-EtFOSE-M - RA	*88.1*		*10 - 130*
d5-NEtPFOSA - RA	*75.9*		*10 - 130*
d3-NMePFOSA - RA	*77.3*		*10 - 130*

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 590-50531/2-A
Matrix: Water
Analysis Batch: 50562

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 50531

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	ND		0.50	0.13	mg/L		10/29/24 09:10	10/29/24 12:20	1

Lab Sample ID: MB 590-50531/2-A
Matrix: Water
Analysis Batch: 50607

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 50531

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	ND	^1+	2.0	0.29	mg/L		10/29/24 09:10	10/30/24 17:59	1
Magnesium	ND		0.50	0.13	mg/L		10/29/24 09:10	10/30/24 17:59	1
Sodium	ND	^1+	2.0	0.20	mg/L		10/29/24 09:10	10/30/24 17:59	1

Lab Sample ID: LCS 590-50531/1-A
Matrix: Water
Analysis Batch: 50562

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 50531

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Magnesium	50.0	45.4		mg/L		91	80 - 120

Lab Sample ID: LCS 590-50531/1-A
Matrix: Water
Analysis Batch: 50607

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 50531

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Potassium	50.0	42.6	^1+	mg/L		85	80 - 135
Magnesium	50.0	42.7		mg/L		85	80 - 120
Sodium	50.0	44.8	^1+	mg/L		90	80 - 154

Lab Sample ID: 590-27742-1 MS
Matrix: Water
Analysis Batch: 50562

Client Sample ID: MW-3:102524
Prep Type: Total Recoverable
Prep Batch: 50531

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Magnesium	17		50.0	60.5		mg/L		88	75 - 125

Lab Sample ID: 590-27742-1 MS
Matrix: Water
Analysis Batch: 50607

Client Sample ID: MW-3:102524
Prep Type: Total Recoverable
Prep Batch: 50531

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Potassium	6.4	^1+	50.0	53.0	^1+	mg/L		93	75 - 125
Magnesium	15		50.0	61.3		mg/L		92	75 - 125
Sodium	36	^1+	50.0	79.6	^1+	mg/L		88	75 - 125

Lab Sample ID: 590-27742-1 MSD
Matrix: Water
Analysis Batch: 50562

Client Sample ID: MW-3:102524
Prep Type: Total Recoverable
Prep Batch: 50531

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Magnesium	17		50.0	60.8		mg/L		89	75 - 125	0	20

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 590-27742-1 MSD
Matrix: Water
Analysis Batch: 50607

Client Sample ID: MW-3:102524
Prep Type: Total Recoverable
Prep Batch: 50531

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Potassium	6.4	^1+	50.0	53.3	^1+	mg/L		94	75 - 125	0	20
Magnesium	15		50.0	61.6		mg/L		93	75 - 125	1	20
Sodium	36	^1+	50.0	79.2	^1+	mg/L		87	75 - 125	1	20

Lab Sample ID: 590-27742-1 DU
Matrix: Water
Analysis Batch: 50562

Client Sample ID: MW-3:102524
Prep Type: Total Recoverable
Prep Batch: 50531

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Magnesium	17		15.6		mg/L		6	20

Lab Sample ID: 590-27742-1 DU
Matrix: Water
Analysis Batch: 50607

Client Sample ID: MW-3:102524
Prep Type: Total Recoverable
Prep Batch: 50531

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Potassium	6.4	^1+	6.74	^1+	mg/L		4	20
Magnesium	15		15.8		mg/L		4	20
Sodium	36	^1+	36.9	^1+	mg/L		4	20

Lab Sample ID: MB 590-50748/2-B
Matrix: Water
Analysis Batch: 50770

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 50750

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.0	0.20	mg/L		11/08/24 09:54	11/08/24 13:26	1
Iron	ND		2.0	0.074	mg/L		11/08/24 09:54	11/08/24 13:26	1
Magnesium	ND		0.50	0.13	mg/L		11/08/24 09:54	11/08/24 13:26	1

Lab Sample ID: LCS 590-50748/1-B
Matrix: Water
Analysis Batch: 50770

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 50750

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	50.0	48.4		mg/L		97	80 - 120
Iron	10.0	9.71		mg/L		97	80 - 120
Magnesium	50.0	49.2		mg/L		98	80 - 120

Lab Sample ID: 590-27742-1 MS
Matrix: Water
Analysis Batch: 50770

Client Sample ID: MW-3:102524
Prep Type: Dissolved
Prep Batch: 50750

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	34		50.0	78.3		mg/L		88	75 - 125
Iron	ND		10.0	9.58		mg/L		96	75 - 125
Magnesium	14		50.0	60.6		mg/L		92	75 - 125

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 590-27742-1 MSD
Matrix: Water
Analysis Batch: 50770

Client Sample ID: MW-3:102524
Prep Type: Dissolved
Prep Batch: 50750

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	34		50.0	72.4		mg/L		76	75 - 125	8	20
Iron	ND		10.0	8.54		mg/L		85	75 - 125	12	20
Magnesium	14		50.0	55.2		mg/L		81	75 - 125	9	20

Lab Sample ID: 590-27742-1 DU
Matrix: Water
Analysis Batch: 50770

Client Sample ID: MW-3:102524
Prep Type: Dissolved
Prep Batch: 50750

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Calcium	34		34.7		mg/L		1	20
Iron	ND		ND		mg/L		NC	20
Magnesium	14		14.7		mg/L		1	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 580-476279/25-A
Matrix: Water
Analysis Batch: 476449

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 476279

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010	0.00020	mg/L		10/29/24 19:19	10/30/24 15:28	1
Cadmium	0.000110	J	0.00040	0.000037	mg/L		10/29/24 19:19	10/30/24 15:28	1
Iron	0.0572	J	0.10	0.013	mg/L		10/29/24 19:19	10/30/24 15:28	1
Lead	0.0000527	J	0.00040	0.000040	mg/L		10/29/24 19:19	10/30/24 15:28	1
Manganese	ND		0.0020	0.00046	mg/L		10/29/24 19:19	10/30/24 15:28	1
Zinc	ND		0.0070	0.00093	mg/L		10/29/24 19:19	10/30/24 15:28	1

Lab Sample ID: LCS 580-476279/26-A
Matrix: Water
Analysis Batch: 476449

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 476279

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	0.983		mg/L		98	80 - 120
Cadmium	1.00	1.00		mg/L		100	80 - 120
Iron	20.0	19.3		mg/L		97	80 - 120
Lead	1.00	0.998		mg/L		100	80 - 120
Manganese	1.00	0.964		mg/L		96	80 - 120
Zinc	1.00	0.962		mg/L		96	80 - 120

Lab Sample ID: MB 580-476660/15-B
Matrix: Water
Analysis Batch: 477006

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 476799

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010	0.00020	mg/L		11/04/24 17:02	11/05/24 17:52	1
Cadmium	0.0000657	J	0.00040	0.000037	mg/L		11/04/24 17:02	11/05/24 17:52	1
Iron	ND		0.10	0.013	mg/L		11/04/24 17:02	11/05/24 17:52	1
Lead	0.000157	J	0.00040	0.000040	mg/L		11/04/24 17:02	11/05/24 17:52	1
Manganese	0.00212		0.0020	0.00046	mg/L		11/04/24 17:02	11/05/24 17:52	1
Zinc	0.00525	J	0.0070	0.00093	mg/L		11/04/24 17:02	11/05/24 17:52	1

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: LCS 580-476660/16-B
Matrix: Water
Analysis Batch: 477006

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 476799

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	0.918		mg/L		92	80 - 120
Cadmium	1.00	0.993		mg/L		99	80 - 120
Iron	20.0	18.4		mg/L		92	80 - 120
Lead	1.00	0.993		mg/L		99	80 - 120
Manganese	1.00	0.924		mg/L		92	80 - 120
Zinc	1.00	0.944		mg/L		94	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 590-50532/9-A
Matrix: Water
Analysis Batch: 50548

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 50532

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		10/29/24 09:11	10/29/24 11:47	1

Lab Sample ID: LCS 590-50532/8-A
Matrix: Water
Analysis Batch: 50548

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 50532

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	2.00	2.28		ug/L		114	80 - 120

Lab Sample ID: 590-27742-2 MS
Matrix: Water
Analysis Batch: 50548

Client Sample ID: MW-2A:102524
Prep Type: Total/NA
Prep Batch: 50532

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		2.00	1.73		ug/L		87	80 - 120

Lab Sample ID: 590-27742-2 MSD
Matrix: Water
Analysis Batch: 50548

Client Sample ID: MW-2A:102524
Prep Type: Total/NA
Prep Batch: 50532

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		2.00	1.68		ug/L		84	80 - 120	3	20

Lab Sample ID: 590-27742-2 DU
Matrix: Water
Analysis Batch: 50548

Client Sample ID: MW-2A:102524
Prep Type: Total/NA
Prep Batch: 50532

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Mercury	ND		ND		ug/L		NC	20

Lab Sample ID: MB 590-50748/2-C
Matrix: Water
Analysis Batch: 50771

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 50752

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		11/08/24 09:59	11/08/24 16:45	1

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 590-50748/1-C
Matrix: Water
Analysis Batch: 50771

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 50752

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			2.00	2.04		ug/L		102	80 - 120		

Lab Sample ID: 590-27742-2 MS
Matrix: Water
Analysis Batch: 50771

Client Sample ID: MW-2A:102524
Prep Type: Dissolved
Prep Batch: 50752

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury	ND		2.00	1.99		ug/L		100	80 - 120		

Lab Sample ID: 590-27742-2 MSD
Matrix: Water
Analysis Batch: 50771

Client Sample ID: MW-2A:102524
Prep Type: Dissolved
Prep Batch: 50752

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		2.00	2.03		ug/L		102	80 - 120	2	20

Lab Sample ID: 590-27742-2 DU
Matrix: Water
Analysis Batch: 50771

Client Sample ID: MW-2A:102524
Prep Type: Dissolved
Prep Batch: 50752

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Mercury	ND			ND		ug/L				NC	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 280-673129/18
Matrix: Water
Analysis Batch: 673129

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	ND		0.10	0.029	mg/L			10/30/24 12:09	1

Lab Sample ID: LCS 280-673129/19
Matrix: Water
Analysis Batch: 673129

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Ammonia as N			2.51	2.51		mg/L		100	90 - 110		

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 590-50757/1
Matrix: Water
Analysis Batch: 50757

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.00	J	20	5.0	mg/L			11/08/24 11:27	1
Bicarbonate Alkalinity as CaCO3	5.00	J	20	5.0	mg/L			11/08/24 11:27	1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: LCS 590-50757/2
Matrix: Water
Analysis Batch: 50757

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	501	485		mg/L		97	90 - 110

Lab Sample ID: 590-27742-1 DU
Matrix: Water
Analysis Batch: 50757

Client Sample ID: MW-3:102524
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	170	B	170		mg/L		0	10
Bicarbonate Alkalinity as CaCO3	170	B	170		mg/L		0	10

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 590-50563/1
Matrix: Water
Analysis Batch: 50563

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		25	13	mg/L			10/30/24 11:08	1

Lab Sample ID: LCS 590-50563/2
Matrix: Water
Analysis Batch: 50563

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	503	505		mg/L		100	80 - 120

Lab Sample ID: 590-27742-3 DU
Matrix: Water
Analysis Batch: 50563

Client Sample ID: MW-12A:102524
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	150		157		mg/L		3	10

Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 280-673997/35
Matrix: Water
Analysis Batch: 673997

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		1.0	0.35	mg/L			11/05/24 22:55	1

Lab Sample ID: LCS 280-673997/34
Matrix: Water
Analysis Batch: 673997

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon - Duplicates	25.0	26.4		mg/L		106	88 - 112

Lab Chronicle

Client: GeoEngineers Inc
Job ID: 590-27742-1
Project/Site: Marshall Landfill GWM

Client Sample ID: MW-3:102524
Lab Sample ID: 590-27742-1
Date Collected: 10/25/24 08:25
Matrix: Water
Date Received: 10/25/24 12:26

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	5 mL	5 mL	50506	10/28/24 11:04	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	50507	10/28/24 11:04	NMI	EET SPK
Total/NA	Prep	1633	RA		181.5 mL	5.0 mL	812281	11/05/24 07:42	JS	EET SAC
Total/NA	Analysis	1633	RA	1			813242	11/08/24 12:20	EMF	EET SAC
Total/NA	Prep	1633			181.5 mL	5.0 mL	812281	11/05/24 07:42	JS	EET SAC
Total/NA	Analysis	1633		1			813083	11/07/24 10:03	S1M	EET SAC
Dissolved	Filtration	FILTRATION			250 mL	250 mL	50748	11/08/24 09:11	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	50750	11/08/24 09:54	AMB	EET SPK
Dissolved	Analysis	6010D		1			50770	11/08/24 13:31	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	50531	10/29/24 09:10	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			50562	10/29/24 12:25	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	50531	10/29/24 09:10	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			50607	10/30/24 18:04	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	673129	10/30/24 12:59	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	50757	11/08/24 11:28	RMA	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	50563	10/30/24 11:09	RMA	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	673997	11/06/24 01:29	GMW	EET DEN

Client Sample ID: MW-2A:102524
Lab Sample ID: 590-27742-2
Date Collected: 10/25/24 09:25
Matrix: Water
Date Received: 10/25/24 12:26

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	43 mL	43 mL	50648	11/04/24 16:11	JSP	EET SPK
Total/NA	Prep	3510C			266.3 mL	1 mL	476289	10/30/24 09:05	JW	EET SEA
Total/NA	Analysis	8270E SIM ID		1	1 mL	1 mL	476565	11/01/24 13:06	CB	EET SEA
Total/NA	Analysis	300.0		1	5 mL	5 mL	50506	10/28/24 11:44	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	50507	10/28/24 11:44	NMI	EET SPK
Total/NA	Prep	1633			174.1 mL	5.0 mL	812281	11/05/24 07:42	JS	EET SAC
Total/NA	Analysis	1633		1			813242	11/08/24 13:29	EMF	EET SAC
Dissolved	Filtration	FILTRATION			250 mL	250 mL	50748	11/08/24 09:11	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	50750	11/08/24 09:54	AMB	EET SPK
Dissolved	Analysis	6010D		1			50770	11/08/24 14:01	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	50531	10/29/24 09:10	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			50607	10/30/24 18:34	AMB	EET SPK
Dissolved	Filtration	FILTRATION			200 mL	200 mL	476660	11/01/24 19:16		EET SEA
Dissolved	Prep	3005A			50 mL	50 mL	476799	11/04/24 17:02		EET SEA
Dissolved	Analysis	6020B		5			477006	11/05/24 18:54	CA	EET SEA
Total Recoverable	Prep	3005A			50 mL	50 mL	476279	10/29/24 19:19		EET SEA
Total Recoverable	Analysis	6020B		5			476449	10/30/24 16:00	CA	EET SEA
Dissolved	Filtration	FILTRATION			250 mL	250 mL	50748	11/08/24 09:11	AMB	EET SPK
Dissolved	Prep	7470A			50 mL	50 mL	50752	11/08/24 09:59	AMB	EET SPK
Dissolved	Analysis	7470A		1			50771	11/08/24 16:48	AMB	EET SPK

Lab Chronicle

Client: GeoEngineers Inc
Job ID: 590-27742-1
Project/Site: Marshall Landfill GWM

Client Sample ID: MW-2A:102524
Lab Sample ID: 590-27742-2
Date Collected: 10/25/24 09:25
Matrix: Water
Date Received: 10/25/24 12:26

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			50 mL	50 mL	50532	10/29/24 09:11	AMB	EET SPK
Total/NA	Analysis	7470A		1			50548	10/29/24 11:49	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	673129	10/30/24 13:01	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	50757	11/08/24 11:28	RMA	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	50563	10/30/24 11:09	RMA	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	673997	11/06/24 01:43	GMW	EET DEN

Client Sample ID: MW-12A:102524
Lab Sample ID: 590-27742-3
Date Collected: 10/25/24 10:25
Matrix: Water
Date Received: 10/25/24 12:26

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	43 mL	43 mL	50648	11/04/24 16:33	JSP	EET SPK
Total/NA	Prep	3510C			265.9 mL	1 mL	476289	10/30/24 09:05	JW	EET SEA
Total/NA	Analysis	8270E SIM ID		1	1 mL	1 mL	476565	11/01/24 13:20	CB	EET SEA
Total/NA	Analysis	300.0		1	5 mL	5 mL	50506	10/28/24 12:14	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	50507	10/28/24 12:14	NMI	EET SPK
Total/NA	Prep	1633			176.5 mL	5.0 mL	812281	11/05/24 07:42	JS	EET SAC
Total/NA	Analysis	1633		1			813242	11/08/24 13:43	EMF	EET SAC
Dissolved	Filtration	FILTRATION			250 mL	250 mL	50748	11/08/24 09:11	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	50750	11/08/24 09:54	AMB	EET SPK
Dissolved	Analysis	6010D		1			50770	11/08/24 14:06	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	50531	10/29/24 09:10	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			50607	10/30/24 18:39	AMB	EET SPK
Dissolved	Filtration	FILTRATION			200 mL	200 mL	476660	11/01/24 19:16		EET SEA
Dissolved	Prep	3005A			50 mL	50 mL	476799	11/04/24 17:02		EET SEA
Dissolved	Analysis	6020B		5			477006	11/05/24 19:08	CA	EET SEA
Total Recoverable	Prep	3005A			50 mL	50 mL	476279	10/29/24 19:19		EET SEA
Total Recoverable	Analysis	6020B		5			476449	10/30/24 15:57	CA	EET SEA
Dissolved	Filtration	FILTRATION			250 mL	250 mL	50748	11/08/24 09:11	AMB	EET SPK
Dissolved	Prep	7470A			50 mL	50 mL	50752	11/08/24 09:59	AMB	EET SPK
Dissolved	Analysis	7470A		1			50771	11/08/24 16:58	AMB	EET SPK
Total/NA	Prep	7470A			50 mL	50 mL	50532	10/29/24 09:11	AMB	EET SPK
Total/NA	Analysis	7470A		1			50548	10/29/24 11:59	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	673129	10/30/24 13:03	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	50757	11/08/24 11:28	RMA	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	50563	10/30/24 11:09	RMA	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	673997	11/06/24 02:00	GMW	EET DEN

Lab Chronicle

Client: GeoEngineers Inc
Job ID: 590-27742-1
Project/Site: Marshall Landfill GWM

Client Sample ID: Trip Blank
Lab Sample ID: 590-27742-4
Date Collected: 10/25/24 08:00
Matrix: Water
Date Received: 10/25/24 12:26

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	43 mL	43 mL	50648	11/04/24 16:54	JSP	EET SPK

Laboratory References:

EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Accreditation/Certification Summary

Client: GeoEngineers Inc
Job ID: 590-27742-1
Project/Site: Marshall Landfill GWM

Laboratory: Eurofins Spokane

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C569	01-07-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3

Laboratory: Eurofins Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-25
A2LA	ISO/IEC 17025	2907.01	10-31-25
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	11-30-25
Arizona	State	AZ0713	12-20-24
Arkansas DEQ	State	19-047-0	04-21-25
California	State	2513	01-08-25
Colorado	Petroleum Storage Tank Program	4025 (or)	01-08-25
Colorado	State	CO00026	06-30-25
Connecticut	State	PH-0686	11-06-24
Florida	NELAP	E87667-57	06-30-25
Georgia	State	4025-011	01-08-25
Illinois	NELAP	2000172024-9	05-31-25
Iowa	State	370	12-01-24
Kansas	NELAP	E-10166	04-30-25
Kentucky (WW)	State	KY98047	12-31-24
Louisiana	NELAP	30785	06-30-14 *
Louisiana (All)	NELAP	30785	06-30-25
Minnesota	NELAP	1788752	12-31-24
Nevada	State	CO000262024-08	07-31-25
New Hampshire	NELAP	2053	04-28-25
New Jersey	NELAP	230001	06-30-25
New York	NELAP	59923	04-01-25
North Dakota	State	R-034	01-08-25
Oklahoma	NELAP	8614	08-31-24 *
Oregon	NELAP	4025	01-08-25
Pennsylvania	NELAP	013	07-31-25
South Carolina	State	72002001	01-08-24 *
Texas	NELAP	TX104704183-08-TX	09-30-09 *
Texas	NELAP	T104704183	09-30-25
US Fish & Wildlife	US Federal Programs	058448	07-31-25
USDA	US Federal Programs	P330-20-00065	12-19-25
Utah	NELAP	QUAN5	06-30-13 *
Utah	NELAP	CO00026	07-31-25
Virginia	NELAP	460232	06-14-25
Washington	State	C583	08-03-25
West Virginia DEP	State	354	11-30-24
Wisconsin	State	999615430	08-31-25
Wyoming (UST)	A2LA	2907.01	10-31-25

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-27742-1

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-27
ANAB	Dept. of Defense ELAP	L2468	01-20-27
ANAB	Dept. of Energy	L2468.01	01-20-27
ANAB	ISO/IEC 17025	L2468	01-20-27
Arizona	State	AZ0708	08-11-25
Arkansas DEQ	State	88-0691	05-18-25
California	State	2897	01-31-26
Colorado	State	CA00044	08-31-25
Florida	NELAP	E87570	06-30-25
Georgia	State	4040	01-29-25
Hawaii	State	Eurofins Sacramento	01-29-25
Illinois	NELAP	200060	03-31-25
Kansas	NELAP	E-10375	10-31-25
Louisiana	NELAP	01944	06-30-25
Louisiana (All)	NELAP	01944	06-30-25
Maine	State	CA00004	04-14-26
Michigan	State	9947	01-29-25
Minnesota	NELAP	2749448	12-31-24
Nevada	State	CA00044	07-31-25
New Hampshire	NELAP	2997	04-19-25
New Jersey	NELAP	CA005	06-30-25
New York	NELAP	11666	04-01-25
Ohio	State	41252	01-29-25
Oregon	NELAP	4040	01-29-25
Texas	NELAP	T104704399-23-17	05-31-25
US Fish & Wildlife	US Federal Programs	A22139	04-30-25
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442023-16	02-28-25
Virginia	NELAP	460278	03-14-25
Washington	State	C581	05-05-25
West Virginia (DW)	State	9930C	01-31-25
Wisconsin	State	998204680	08-31-25
Wyoming	State Program	8TMS-L	01-28-19 *

Laboratory: Eurofins Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-004	02-19-25
ANAB	Dept. of Defense ELAP	L2236	01-19-25
ANAB	Dept. of Energy	L2236	01-19-25
ANAB	ISO/IEC 17025	L2236	01-19-25
California	State	2954	07-07-25
Florida	NELAP	E87575	06-30-25
Louisiana	NELAP	03073	06-30-25
Louisiana (All)	NELAP	03073	06-30-25
Maine	State	WA01273	05-02-26
Montana (UST)	State	NA	04-14-27
New Jersey	NELAP	WA014	06-30-25
New York	NELAP	11662	04-01-25

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GeoEngineers Inc
Job ID: 590-27742-1
Project/Site: Marshall Landfill GWM

Laboratory: Eurofins Seattle (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4167	07-07-25
US Fish & Wildlife	US Federal Programs	A20571	06-30-25
USDA	US Federal Programs	525-23-4-22573	01-04-26
Washington	State	C788-24	07-13-25
Wisconsin	State	399133460	09-01-25

Method Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-27742-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET SPK
8270E SIM ID	Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)	SW846	EET SEA
300.0	Anions, Ion Chromatography	EPA	EET SPK
1633	Per- and Polyfluoroalkyl Substances by LC/MS/MS	EPA	EET SAC
6010D	Metals (ICP)	SW846	EET SPK
6020B	Metals (ICP/MS)	SW846	EET SEA
7470A	Mercury (CVAA)	SW846	EET SPK
350.1	Nitrogen, Ammonia	EPA	EET DEN
SM 2320B	Alkalinity	SM	EET SPK
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET SPK
SM 5310B	Organic Carbon, Total (TOC)	SM	EET DEN
1633	Solid-Phase Extraction (SPE)	EPA	EET SAC
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET SEA
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET SPK
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET SEA
5030C	Purge and Trap	SW846	EET SPK
7470A	Preparation, Mercury	SW846	EET SPK
FILTRATION	Sample Filtration	None	EET SEA
FILTRATION	Sample Filtration	None	EET SPK

Protocol References:

EPA = US Environmental Protection Agency
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600
EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310
EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Chain of Custody Record

Eurofins Spokane
11922 E 1st Avenue

Spokane WA 99206-5302
phone 509.924.9200 fax 509.924 9290

eurofins | Environment Testing America

Regulatory Program ☐ DW ☐ NPDES ☐ RCRA ☐ Other

Eurofins Environment Testing America

Client Contact	Project Manager: Sydney Bronson	Site Contact: Alex Navarro	Date: 10/25/24	COC No:
GeoEngineers, Inc.	Email: sbronson@geoengineers.com	Lab Contact:	Carrier:	1 of 1 COCs
523 E 2nd Ave	Tel/Fax: 509.570.0779			TALS Project #:
Spokane, WA 99202	**Analysis Turnaround Time**			Sampler:
509.363.3125 Phone	☐ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only**
FAX	TAT if different from Below			Walk-in Client:
Project Name: Marshall Landfill GWM	☒ 2 weeks			Lab Sampling:
Site: Marshall Landfill Site Design	☐ 1 week			Job / SDG No.
P O # 0504-104-01	☐ 2 days			
	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PFAS / EPA 1633	Ammonia as N / EPA 350.1	Alkalinity bicarbonate / SM 2320B	TDS / SM 2540C	TOC / SM 5310B	Total K, Mg, Na / EPA 6010D	Dissolved Fe, Ca, Mg / EPA 6010D	Chloride, sulfate, nitrate, nitrite / EPA 300.0	Diss. Fe, Mn / EPA 6020B	Total Hg / EPA 7470A	Diss Hg / 7470A	Total As, Cd, Fe, Mn, Pb, Zn / EPA 6020B	Diss As, Cd, Fe, Mn, Pb, Zn / EPA 6020B	PCE, 1,1,1 TCA / EPA 8260D	1,4-dioxane / EPA 8270E SIM	VOCs 8260D	Sample Specific Notes:
MW-3: 102524	10/25/24	0825	G	W				X	X	X	X	X	X	X	X									
MW-2A:102524	10/25/24	0925	G	W				X	X	X	X	X	X	X	X		X	X	X	X	X	X		
MW-12A.102524	10/25/24	1025	G	W				X	X	X	X	X	X	X	X		X	X	X	X	X	X		
Trip Blank	10/25/24	0800	G	W																			X	

590-27742 Chain of Custody

Preservation Used: 1= Ice, 2= HCl, 3= H_2SO_4; 4=HNO_3; 5=NaOH, 6= Other _____

Possible Hazard Identification.
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:
DISSOLVED METALS LAB FILTERED

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No. | Cooler Temp. (°C): Obs'd: 3.1 Corr'd: 3.6 | Therm ID No.: IR0006

Relinquished by:	Company: GeoEngineers	Date/Time: 10/25/24 1200	Received by:	Company: GEL	Date/Time: 10/25/24
Relinquished by:	Company:	Date/Time:	Received by:	Company: GEL	Date/Time: 10/25/24 1226
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

11/11/2024

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler: N/A	Lab PM: Arrington, Randee E	Carrier Tracking No(s): N/A	COC No: 590-10000.1
Client Contact: Shipping/Receiving	Phone: N/A	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Washington		Job #: 590-27742-1
Address: 4955 Yarrow Street, ,	Due Date Requested: 11/7/2024			Preservation Codes: -
City: Arvada	TAT Requested (days): N/A			
State, Zip: CO, 80002				
Phone: 303-736-0100(Tel) 303-431-7171(Fax)	PO #: N/A			
Email: N/A	WO #: N/A			
Project Name: Marshall Landfill GWM	Project #: 59002669			
Site: N/A	SSOW#: N/A			Other: N/A

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Analysis Requested: 350.1	Analysis Requested: SM5310B/ (MOD) TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
MW-3:102524 (590-27742-1)	10/25/24	08:25 Pacific	G	Water			X	X	2	
MW-2A:102524 (590-27742-2)	10/25/24	09:25 Pacific	G	Water			X	X	2	
MW-12A:102524 (590-27742-3)	10/25/24	10:25 Pacific	G	Water			X	X	2	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	10/28/24 1331	EETSPO			
Relinquished by:	Date/Time:	Company	Received by: [signature]	Date/Time: 10·29·24 0855	Company EETDEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.4°C TuiCF0.1

Ver: 10/10/2024

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone. 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler: N/A	Lab PM: Arrington, Randee E	Carrier Tracking No(s): N/A	COC No: 590-10001 1
Client Contact: Shipping/Receiving	Phone: N/A	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note): State Program - Washington		Job #: 590-27742-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 11/7/2024			Preservation Codes: -
City: West Sacramento	TAT Requested (days): N/A			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #: N/A			
Email: N/A	WO #: N/A			
Project Name: Marshall Landfill GWM	Project #: 59002669			
Site: N/A	SSOW#: N/A			Other: N/A

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1633/1633_SPE EPA 1633 Method List	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-3 102524 (590-27742-1)	10/25/24	08:25 Pacific	G	Water			X	3	
MW-2A.102524 (590-27742-2)	10/25/24	09:25 Pacific	G	Water			X	3	
MW-12A.102524 (590-27742-3)	10/25/24	10:25 Pacific	G	Water			X	3	

Analysis Requested

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested. I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/28/24 1340	EECSD		10.30.24 930	EECSD
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No: 10282024	Cooler Temperature(s) °C and Other Remarks: 5.9c

Ver: 10/10/2024

11/11/2024

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler: N/A	Lab PM: Arrington, Randee E	Carrier Tracking No(s): N/A	COC No: 590-10002.1
Client Contact: Shipping/Receiving	Phone: N/A	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Northwest,		Accreditations Required (See note): State Program - Washington		Job #: 590-27742-1
Address: 5755 8th Street East, ,	Due Date Requested: 11/7/2024			Preservation Codes: -
City: Tacoma	TAT Requested (days): N/A			
State, Zip: WA, 98424				
Phone: 253-922-2310(Tel)	PO #: N/A			
Email: N/A	WO #: N/A			
Project Name: Marshall Landfill GWM	Project #: 59002669			
Site: N/A	SSOW#: N/A			Other: N/A

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample	Perform MS/MSD	6020B/3005A (MOD) Total As, Cd, Fe, Mn, Pb & Zn	6020B/FILTRATION (MOD) Diss As, Cd, Fe, Mn, Pb & Zn	8270C_SIM_MS_ID/3510C_LVI 1,4-Dioxane	Total Number of Containers	Special Instructions/Note:
			Preservation Code:								
MW-2A:102524 (590-27742-2)	10/25/24	09:25 Pacific	G	Water			X	X	X	4	
MW-12A:102524 (590-27742-3)	10/25/24	10:25 Pacific	G	Water			X	X	X	4	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification: Unconfirmed	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/28/24 1352	ET880		10/29/24 0930	ETN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: TR14 2.2 11.8

Ver: 10/10/2024

11/11/2024

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-27742-1

Login Number: 27742
List Number: 1
Creator: Vaughan, Madison R

List Source: Eurofins Spokane

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-27742-1

Login Number: 27742
List Number: 2
Creator: Held, Wesley

List Source: Eurofins Denver
List Creation: 10/29/24 01:39 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-27742-1

Login Number: 27742
List Number: 4
Creator: Simmons, Jason C

List Source: Eurofins Sacramento
List Creation: 10/30/24 03:14 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	2287024
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	5.9c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-27742-1

Login Number: 27742
List Number: 3
Creator: O'Connell, Jason I

List Source: Eurofins Seattle
List Creation: 10/29/24 12:49 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing

Sacramento Sample Receiving Notes (SSRN)

Tracking # 4080 4802 9668

Job: ____

590-27742 Field Sheet

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSL / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations
File in the job folder with the COC

Therm ID L-11 Corr Factor (+ / -) _____ °C

Ice 1 Wet 1 Gel _____ Other _____

Cooler Custody Seal 20870D4

Cooler ID _____

Temp Observed 6.9 °C Corrected 6.9 °C

From Temp Blank ☐ Sandwich ☑ Sidewall ☐

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Frozen samples show signs of thaw?	☐	☐	☑

Initials LD Date 10.30.21

Unpacking/Labeling The Samples	Yes	No	NA
Containers are not broken or leaking?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
COC is complete w/o discrepancies	☑	☐	☐
Sample custody seal?	☐	☐	☑
Sample containers have legible labels?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Is the Field Sampler's name on COC?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

*Containers reading zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials LD Date 10.30.21

Notes: _____

Trizma Lot #(s) _____

Ammonium Acetate Lot #(s) _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☑	☐	☐
NCM Filed?	☐	☐	☑
Samples received within hold time?	☐	☐	☑
Log Release checked in TALS?	☐	☐	☑

Initials LD Date 10.30.21

Isotope Dilution Summary

Client: GeoEngineers Inc
Job ID: 590-27742-1
Project/Site: Marshall Landfill GWM

Method: 8270E SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	DXE (40-140)
590-27742-2	MW-2A:102524	39 *5-
590-27742-3	MW-12A:102524	44
LCS 580-476289/2-A	Lab Control Sample	39 *5-
LCSD 580-476289/3-A	Lab Control Sample Dup	45
MB 580-476289/1-A	Method Blank	44

Surrogate Legend

DXE = 1,4-Dioxane-d8

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	d3NMFOS (40-170)
590-27742-1	MW-3:102524	108
MB 320-812281/1-A	Method Blank	118

Surrogate Legend

d3NMFOS = d3-NMeFOSAA

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (5-130)	PFPeA (40-130)	13C5PHA (40-130)	C4PFHA (40-130)	C8PFOA (40-130)	C9PFNA (40-130)	C6PFDA (40-130)	13C7PUA (30-130)
590-27742-1 - RA	MW-3:102524	116	101	104	97.5	114	113	104	97.0
590-27742-2	MW-2A:102524	120	120	116	104	109	102	110	88.7
590-27742-3	MW-12A:102524	109	109	98.8	86.4	108	101	99.2	84.1
LCS 320-812281/3-A	Lab Control Sample		88.1						
LCS 320-812281/3-A - RA	Lab Control Sample	111	96.4	106	96.7	98.3	103	101	109
LCSD 320-812281/4-A	Lab Control Sample Dup		109						
LCSD 320-812281/4-A - RA	Lab Control Sample Dup	115	95.7	102	96.6	106	101	109	112
LLCS 320-812281/2-A	Lab Control Sample		96.6						
LLCS 320-812281/2-A - RA	Lab Control Sample	109	93.6	99.5	95.3	105	98.3	102	94.7
MB 320-812281/1-A - RA	Method Blank	132 *5+	124	119	117	122	122	126	112

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (10-130)	PFTDA (10-130)	C3PFBS (40-135)	C3PFHS (40-130)	C8PFOS (40-130)	PFOSA (40-130)	d3NMFOS (40-170)	d5NEFOS (25-135)
590-27742-1 - RA	MW-3:102524	86.1	68.4	108	106	112	112		106
590-27742-2	MW-2A:102524	84.3	59.6	117	111	109	111	120	110
590-27742-3	MW-12A:102524	74.1	65.6	101	102	94.5	93.9	116	83.9
LCS 320-812281/3-A	Lab Control Sample							96.3	
LCS 320-812281/3-A - RA	Lab Control Sample	92.1	80.7	101	107	105	98.4		109
LCSD 320-812281/4-A	Lab Control Sample Dup							103	
LCSD 320-812281/4-A - RA	Lab Control Sample Dup	98.4	94.6	113	107	107	100		110
LLCS 320-812281/2-A	Lab Control Sample							103	
LLCS 320-812281/2-A - RA	Lab Control Sample	93.3	81.7	108	108	99.5	94.7		99.7
MB 320-812281/1-A - RA	Method Blank	102	96.9	126	125	121	119		134

Isotope Dilution Summary

Client: GeoEngineers Inc
Job ID: 590-27742-1
Project/Site: Marshall Landfill GWM

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M242FTS (40-200)	M262FTS (40-200)	M282FTS (40-300)	HFPODA (40-130)	NMFM (10-130)	NEFM (10-130)	d5NPFSA (10-130)	d3NMFSA (10-130)
590-27742-1 - RA	MW-3:102524	102	107	87.1	109	74.0	64.7	88.3	91.2
590-27742-2	MW-2A:102524	104	111	104	116	95.8	87.4	95.0	93.8
590-27742-3	MW-12A:102524	92.3	90.3	71.1	100	76.1	76.3	80.5	83.4
LCS 320-812281/3-A	Lab Control Sample								
LCS 320-812281/3-A - RA	Lab Control Sample	81.8	89.5	83.7	103	95.9	95.3	86.6	89.5
LCSD 320-812281/4-A	Lab Control Sample Dup								
LCSD 320-812281/4-A - RA	Lab Control Sample Dup	87.7	107	90.3	105	99.3	96.0	88.0	88.4
LLCS 320-812281/2-A	Lab Control Sample								
LLCS 320-812281/2-A - RA	Lab Control Sample	79.1	97.4	92.3	102	86.8	88.1	75.9	77.3
MB 320-812281/1-A - RA	Method Blank	96.7	105	110	119	109	112	98.3	103

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
13C5PHA = 13C5 PFHxA
C4PFHA = 13C4 PFHpA
C8PFOA = 13C8 PFOA
C9PFNA = 13C9 PFNA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
C8PFOS = 13C8 PFOS
PFOSA = 13C8 FOSA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
M242FTS = 13C2 4:2 FTS
M262FTS = 13C2 6:2 FTS
M282FTS = 13C2 8:2 FTS
HFPODA = 13C3 HFPO-DA
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
d5NPFSA = d5-NEtPFOSA
d3NMFSA = d3-NMePFOSA

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ANALYTICAL REPORT

PREPARED FOR

Attn: Sydney Bronson
GeoEngineers Inc
523 East Second Ave
Spokane, Washington 99202

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JOB DESCRIPTION

Marshall Landfill GWM

JOB NUMBER

590-27772-1

Eurofins Spokane
11922 East 1st Ave
Spokane WA 99206

See page two for job notes and contact information.

my EOL

Job Notes

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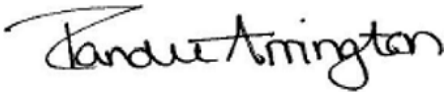

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Job Narrative
590-27772-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 10/28/2024 4:03 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 5.9°C and 6.5°C.

GC/MS VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS Semi VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

PFAS
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
Method 6010D - Total Recoverable: The low level initial calibration verification (ICVL) associated with batch 590-50607 recovered above the upper control limit for Potassium and Sodium. The samples associated with this ICVL were either 10x the spike amount, have hits below the RL, or non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
Method 2320B: The method blank for analytical batch 590-50757 contained Alkalinity and Bicarbonate Alkalinity as CaCO3 above the method detection limit (MDL) but below the reporting limit (RL). Associated sample(s) were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the method blank.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Sample Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-27772-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-27772-1	MW-11A:102824	Water	10/28/24 10:10	10/28/24 16:03
590-27772-2	MW-7B:102824	Water	10/28/24 11:10	10/28/24 16:03
590-27772-3	MW-15A:102824	Water	10/28/24 12:40	10/28/24 16:03
590-27772-4	MW-15:102824	Water	10/28/24 13:40	10/28/24 16:03
590-27772-5	MW-8B:102824	Water	10/28/24 15:10	10/28/24 16:03
590-27772-6	Trip Blank	Water	10/28/24 08:00	10/28/24 16:03

Definitions/Glossary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-27772-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
^1+	Initial Calibration Verification (ICV) is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-27772-1

Client Sample ID: MW-11A:102824

Date Collected: 10/28/24 10:10
Date Received: 10/28/24 16:03

Lab Sample ID: 590-27772-1
Matrix: Water

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**9.3**		0.80	0.42	mg/L			10/29/24 14:19	1
Nitrate as N	**3.7**		0.20	0.057	mg/L			10/29/24 14:19	1
Nitrite as N	ND		0.20	0.069	mg/L			10/29/24 14:19	1
Sulfate	**9.0**		0.50	0.13	mg/L			10/29/24 14:19	1

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.1	0.77	ng/L		11/07/24 07:08	11/11/24 21:42	1
Perfluoropentanoic acid (PFPeA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/11/24 21:42	1
Perfluorohexanoic acid (PFHxA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/11/24 21:42	1
Perfluoroheptanoic acid (PFHpA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/11/24 21:42	1
Perfluorooctanoic acid (PFOA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/11/24 21:42	1
Perfluorononanoic acid (PFNA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/11/24 21:42	1
Perfluorodecanoic acid (PFDA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/11/24 21:42	1
Perfluoroundecanoic acid (PFUnA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/11/24 21:42	1
Perfluorododecanoic acid (PFDoA)	ND		1.5	0.42	ng/L		11/07/24 07:08	11/11/24 21:42	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.5	0.45	ng/L		11/07/24 07:08	11/11/24 21:42	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.5	0.62	ng/L		11/07/24 07:08	11/11/24 21:42	1
Perfluorobutanesulfonic acid (PFBS)	**0.72**	**J**	1.5	0.39	ng/L		11/07/24 07:08	11/11/24 21:42	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/11/24 21:42	1
Perfluorohexanesulfonic acid (PFHxS)	**0.57**	**J**	1.5	0.39	ng/L		11/07/24 07:08	11/11/24 21:42	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/11/24 21:42	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/11/24 21:42	1
Perfluorononanesulfonic acid (PFNS)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/11/24 21:42	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/11/24 21:42	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.5	0.41	ng/L		11/07/24 07:08	11/11/24 21:42	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		3.1	0.77	ng/L		11/07/24 07:08	11/11/24 21:42	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/11/24 21:42	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/11/24 21:42	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/11/24 21:42	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/11/24 21:42	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/11/24 21:42	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		7.7	1.9	ng/L		11/07/24 07:08	11/11/24 21:42	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		7.7	1.9	ng/L		11/07/24 07:08	11/11/24 21:42	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.2	0.30	ng/L		11/07/24 07:08	11/11/24 21:42	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/11/24 21:42	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/11/24 21:42	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/11/24 21:42	1

Client Sample ID: MW-11A:102824

Date Collected: 10/28/24 10:10
Date Received: 10/28/24 16:03

Lab Sample ID: 590-27772-1

Matrix: Water

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.5	0.56	ng/L		11/07/24 07:08	11/11/24 21:42	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1.5	0.45	ng/L		11/07/24 07:08	11/11/24 21:42	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/11/24 21:42	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/11/24 21:42	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		3.1	0.77	ng/L		11/07/24 07:08	11/11/24 21:42	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		7.7	1.9	ng/L		11/07/24 07:08	11/11/24 21:42	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		7.7	1.9	ng/L		11/07/24 07:08	11/11/24 21:42	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*111*		*5 - 130*	*11/07/24 07:08*	*11/11/24 21:42*	*1*
13C5 PFPeA	*106*		*40 - 130*	*11/07/24 07:08*	*11/11/24 21:42*	*1*
13C5 PFHxA	*103*		*40 - 130*	*11/07/24 07:08*	*11/11/24 21:42*	*1*
13C4 PFHpA	*98.3*		*40 - 130*	*11/07/24 07:08*	*11/11/24 21:42*	*1*
13C8 PFOA	*101*		*40 - 130*	*11/07/24 07:08*	*11/11/24 21:42*	*1*
13C9 PFNA	*104*		*40 - 130*	*11/07/24 07:08*	*11/11/24 21:42*	*1*
13C6 PFDA	*104*		*40 - 130*	*11/07/24 07:08*	*11/11/24 21:42*	*1*
13C7 PFUnA	*87.7*		*30 - 130*	*11/07/24 07:08*	*11/11/24 21:42*	*1*
13C2 PFDoA	*84.5*		*10 - 130*	*11/07/24 07:08*	*11/11/24 21:42*	*1*
13C2 PFTeDA	*80.8*		*10 - 130*	*11/07/24 07:08*	*11/11/24 21:42*	*1*
13C3 PFBS	*103*		*40 - 135*	*11/07/24 07:08*	*11/11/24 21:42*	*1*
13C3 PFHxS	*107*		*40 - 130*	*11/07/24 07:08*	*11/11/24 21:42*	*1*
13C8 PFOS	*93.6*		*40 - 130*	*11/07/24 07:08*	*11/11/24 21:42*	*1*
13C8 FOSA	*87.2*		*40 - 130*	*11/07/24 07:08*	*11/11/24 21:42*	*1*
d3-NMeFOSAA	*88.3*		*40 - 170*	*11/07/24 07:08*	*11/11/24 21:42*	*1*
d5-NEtFOSAA	*71.8*		*25 - 135*	*11/07/24 07:08*	*11/11/24 21:42*	*1*
13C2 4:2 FTS	*94.3*		*40 - 200*	*11/07/24 07:08*	*11/11/24 21:42*	*1*
13C3 HFPO-DA	*108*		*40 - 130*	*11/07/24 07:08*	*11/11/24 21:42*	*1*
d7-N-MeFOSE-M	*77.0*		*10 - 130*	*11/07/24 07:08*	*11/11/24 21:42*	*1*
d9-N-EtFOSE-M	*69.6*		*10 - 130*	*11/07/24 07:08*	*11/11/24 21:42*	*1*
d5-NEtPFOSA	*70.6*		*10 - 130*	*11/07/24 07:08*	*11/11/24 21:42*	*1*
d3-NMePFOSA	*76.0*		*10 - 130*	*11/07/24 07:08*	*11/11/24 21:42*	*1*

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		3.1	0.77	ng/L		11/07/24 07:08	11/16/24 16:24	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		3.1	0.77	ng/L		11/07/24 07:08	11/16/24 16:24	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 6:2 FTS	*91.7*		*40 - 200*	*11/07/24 07:08*	*11/16/24 16:24*	*1*
13C2 8:2 FTS	*87.6*		*40 - 300*	*11/07/24 07:08*	*11/16/24 16:24*	*1*

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**10**		0.50	0.13	mg/L		10/29/24 09:10	10/30/24 18:59	1
Potassium	**2.6**	**^1+**	2.0	0.29	mg/L		10/29/24 09:10	10/30/24 18:59	1

Client Sample ID: MW-11A:102824

Lab Sample ID: 590-27772-1

Date Collected: 10/28/24 10:10

Matrix: Water

Date Received: 10/28/24 16:03

Method: SW846 6010D - Metals (ICP) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	**8.8**	**^1+**	2.0	0.20	mg/L		10/29/24 09:10	10/30/24 18:59	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**38**		1.0	0.20	mg/L		11/08/24 09:54	11/08/24 17:22	1
Iron	ND		2.0	0.074	mg/L		11/08/24 09:54	11/08/24 17:22	1
Magnesium	**8.4**		0.50	0.13	mg/L		11/08/24 09:54	11/08/24 17:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	ND		0.10	0.029	mg/L			11/02/24 12:10	1
Alkalinity (SM 2320B)	**180**	**B**	20	5.0	mg/L			11/08/24 11:28	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**180**	**B**	20	5.0	mg/L			11/08/24 11:28	1
Total Dissolved Solids (SM 2540C)	**200**		25	13	mg/L			11/04/24 10:48	1
Total Organic Carbon - Duplicates (SM 5310B)	**0.71**	**J**	1.0	0.35	mg/L			11/06/24 09:16	1

Client Sample ID: MW-7B:102824

Lab Sample ID: 590-27772-2

Date Collected: 10/28/24 11:10

Matrix: Water

Date Received: 10/28/24 16:03

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			10/29/24 14:13	1
Tetrachloroethene	ND		1.0	0.22	ug/L			10/29/24 14:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*88*		*80 - 120*		*10/29/24 14:13*	*1*
4-Bromofluorobenzene (Surr)	*101*		*76 - 120*		*10/29/24 14:13*	*1*
Dibromofluoromethane (Surr)	*94*		*80 - 123*		*10/29/24 14:13*	*1*
Toluene-d8 (Surr)	*110*		*80 - 120*		*10/29/24 14:13*	*1*

Method: SW846 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	**0.089**	**J**	0.20	0.036	ug/L		11/04/24 09:10	11/05/24 13:42	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*56*		*40 - 140*	*11/04/24 09:10*	*11/05/24 13:42*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**0.67**	**J**	0.80	0.42	mg/L			10/29/24 14:29	1
Nitrate as N	ND		0.20	0.057	mg/L			10/29/24 14:29	1
Nitrite as N	ND		0.20	0.069	mg/L			10/29/24 14:29	1
Sulfate	**2.5**		0.50	0.13	mg/L			10/29/24 14:29	1

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**9.9**		3.1	0.79	ng/L		11/07/24 07:08	11/11/24 22:23	1
Perfluoropentanoic acid (PFPeA)	**9.2**		1.6	0.39	ng/L		11/07/24 07:08	11/11/24 22:23	1
Perfluorohexanoic acid (PFHxA)	**3.0**		1.6	0.39	ng/L		11/07/24 07:08	11/11/24 22:23	1
Perfluoroheptanoic acid (PFHpA)	**1.7**		1.6	0.39	ng/L		11/07/24 07:08	11/11/24 22:23	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-27772-1

Client Sample ID: MW-7B:102824
Date Collected: 10/28/24 11:10
Date Received: 10/28/24 16:03

Lab Sample ID: 590-27772-2
Matrix: Water

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	**0.59**	**J**	1.6	0.39	ng/L		11/07/24 07:08	11/11/24 22:23	1
Perfluorononanoic acid (PFNA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/11/24 22:23	1
Perfluorodecanoic acid (PFDA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/11/24 22:23	1
Perfluoroundecanoic acid (PFUnA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/11/24 22:23	1
Perfluorododecanoic acid (PFDoA)	ND		1.6	0.43	ng/L		11/07/24 07:08	11/11/24 22:23	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.6	0.46	ng/L		11/07/24 07:08	11/11/24 22:23	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.6	0.64	ng/L		11/07/24 07:08	11/11/24 22:23	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/11/24 22:23	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/11/24 22:23	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/11/24 22:23	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/11/24 22:23	1
Perfluorooctanesulfonic acid (PFOS)	**0.49**	**J**	1.6	0.39	ng/L		11/07/24 07:08	11/11/24 22:23	1
Perfluorononanesulfonic acid (PFNS)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/11/24 22:23	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/11/24 22:23	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.6	0.42	ng/L		11/07/24 07:08	11/11/24 22:23	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		3.1	0.79	ng/L		11/07/24 07:08	11/11/24 22:23	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		3.1	0.79	ng/L		11/07/24 07:08	11/11/24 22:23	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/11/24 22:23	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/11/24 22:23	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/11/24 22:23	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/11/24 22:23	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/11/24 22:23	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		7.9	2.0	ng/L		11/07/24 07:08	11/11/24 22:23	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		7.9	2.0	ng/L		11/07/24 07:08	11/11/24 22:23	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.2	0.31	ng/L		11/07/24 07:08	11/11/24 22:23	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/11/24 22:23	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/11/24 22:23	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/11/24 22:23	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.6	0.57	ng/L		11/07/24 07:08	11/11/24 22:23	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1.6	0.46	ng/L		11/07/24 07:08	11/11/24 22:23	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/11/24 22:23	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/11/24 22:23	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		3.1	0.79	ng/L		11/07/24 07:08	11/11/24 22:23	1

Client Sample ID: MW-7B:102824

Date Collected: 10/28/24 11:10
Date Received: 10/28/24 16:03

Lab Sample ID: 590-27772-2

Matrix: Water

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		7.9	2.0	ng/L		11/07/24 07:08	11/11/24 22:23	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		7.9	2.0	ng/L		11/07/24 07:08	11/11/24 22:23	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*110*		*5 - 130*	*11/07/24 07:08*	*11/11/24 22:23*	*1*
13C5 PFPeA	*106*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:23*	*1*
13C5 PFHxA	*106*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:23*	*1*
13C4 PFHpA	*96.5*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:23*	*1*
13C8 PFOA	*107*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:23*	*1*
13C9 PFNA	*103*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:23*	*1*
13C6 PFDA	*110*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:23*	*1*
13C7 PFUnA	*122*		*30 - 130*	*11/07/24 07:08*	*11/11/24 22:23*	*1*
13C2 PFDoA	*88.6*		*10 - 130*	*11/07/24 07:08*	*11/11/24 22:23*	*1*
13C2 PFTeDA	*91.0*		*10 - 130*	*11/07/24 07:08*	*11/11/24 22:23*	*1*
13C3 PFBS	*97.0*		*40 - 135*	*11/07/24 07:08*	*11/11/24 22:23*	*1*
13C3 PFHxS	*104*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:23*	*1*
13C8 PFOS	*107*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:23*	*1*
13C8 FOSA	*86.5*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:23*	*1*
d3-NMeFOSAA	*100*		*40 - 170*	*11/07/24 07:08*	*11/11/24 22:23*	*1*
d5-NEtFOSAA	*82.6*		*25 - 135*	*11/07/24 07:08*	*11/11/24 22:23*	*1*
13C2 4:2 FTS	*111*		*40 - 200*	*11/07/24 07:08*	*11/11/24 22:23*	*1*
13C2 8:2 FTS	*69.4*		*40 - 300*	*11/07/24 07:08*	*11/11/24 22:23*	*1*
13C3 HFPO-DA	*104*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:23*	*1*
d7-N-MeFOSE-M	*74.1*		*10 - 130*	*11/07/24 07:08*	*11/11/24 22:23*	*1*
d9-N-EtFOSE-M	*71.2*		*10 - 130*	*11/07/24 07:08*	*11/11/24 22:23*	*1*
d5-NEtPFOSA	*80.2*		*10 - 130*	*11/07/24 07:08*	*11/11/24 22:23*	*1*
d3-NMePFOSA	*83.7*		*10 - 130*	*11/07/24 07:08*	*11/11/24 22:23*	*1*

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		3.1	0.79	ng/L		11/07/24 07:08	11/16/24 16:37	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 6:2 FTS	*91.4*		*40 - 200*	*11/07/24 07:08*	*11/16/24 16:37*	*1*

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**11**		0.50	0.13	mg/L		10/29/24 09:10	10/30/24 19:04	1
Potassium	**1.5**	**J ^1+**	2.0	0.29	mg/L		10/29/24 09:10	10/30/24 19:04	1
Sodium	**3.9**	**^1+**	2.0	0.20	mg/L		10/29/24 09:10	10/30/24 19:04	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**31**		1.0	0.20	mg/L		11/08/24 09:54	11/08/24 17:27	1
Iron	**0.15**	**J**	2.0	0.074	mg/L		11/08/24 09:54	11/08/24 17:27	1
Magnesium	**9.1**		0.50	0.13	mg/L		11/08/24 09:54	11/08/24 17:27	1

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.0010	mg/L		11/01/24 17:51	11/04/24 20:29	5

Client Sample ID: MW-7B:102824

Lab Sample ID: 590-27772-2

Date Collected: 10/28/24 11:10

Matrix: Water

Date Received: 10/28/24 16:03

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.0020	0.00019	mg/L		11/01/24 17:51	11/04/24 20:29	5
Iron	**0.18**	**J**	0.50	0.067	mg/L		11/01/24 17:51	11/04/24 20:29	5
Lead	ND		0.0020	0.00020	mg/L		11/01/24 17:51	11/04/24 20:29	5
Manganese	**0.0057**	**J B**	0.010	0.0023	mg/L		11/01/24 17:51	11/04/24 20:29	5
Zinc	ND		0.035	0.0046	mg/L		11/01/24 17:51	11/04/24 20:29	5

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.0010	mg/L		11/04/24 17:02	11/05/24 18:59	5
Cadmium	ND		0.0020	0.00019	mg/L		11/04/24 17:02	11/05/24 18:59	5
Iron	ND		0.50	0.067	mg/L		11/04/24 17:02	11/05/24 18:59	5
Lead	ND		0.0020	0.00020	mg/L		11/04/24 17:02	11/05/24 18:59	5
Manganese	ND		0.010	0.0023	mg/L		11/04/24 17:02	11/05/24 18:59	5
Zinc	ND		0.035	0.0046	mg/L		11/04/24 17:02	11/05/24 18:59	5

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.10**	**J**	0.20	0.090	ug/L		10/29/24 09:11	10/29/24 12:04	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		11/08/24 09:59	11/08/24 17:01	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	**0.029**	**J**	0.10	0.029	mg/L			11/05/24 17:45	1
Alkalinity (SM 2320B)	**110**	**B**	20	5.0	mg/L			11/08/24 11:28	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**110**	**B**	20	5.0	mg/L			11/08/24 11:28	1
Total Dissolved Solids (SM 2540C)	**130**		25	13	mg/L			11/04/24 10:48	1
Total Organic Carbon - Duplicates (SM 5310B)	**1.2**		1.0	0.35	mg/L			11/06/24 10:03	1

Client Sample ID: MW-15A:102824

Lab Sample ID: 590-27772-3

Date Collected: 10/28/24 12:40

Matrix: Water

Date Received: 10/28/24 16:03

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**36**		0.80	0.42	mg/L			10/29/24 14:39	1
Nitrate as N	**3.9**		0.20	0.057	mg/L			10/29/24 14:39	1
Nitrite as N	ND		0.20	0.069	mg/L			10/29/24 14:39	1
Sulfate	**39**		0.50	0.13	mg/L			10/29/24 14:39	1

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**0.74**	**J**	2.9	0.71	ng/L		11/07/24 07:08	11/11/24 22:37	1
Perfluoropentanoic acid (PFPeA)	**0.42**	**J**	1.4	0.36	ng/L		11/07/24 07:08	11/11/24 22:37	1
Perfluorohexanoic acid (PFHxA)	ND		1.4	0.36	ng/L		11/07/24 07:08	11/11/24 22:37	1
Perfluoroheptanoic acid (PFHpA)	ND		1.4	0.36	ng/L		11/07/24 07:08	11/11/24 22:37	1
Perfluorooctanoic acid (PFOA)	ND		1.4	0.36	ng/L		11/07/24 07:08	11/11/24 22:37	1
Perfluorononanoic acid (PFNA)	ND		1.4	0.36	ng/L		11/07/24 07:08	11/11/24 22:37	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-27772-1

Client Sample ID: MW-15A:102824
Date Collected: 10/28/24 12:40
Date Received: 10/28/24 16:03

Lab Sample ID: 590-27772-3
Matrix: Water

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanoic acid (PFDA)	ND		1.4	0.36	ng/L		11/07/24 07:08	11/11/24 22:37	1
Perfluoroundecanoic acid (PFUnA)	ND		1.4	0.36	ng/L		11/07/24 07:08	11/11/24 22:37	1
Perfluorododecanoic acid (PFDoA)	ND		1.4	0.39	ng/L		11/07/24 07:08	11/11/24 22:37	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.4	0.41	ng/L		11/07/24 07:08	11/11/24 22:37	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.4	0.58	ng/L		11/07/24 07:08	11/11/24 22:37	1
Perfluorobutanesulfonic acid (PFBS)	**1.8**		1.4	0.36	ng/L		11/07/24 07:08	11/11/24 22:37	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.4	0.36	ng/L		11/07/24 07:08	11/11/24 22:37	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.4	0.36	ng/L		11/07/24 07:08	11/11/24 22:37	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.4	0.36	ng/L		11/07/24 07:08	11/11/24 22:37	1
Perfluorooctanesulfonic acid (PFOS)	**1.8**		1.4	0.36	ng/L		11/07/24 07:08	11/11/24 22:37	1
Perfluorononanesulfonic acid (PFNS)	ND		1.4	0.36	ng/L		11/07/24 07:08	11/11/24 22:37	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.4	0.36	ng/L		11/07/24 07:08	11/11/24 22:37	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.4	0.38	ng/L		11/07/24 07:08	11/11/24 22:37	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		2.9	0.71	ng/L		11/07/24 07:08	11/11/24 22:37	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		2.9	0.71	ng/L		11/07/24 07:08	11/11/24 22:37	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.4	0.36	ng/L		11/07/24 07:08	11/11/24 22:37	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.4	0.36	ng/L		11/07/24 07:08	11/11/24 22:37	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.4	0.36	ng/L		11/07/24 07:08	11/11/24 22:37	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.4	0.36	ng/L		11/07/24 07:08	11/11/24 22:37	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.4	0.36	ng/L		11/07/24 07:08	11/11/24 22:37	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		7.1	1.8	ng/L		11/07/24 07:08	11/11/24 22:37	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		7.1	1.8	ng/L		11/07/24 07:08	11/11/24 22:37	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.1	0.28	ng/L		11/07/24 07:08	11/11/24 22:37	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.4	0.36	ng/L		11/07/24 07:08	11/11/24 22:37	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.4	0.36	ng/L		11/07/24 07:08	11/11/24 22:37	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.4	0.36	ng/L		11/07/24 07:08	11/11/24 22:37	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.4	0.51	ng/L		11/07/24 07:08	11/11/24 22:37	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1.4	0.41	ng/L		11/07/24 07:08	11/11/24 22:37	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1.4	0.36	ng/L		11/07/24 07:08	11/11/24 22:37	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.4	0.36	ng/L		11/07/24 07:08	11/11/24 22:37	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		2.9	0.71	ng/L		11/07/24 07:08	11/11/24 22:37	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		7.1	1.8	ng/L		11/07/24 07:08	11/11/24 22:37	1

Client Sample ID: MW-15A:102824
Date Collected: 10/28/24 12:40
Date Received: 10/28/24 16:03

Lab Sample ID: 590-27772-3
Matrix: Water

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		7.1	1.8	ng/L		11/07/24 07:08	11/11/24 22:37	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*114*		*5 - 130*	*11/07/24 07:08*	*11/11/24 22:37*	*1*
13C5 PFPeA	*98.0*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:37*	*1*
13C5 PFHxA	*103*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:37*	*1*
13C4 PFHpA	*91.0*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:37*	*1*
13C8 PFOA	*93.9*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:37*	*1*
13C9 PFNA	*102*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:37*	*1*
13C6 PFDA	*103*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:37*	*1*
13C7 PFUnA	*93.3*		*30 - 130*	*11/07/24 07:08*	*11/11/24 22:37*	*1*
13C2 PFDoA	*80.6*		*10 - 130*	*11/07/24 07:08*	*11/11/24 22:37*	*1*
13C2 PFTeDA	*70.4*		*10 - 130*	*11/07/24 07:08*	*11/11/24 22:37*	*1*
13C3 PFBS	*104*		*40 - 135*	*11/07/24 07:08*	*11/11/24 22:37*	*1*
13C3 PFHxS	*105*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:37*	*1*
13C8 PFOS	*95.0*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:37*	*1*
13C8 FOSA	*89.6*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:37*	*1*
d3-NMeFOSAA	*96.7*		*40 - 170*	*11/07/24 07:08*	*11/11/24 22:37*	*1*
d5-NEtFOSAA	*81.5*		*25 - 135*	*11/07/24 07:08*	*11/11/24 22:37*	*1*
13C2 4:2 FTS	*93.7*		*40 - 200*	*11/07/24 07:08*	*11/11/24 22:37*	*1*
13C2 8:2 FTS	*73.7*		*40 - 300*	*11/07/24 07:08*	*11/11/24 22:37*	*1*
13C3 HFPO-DA	*103*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:37*	*1*
d7-N-MeFOSE-M	*68.6*		*10 - 130*	*11/07/24 07:08*	*11/11/24 22:37*	*1*
d9-N-EtFOSE-M	*68.0*		*10 - 130*	*11/07/24 07:08*	*11/11/24 22:37*	*1*
d5-NEtPFOSA	*72.0*		*10 - 130*	*11/07/24 07:08*	*11/11/24 22:37*	*1*
d3-NMePFOSA	*76.4*		*10 - 130*	*11/07/24 07:08*	*11/11/24 22:37*	*1*

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		2.9	0.71	ng/L		11/07/24 07:08	11/16/24 16:51	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 6:2 FTS	*87.5*		*40 - 200*	*11/07/24 07:08*	*11/16/24 16:51*	*1*

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**17**		0.50	0.13	mg/L		10/29/24 09:10	10/30/24 19:09	1
Potassium	**7.0**	**^1+**	2.0	0.29	mg/L		10/29/24 09:10	10/30/24 19:09	1
Sodium	**38**	**^1+**	2.0	0.20	mg/L		10/29/24 09:10	10/30/24 19:09	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**35**		1.0	0.20	mg/L		11/08/24 09:54	11/08/24 17:32	1
Iron	ND		2.0	0.074	mg/L		11/08/24 09:54	11/08/24 17:32	1
Magnesium	**15**		0.50	0.13	mg/L		11/08/24 09:54	11/08/24 17:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	ND		0.10	0.029	mg/L			11/02/24 12:54	1
Alkalinity (SM 2320B)	**160**	**B**	20	5.0	mg/L			11/08/24 11:28	1

Client Sample ID: MW-15A:102824

Lab Sample ID: 590-27772-3

Date Collected: 10/28/24 12:40
Matrix: Water
Date Received: 10/28/24 16:03

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	160	B	20	5.0	mg/L			11/08/24 11:28	1
Total Dissolved Solids (SM 2540C)	290		25	13	mg/L			11/04/24 10:48	1
Total Organic Carbon - Duplicates (SM 5310B)	2.7		1.0	0.35	mg/L			11/06/24 10:22	1

Client Sample ID: MW-15:102824

Lab Sample ID: 590-27772-4

Date Collected: 10/28/24 13:40
Matrix: Water
Date Received: 10/28/24 16:03

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	57		0.80	0.42	mg/L			10/29/24 15:09	1
Nitrate as N	0.41		0.20	0.057	mg/L			10/29/24 15:09	1
Nitrite as N	ND		0.20	0.069	mg/L			10/29/24 15:09	1
Sulfate	16		0.50	0.13	mg/L			10/29/24 15:09	1

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.81	J	2.8	0.71	ng/L		11/07/24 07:08	11/11/24 22:51	1
Perfluoropentanoic acid (PFPeA)	0.57	J	1.4	0.35	ng/L		11/07/24 07:08	11/11/24 22:51	1
Perfluorohexanoic acid (PFHxA)	0.35	J	1.4	0.35	ng/L		11/07/24 07:08	11/11/24 22:51	1
Perfluoroheptanoic acid (PFHpA)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/11/24 22:51	1
Perfluorooctanoic acid (PFOA)	0.57	J	1.4	0.35	ng/L		11/07/24 07:08	11/11/24 22:51	1
Perfluorononanoic acid (PFNA)	0.52	J	1.4	0.35	ng/L		11/07/24 07:08	11/11/24 22:51	1
Perfluorodecanoic acid (PFDA)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/11/24 22:51	1
Perfluoroundecanoic acid (PFUnA)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/11/24 22:51	1
Perfluorododecanoic acid (PFDoA)	ND		1.4	0.39	ng/L		11/07/24 07:08	11/11/24 22:51	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.4	0.41	ng/L		11/07/24 07:08	11/11/24 22:51	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.4	0.57	ng/L		11/07/24 07:08	11/11/24 22:51	1
Perfluorobutanesulfonic acid (PFBS)	4.8		1.4	0.35	ng/L		11/07/24 07:08	11/11/24 22:51	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/11/24 22:51	1
Perfluorohexanesulfonic acid (PFHxS)	1.3	J	1.4	0.35	ng/L		11/07/24 07:08	11/11/24 22:51	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/11/24 22:51	1
Perfluorooctanesulfonic acid (PFOS)	6.0		1.4	0.35	ng/L		11/07/24 07:08	11/11/24 22:51	1
Perfluorononanesulfonic acid (PFNS)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/11/24 22:51	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/11/24 22:51	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.4	0.37	ng/L		11/07/24 07:08	11/11/24 22:51	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		2.8	0.71	ng/L		11/07/24 07:08	11/11/24 22:51	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		2.8	0.71	ng/L		11/07/24 07:08	11/11/24 22:51	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/11/24 22:51	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/11/24 22:51	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/11/24 22:51	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-27772-1

Client Sample ID: MW-15:102824
Date Collected: 10/28/24 13:40
Date Received: 10/28/24 16:03

Lab Sample ID: 590-27772-4
Matrix: Water

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/11/24 22:51	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/11/24 22:51	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		7.1	1.8	ng/L		11/07/24 07:08	11/11/24 22:51	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		7.1	1.8	ng/L		11/07/24 07:08	11/11/24 22:51	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.1	0.28	ng/L		11/07/24 07:08	11/11/24 22:51	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/11/24 22:51	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/11/24 22:51	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/11/24 22:51	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.4	0.51	ng/L		11/07/24 07:08	11/11/24 22:51	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1.4	0.41	ng/L		11/07/24 07:08	11/11/24 22:51	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/11/24 22:51	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/11/24 22:51	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		2.8	0.71	ng/L		11/07/24 07:08	11/11/24 22:51	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		7.1	1.8	ng/L		11/07/24 07:08	11/11/24 22:51	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		7.1	1.8	ng/L		11/07/24 07:08	11/11/24 22:51	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*107*		*5 - 130*	*11/07/24 07:08*	*11/11/24 22:51*	*1*
13C5 PFPeA	*98.2*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:51*	*1*
13C5 PFHxA	*103*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:51*	*1*
13C4 PFHpA	*94.1*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:51*	*1*
13C8 PFOA	*103*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:51*	*1*
13C9 PFNA	*101*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:51*	*1*
13C6 PFDA	*96.2*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:51*	*1*
13C7 PFUnA	*93.2*		*30 - 130*	*11/07/24 07:08*	*11/11/24 22:51*	*1*
13C2 PFDoA	*72.7*		*10 - 130*	*11/07/24 07:08*	*11/11/24 22:51*	*1*
13C2 PFTeDA	*69.3*		*10 - 130*	*11/07/24 07:08*	*11/11/24 22:51*	*1*
13C3 PFBS	*104*		*40 - 135*	*11/07/24 07:08*	*11/11/24 22:51*	*1*
13C3 PFHxS	*105*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:51*	*1*
13C8 PFOS	*94.8*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:51*	*1*
13C8 FOSA	*84.7*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:51*	*1*
d3-NMeFOSAA	*82.7*		*40 - 170*	*11/07/24 07:08*	*11/11/24 22:51*	*1*
d5-NEtFOSAA	*69.4*		*25 - 135*	*11/07/24 07:08*	*11/11/24 22:51*	*1*
13C2 4:2 FTS	*81.1*		*40 - 200*	*11/07/24 07:08*	*11/11/24 22:51*	*1*
13C2 8:2 FTS	*74.7*		*40 - 300*	*11/07/24 07:08*	*11/11/24 22:51*	*1*
13C3 HFPO-DA	*101*		*40 - 130*	*11/07/24 07:08*	*11/11/24 22:51*	*1*
d7-N-MeFOSE-M	*64.2*		*10 - 130*	*11/07/24 07:08*	*11/11/24 22:51*	*1*
d9-N-EtFOSE-M	*60.2*		*10 - 130*	*11/07/24 07:08*	*11/11/24 22:51*	*1*
d5-NEtPFOSA	*65.8*		*10 - 130*	*11/07/24 07:08*	*11/11/24 22:51*	*1*

Client Sample ID: MW-15:102824

Lab Sample ID: 590-27772-4

Date Collected: 10/28/24 13:40
Matrix: Water
Date Received: 10/28/24 16:03

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
d3-NMePFOSA	*68.0*		*10 - 130*	*11/07/24 07:08*	*11/11/24 22:51*	*1*

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		2.8	0.71	ng/L		11/07/24 07:08	11/16/24 17:33	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 6:2 FTS	*91.5*		*40 - 200*	*11/07/24 07:08*	*11/16/24 17:33*	*1*

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**13**		0.50	0.13	mg/L		10/29/24 09:10	10/30/24 19:15	1
Potassium	**6.8**	**^1+**	2.0	0.29	mg/L		10/29/24 09:10	10/30/24 19:15	1
Sodium	**35**	**^1+**	2.0	0.20	mg/L		10/29/24 09:10	10/30/24 19:15	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**39**		1.0	0.20	mg/L		11/08/24 09:54	11/08/24 17:37	1
Iron	ND		2.0	0.074	mg/L		11/08/24 09:54	11/08/24 17:37	1
Magnesium	**16**		0.50	0.13	mg/L		11/08/24 09:54	11/08/24 17:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	ND		0.10	0.029	mg/L			11/02/24 13:02	1
Alkalinity (SM 2320B)	**140**	**B**	20	5.0	mg/L			11/08/24 11:28	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**140**	**B**	20	5.0	mg/L			11/08/24 11:28	1
Total Dissolved Solids (SM 2540C)	**230**		25	13	mg/L			11/04/24 10:48	1
Total Organic Carbon - Duplicates (SM 5310B)	**3.3**		1.0	0.35	mg/L			11/06/24 10:36	1

Client Sample ID: MW-8B:102824

Lab Sample ID: 590-27772-5

Date Collected: 10/28/24 15:10
Matrix: Water
Date Received: 10/28/24 16:03

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**22**		0.80	0.42	mg/L			10/29/24 15:19	1
Nitrate as N	**4.2**		0.20	0.057	mg/L			10/29/24 15:19	1
Nitrite as N	ND		0.20	0.069	mg/L			10/29/24 15:19	1
Sulfate	**19**		0.50	0.13	mg/L			10/29/24 15:19	1

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**9.4**		3.0	0.75	ng/L		11/07/24 07:08	11/11/24 23:05	1
Perfluoropentanoic acid (PFPeA)	**17**		1.5	0.37	ng/L		11/07/24 07:08	11/11/24 23:05	1
Perfluorohexanoic acid (PFHxA)	**14**		1.5	0.37	ng/L		11/07/24 07:08	11/11/24 23:05	1
Perfluoroheptanoic acid (PFHpA)	**4.7**		1.5	0.37	ng/L		11/07/24 07:08	11/11/24 23:05	1
Perfluorooctanoic acid (PFOA)	**11**		1.5	0.37	ng/L		11/07/24 07:08	11/11/24 23:05	1
Perfluorononanoic acid (PFNA)	ND		1.5	0.37	ng/L		11/07/24 07:08	11/11/24 23:05	1
Perfluorodecanoic acid (PFDA)	ND		1.5	0.37	ng/L		11/07/24 07:08	11/11/24 23:05	1
Perfluoroundecanoic acid (PFUnA)	ND		1.5	0.37	ng/L		11/07/24 07:08	11/11/24 23:05	1

Client Sample ID: MW-8B:102824
Date Collected: 10/28/24 15:10
Date Received: 10/28/24 16:03

Lab Sample ID: 590-27772-5
Matrix: Water

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	ND		1.5	0.41	ng/L		11/07/24 07:08	11/11/24 23:05	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.5	0.43	ng/L		11/07/24 07:08	11/11/24 23:05	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.5	0.61	ng/L		11/07/24 07:08	11/11/24 23:05	1
Perfluorobutanesulfonic acid (PFBS)	**4.7**		1.5	0.37	ng/L		11/07/24 07:08	11/11/24 23:05	1
Perfluoropentanesulfonic acid (PFPeS)	**1.8**		1.5	0.37	ng/L		11/07/24 07:08	11/11/24 23:05	1
Perfluorohexanesulfonic acid (PFHxS)	**6.8**		1.5	0.37	ng/L		11/07/24 07:08	11/11/24 23:05	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.5	0.37	ng/L		11/07/24 07:08	11/11/24 23:05	1
Perfluorooctanesulfonic acid (PFOS)	**3.8**		1.5	0.37	ng/L		11/07/24 07:08	11/11/24 23:05	1
Perfluorononanesulfonic acid (PFNS)	ND		1.5	0.37	ng/L		11/07/24 07:08	11/11/24 23:05	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.5	0.37	ng/L		11/07/24 07:08	11/11/24 23:05	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.5	0.40	ng/L		11/07/24 07:08	11/11/24 23:05	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		3.0	0.75	ng/L		11/07/24 07:08	11/11/24 23:05	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		3.0	0.75	ng/L		11/07/24 07:08	11/11/24 23:05	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.5	0.37	ng/L		11/07/24 07:08	11/11/24 23:05	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.5	0.37	ng/L		11/07/24 07:08	11/11/24 23:05	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.5	0.37	ng/L		11/07/24 07:08	11/11/24 23:05	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.5	0.37	ng/L		11/07/24 07:08	11/11/24 23:05	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.5	0.37	ng/L		11/07/24 07:08	11/11/24 23:05	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		7.5	1.9	ng/L		11/07/24 07:08	11/11/24 23:05	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		7.5	1.9	ng/L		11/07/24 07:08	11/11/24 23:05	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.1	0.29	ng/L		11/07/24 07:08	11/11/24 23:05	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.5	0.37	ng/L		11/07/24 07:08	11/11/24 23:05	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.5	0.37	ng/L		11/07/24 07:08	11/11/24 23:05	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.5	0.37	ng/L		11/07/24 07:08	11/11/24 23:05	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.5	0.54	ng/L		11/07/24 07:08	11/11/24 23:05	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1.5	0.43	ng/L		11/07/24 07:08	11/11/24 23:05	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1.5	0.37	ng/L		11/07/24 07:08	11/11/24 23:05	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.5	0.37	ng/L		11/07/24 07:08	11/11/24 23:05	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		3.0	0.75	ng/L		11/07/24 07:08	11/11/24 23:05	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		7.5	1.9	ng/L		11/07/24 07:08	11/11/24 23:05	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		7.5	1.9	ng/L		11/07/24 07:08	11/11/24 23:05	1

Client Sample ID: MW-8B:102824

Date Collected: 10/28/24 15:10
Date Received: 10/28/24 16:03

Lab Sample ID: 590-27772-5

Matrix: Water

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*108*		*5 - 130*	*11/07/24 07:08*	*11/11/24 23:05*	*1*
13C5 PFPeA	*99.1*		*40 - 130*	*11/07/24 07:08*	*11/11/24 23:05*	*1*
13C5 PFHxA	*102*		*40 - 130*	*11/07/24 07:08*	*11/11/24 23:05*	*1*
13C4 PFHpA	*93.3*		*40 - 130*	*11/07/24 07:08*	*11/11/24 23:05*	*1*
13C8 PFOA	*101*		*40 - 130*	*11/07/24 07:08*	*11/11/24 23:05*	*1*
13C9 PFNA	*101*		*40 - 130*	*11/07/24 07:08*	*11/11/24 23:05*	*1*
13C6 PFDA	*107*		*40 - 130*	*11/07/24 07:08*	*11/11/24 23:05*	*1*
13C7 PFUnA	*96.2*		*30 - 130*	*11/07/24 07:08*	*11/11/24 23:05*	*1*
13C2 PFDoA	*88.8*		*10 - 130*	*11/07/24 07:08*	*11/11/24 23:05*	*1*
13C2 PFTeDA	*82.1*		*10 - 130*	*11/07/24 07:08*	*11/11/24 23:05*	*1*
13C3 PFBS	*103*		*40 - 135*	*11/07/24 07:08*	*11/11/24 23:05*	*1*
13C3 PFHxS	*103*		*40 - 130*	*11/07/24 07:08*	*11/11/24 23:05*	*1*
13C8 PFOS	*97.2*		*40 - 130*	*11/07/24 07:08*	*11/11/24 23:05*	*1*
13C8 FOSA	*81.9*		*40 - 130*	*11/07/24 07:08*	*11/11/24 23:05*	*1*
d3-NMeFOSAA	*91.6*		*40 - 170*	*11/07/24 07:08*	*11/11/24 23:05*	*1*
d5-NEtFOSAA	*80.2*		*25 - 135*	*11/07/24 07:08*	*11/11/24 23:05*	*1*
13C2 4:2 FTS	*100*		*40 - 200*	*11/07/24 07:08*	*11/11/24 23:05*	*1*
13C2 8:2 FTS	*76.0*		*40 - 300*	*11/07/24 07:08*	*11/11/24 23:05*	*1*
13C3 HFPO-DA	*96.1*		*40 - 130*	*11/07/24 07:08*	*11/11/24 23:05*	*1*
d7-N-MeFOSE-M	*69.1*		*10 - 130*	*11/07/24 07:08*	*11/11/24 23:05*	*1*
d9-N-EtFOSE-M	*70.3*		*10 - 130*	*11/07/24 07:08*	*11/11/24 23:05*	*1*
d5-NEtPFOSA	*77.3*		*10 - 130*	*11/07/24 07:08*	*11/11/24 23:05*	*1*
d3-NMePFOSA	*71.8*		*10 - 130*	*11/07/24 07:08*	*11/11/24 23:05*	*1*

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		3.0	0.75	ng/L		11/07/24 07:08	11/16/24 17:47	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 6:2 FTS	*84.4*		*40 - 200*	*11/07/24 07:08*	*11/16/24 17:47*	*1*

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**17**		0.50	0.13	mg/L		10/29/24 09:10	10/30/24 19:21	1
Potassium	**3.7**	**^1+**	2.0	0.29	mg/L		10/29/24 09:10	10/30/24 19:21	1
Sodium	**15**	**^1+**	2.0	0.20	mg/L		10/29/24 09:10	10/30/24 19:21	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**82**		1.0	0.20	mg/L		11/08/24 09:54	11/08/24 17:42	1
Iron	ND		2.0	0.074	mg/L		11/08/24 09:54	11/08/24 17:42	1
Magnesium	**16**		0.50	0.13	mg/L		11/08/24 09:54	11/08/24 17:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	ND		0.10	0.029	mg/L			11/02/24 13:05	1
Alkalinity (SM 2320B)	**280**	**B**	20	5.0	mg/L			11/08/24 11:28	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**280**	**B**	20	5.0	mg/L			11/08/24 11:28	1
Total Dissolved Solids (SM 2540C)	**360**		25	13	mg/L			11/04/24 10:48	1
Total Organic Carbon - Duplicates (SM 5310B)	**1.0**		1.0	0.35	mg/L			11/06/24 10:50	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-27772-1

Client Sample ID: Trip Blank

Date Collected: 10/28/24 08:00
Date Received: 10/28/24 16:03

Lab Sample ID: 590-27772-6

Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.48	ug/L			10/29/24 14:35	1
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			10/29/24 14:35	1
1,1,2,2-Tetrachloroethane	ND		2.0	0.32	ug/L			10/29/24 14:35	1
1,1,2-Trichloroethane	ND		2.0	0.43	ug/L			10/29/24 14:35	1
1,1-Dichloroethane	ND		1.0	0.29	ug/L			10/29/24 14:35	1
1,1-Dichloroethene	ND		1.0	0.20	ug/L			10/30/24 12:46	1
1,1-Dichloropropene	ND		1.0	0.50	ug/L			10/29/24 14:35	1
1,2,3-Trichlorobenzene	ND		1.0	0.33	ug/L			10/29/24 14:35	1
1,2,3-Trichloropropane	ND		2.0	0.50	ug/L			10/29/24 14:35	1
1,2,4-Trichlorobenzene	ND		1.0	0.50	ug/L			10/29/24 14:35	1
1,2,4-Trimethylbenzene	ND		1.0	0.31	ug/L			10/29/24 14:35	1
1,2-Dibromo-3-Chloropropane	ND		10	1.5	ug/L			10/29/24 14:35	1
1,2-Dibromoethane (EDB)	ND		1.0	0.20	ug/L			10/29/24 14:35	1
1,2-Dichlorobenzene	ND		1.0	0.23	ug/L			10/29/24 14:35	1
1,2-Dichloroethane	ND		1.0	0.31	ug/L			10/30/24 12:46	1
1,2-Dichloropropane	ND		1.0	0.23	ug/L			10/29/24 14:35	1
1,3,5-Trimethylbenzene	ND		1.0	0.32	ug/L			10/29/24 14:35	1
1,3-Dichlorobenzene	ND		1.0	0.14	ug/L			10/29/24 14:35	1
1,3-Dichloropropane	ND		2.0	0.21	ug/L			10/29/24 14:35	1
1,4-Dichlorobenzene	ND		1.0	0.28	ug/L			10/29/24 14:35	1
2,2-Dichloropropane	ND		2.0	0.66	ug/L			10/29/24 14:35	1
2-Chlorotoluene	ND		1.0	0.36	ug/L			10/29/24 14:35	1
4-Chlorotoluene	ND		1.0	0.26	ug/L			10/29/24 14:35	1
Benzene	ND		0.40	0.093	ug/L			10/29/24 14:35	1
Bromobenzene	ND		1.0	0.28	ug/L			10/29/24 14:35	1
Bromochloromethane	ND		2.0	0.44	ug/L			10/29/24 14:35	1
Bromodichloromethane	ND		1.0	0.29	ug/L			10/29/24 14:35	1
Bromoform	ND		5.0	0.66	ug/L			10/29/24 14:35	1
Bromomethane	ND		5.0	0.76	ug/L			10/30/24 12:46	1
Carbon tetrachloride	ND		1.0	0.40	ug/L			10/29/24 14:35	1
Chlorobenzene	ND		1.0	0.32	ug/L			10/29/24 14:35	1
Chloroethane	ND		2.0	0.40	ug/L			10/30/24 12:46	1
Chloroform	ND		1.0	0.24	ug/L			10/29/24 14:35	1
Chloromethane	ND		3.0	0.50	ug/L			10/30/24 12:46	1
cis-1,2-Dichloroethene	ND		1.0	0.23	ug/L			10/29/24 14:35	1
cis-1,3-Dichloropropene	ND		1.0	0.25	ug/L			10/29/24 14:35	1
Dibromochloromethane	ND		2.0	0.33	ug/L			10/29/24 14:35	1
Dibromomethane	ND		2.0	0.50	ug/L			10/29/24 14:35	1
Dichlorodifluoromethane	ND		2.0	0.64	ug/L			10/30/24 12:46	1
Ethylbenzene	ND		1.0	0.20	ug/L			10/29/24 14:35	1
Hexachlorobutadiene	ND		2.0	0.21	ug/L			10/29/24 14:35	1
Isopropylbenzene	ND		1.0	0.24	ug/L			10/29/24 14:35	1
m,p-Xylene	ND		2.0	0.28	ug/L			10/29/24 14:35	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			10/30/24 12:46	1
Methylene Chloride	ND		5.0	2.2	ug/L			10/30/24 12:46	1
Naphthalene	ND		2.0	0.63	ug/L			10/29/24 14:35	1
n-Butylbenzene	ND		1.0	0.20	ug/L			10/29/24 14:35	1
N-Propylbenzene	ND		1.0	0.25	ug/L			10/29/24 14:35	1
o-Xylene	ND		1.0	0.16	ug/L			10/29/24 14:35	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-27772-1

Client Sample ID: Trip Blank
Date Collected: 10/28/24 08:00
Date Received: 10/28/24 16:03

Lab Sample ID: 590-27772-6
Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
p-Isopropyltoluene	ND		1.0	0.27	ug/L			10/29/24 14:35	1
sec-Butylbenzene	ND		1.0	0.22	ug/L			10/29/24 14:35	1
Styrene	ND		1.0	0.24	ug/L			10/29/24 14:35	1
tert-Butylbenzene	ND		1.0	0.12	ug/L			10/29/24 14:35	1
Tetrachloroethene	ND		1.0	0.22	ug/L			10/29/24 14:35	1
Toluene	ND		1.0	0.31	ug/L			10/29/24 14:35	1
trans-1,2-Dichloroethene	ND		1.0	0.20	ug/L			10/30/24 12:46	1
trans-1,3-Dichloropropene	ND		1.0	0.45	ug/L			10/29/24 14:35	1
Trichloroethene	ND		1.0	0.20	ug/L			10/29/24 14:35	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			10/30/24 12:46	1
Vinyl chloride	ND		0.40	0.13	ug/L			10/30/24 12:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*89*		*80 - 120*		*10/29/24 14:35*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 120*		*10/30/24 12:46*	*1*
4-Bromofluorobenzene (Surr)	*100*		*76 - 120*		*10/29/24 14:35*	*1*
4-Bromofluorobenzene (Surr)	*97*		*76 - 120*		*10/30/24 12:46*	*1*
Dibromofluoromethane (Surr)	*97*		*80 - 123*		*10/29/24 14:35*	*1*
Dibromofluoromethane (Surr)	*115*		*80 - 123*		*10/30/24 12:46*	*1*
Toluene-d8 (Surr)	*111*		*80 - 120*		*10/29/24 14:35*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*10/30/24 12:46*	*1*

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-27772-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 590-50539/10
Matrix: Water
Analysis Batch: 50539

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.48	ug/L			10/29/24 13:08	1
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			10/29/24 13:08	1
1,1,2,2-Tetrachloroethane	ND		2.0	0.32	ug/L			10/29/24 13:08	1
1,1,2-Trichloroethane	ND		2.0	0.43	ug/L			10/29/24 13:08	1
1,1-Dichloroethane	ND		1.0	0.29	ug/L			10/29/24 13:08	1
1,1-Dichloropropene	ND		1.0	0.50	ug/L			10/29/24 13:08	1
1,2,3-Trichlorobenzene	ND		1.0	0.33	ug/L			10/29/24 13:08	1
1,2,3-Trichloropropane	ND		2.0	0.50	ug/L			10/29/24 13:08	1
1,2,4-Trichlorobenzene	ND		1.0	0.50	ug/L			10/29/24 13:08	1
1,2,4-Trimethylbenzene	ND		1.0	0.31	ug/L			10/29/24 13:08	1
1,2-Dibromo-3-Chloropropane	ND		10	1.5	ug/L			10/29/24 13:08	1
1,2-Dibromoethane (EDB)	ND		1.0	0.20	ug/L			10/29/24 13:08	1
1,2-Dichlorobenzene	ND		1.0	0.23	ug/L			10/29/24 13:08	1
1,2-Dichloropropane	ND		1.0	0.23	ug/L			10/29/24 13:08	1
1,3,5-Trimethylbenzene	ND		1.0	0.32	ug/L			10/29/24 13:08	1
1,3-Dichlorobenzene	ND		1.0	0.14	ug/L			10/29/24 13:08	1
1,3-Dichloropropane	ND		2.0	0.21	ug/L			10/29/24 13:08	1
1,4-Dichlorobenzene	ND		1.0	0.28	ug/L			10/29/24 13:08	1
2,2-Dichloropropane	ND		2.0	0.66	ug/L			10/29/24 13:08	1
2-Chlorotoluene	ND		1.0	0.36	ug/L			10/29/24 13:08	1
4-Chlorotoluene	ND		1.0	0.26	ug/L			10/29/24 13:08	1
Benzene	ND		0.40	0.093	ug/L			10/29/24 13:08	1
Bromobenzene	ND		1.0	0.28	ug/L			10/29/24 13:08	1
Bromochloromethane	ND		2.0	0.44	ug/L			10/29/24 13:08	1
Bromodichloromethane	ND		1.0	0.29	ug/L			10/29/24 13:08	1
Bromoform	ND		5.0	0.66	ug/L			10/29/24 13:08	1
Carbon tetrachloride	ND		1.0	0.40	ug/L			10/29/24 13:08	1
Chlorobenzene	ND		1.0	0.32	ug/L			10/29/24 13:08	1
Chloroform	ND		1.0	0.24	ug/L			10/29/24 13:08	1
cis-1,2-Dichloroethene	ND		1.0	0.23	ug/L			10/29/24 13:08	1
cis-1,3-Dichloropropene	ND		1.0	0.25	ug/L			10/29/24 13:08	1
Dibromochloromethane	ND		2.0	0.33	ug/L			10/29/24 13:08	1
Dibromomethane	ND		2.0	0.50	ug/L			10/29/24 13:08	1
Ethylbenzene	ND		1.0	0.20	ug/L			10/29/24 13:08	1
Hexachlorobutadiene	ND		2.0	0.21	ug/L			10/29/24 13:08	1
Isopropylbenzene	ND		1.0	0.24	ug/L			10/29/24 13:08	1
m,p-Xylene	ND		2.0	0.28	ug/L			10/29/24 13:08	1
Naphthalene	ND		2.0	0.63	ug/L			10/29/24 13:08	1
n-Butylbenzene	ND		1.0	0.20	ug/L			10/29/24 13:08	1
N-Propylbenzene	ND		1.0	0.25	ug/L			10/29/24 13:08	1
o-Xylene	ND		1.0	0.16	ug/L			10/29/24 13:08	1
p-Isopropyltoluene	ND		1.0	0.27	ug/L			10/29/24 13:08	1
sec-Butylbenzene	ND		1.0	0.22	ug/L			10/29/24 13:08	1
Styrene	ND		1.0	0.24	ug/L			10/29/24 13:08	1
tert-Butylbenzene	ND		1.0	0.12	ug/L			10/29/24 13:08	1
Tetrachloroethene	ND		1.0	0.22	ug/L			10/29/24 13:08	1
Toluene	ND		1.0	0.31	ug/L			10/29/24 13:08	1
trans-1,3-Dichloropropene	ND		1.0	0.45	ug/L			10/29/24 13:08	1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 590-50539/10
Matrix: Water
Analysis Batch: 50539

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	ND		1.0	0.20	ug/L			10/29/24 13:08	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*84*		*80 - 120*		*10/29/24 13:08*	*1*
4-Bromofluorobenzene (Surr)	*101*		*76 - 120*		*10/29/24 13:08*	*1*
Dibromofluoromethane (Surr)	*91*		*80 - 123*		*10/29/24 13:08*	*1*
Toluene-d8 (Surr)	*110*		*80 - 120*		*10/29/24 13:08*	*1*

Lab Sample ID: LCS 590-50539/1005
Matrix: Water
Analysis Batch: 50539

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1,2-Tetrachloroethane	10.0	9.20		ug/L		92	80 - 131
1,1,1-Trichloroethane	10.0	8.51		ug/L		85	71 - 138
1,1,2,2-Tetrachloroethane	10.0	9.85		ug/L		99	60 - 150
1,1,2-Trichloroethane	10.0	9.34		ug/L		93	80 - 128
1,1-Dichloroethane	10.0	8.39		ug/L		84	80 - 125
1,1-Dichloropropene	10.0	8.71		ug/L		87	82 - 123
1,2,3-Trichlorobenzene	10.0	9.48		ug/L		95	70 - 137
1,2,3-Trichloropropane	10.0	9.23		ug/L		92	65 - 142
1,2,4-Trichlorobenzene	10.0	8.20		ug/L		82	76 - 131
1,2,4-Trimethylbenzene	10.0	8.83		ug/L		88	78 - 131
1,2-Dibromo-3-Chloropropane	10.0	9.82	J	ug/L		98	53 - 142
1,2-Dibromoethane (EDB)	10.0	9.37		ug/L		94	80 - 124
1,2-Dichlorobenzene	10.0	8.78		ug/L		88	80 - 120
1,2-Dichloropropane	10.0	8.37		ug/L		84	79 - 122
1,3,5-Trimethylbenzene	10.0	8.80		ug/L		88	76 - 129
1,3-Dichlorobenzene	10.0	9.02		ug/L		90	80 - 122
1,3-Dichloropropane	10.0	9.02		ug/L		90	78 - 129
1,4-Dichlorobenzene	10.0	9.14		ug/L		91	80 - 120
2,2-Dichloropropane	10.0	8.68		ug/L		87	73 - 140
2-Chlorotoluene	10.0	8.53		ug/L		85	74 - 129
4-Chlorotoluene	10.0	8.58		ug/L		86	79 - 125
Benzene	10.0	9.08		ug/L		91	80 - 120
Bromobenzene	10.0	8.59		ug/L		86	73 - 125
Bromochloromethane	10.0	9.69		ug/L		97	71 - 136
Bromodichloromethane	10.0	8.34		ug/L		83	80 - 120
Bromoform	10.0	9.47		ug/L		95	73 - 139
Carbon tetrachloride	10.0	8.69		ug/L		87	72 - 138
Chlorobenzene	10.0	9.53		ug/L		95	80 - 124
Chloroform	10.0	8.35		ug/L		84	80 - 123
cis-1,2-Dichloroethene	10.0	8.32		ug/L		83	80 - 122
cis-1,3-Dichloropropene	10.0	8.37		ug/L		84	80 - 121
Dibromochloromethane	10.0	9.95		ug/L		100	80 - 130
Dibromomethane	10.0	8.73		ug/L		87	80 - 122
Ethylbenzene	10.0	9.12		ug/L		91	80 - 122
Hexachlorobutadiene	10.0	9.51		ug/L		95	77 - 132

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 590-50539/1005
Matrix: Water
Analysis Batch: 50539

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Isopropylbenzene			10.0	8.89		ug/L		89	80 - 122		
m,p-Xylene			10.0	9.60		ug/L		96	80 - 125		
Naphthalene			10.0	8.59		ug/L		86	61 - 140		
n-Butylbenzene			10.0	8.15		ug/L		82	75 - 121		
N-Propylbenzene			10.0	8.43		ug/L		84	73 - 136		
o-Xylene			10.0	8.78		ug/L		88	80 - 130		
p-Isopropyltoluene			10.0	8.68		ug/L		87	78 - 128		
sec-Butylbenzene			10.0	8.62		ug/L		86	73 - 138		
Styrene			10.0	8.77		ug/L		88	79 - 134		
tert-Butylbenzene			10.0	8.44		ug/L		84	76 - 131		
Tetrachloroethene			10.0	10.0		ug/L		100	80 - 139		
Toluene			10.0	9.57		ug/L		96	80 - 129		
trans-1,3-Dichloropropene			10.0	9.64		ug/L		96	73 - 138		
Trichloroethene			10.0	9.12		ug/L		91	80 - 123		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*84*		*80 - 120*
4-Bromofluorobenzene (Surr)	*95*		*76 - 120*
Dibromofluoromethane (Surr)	*93*		*80 - 123*
Toluene-d8 (Surr)	*104*		*80 - 120*

Lab Sample ID: LCSD 590-50539/6
Matrix: Water
Analysis Batch: 50539

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane			10.0	9.34		ug/L		93	80 - 131	1	17
1,1,1-Trichloroethane			10.0	8.15		ug/L		82	71 - 138	4	17
1,1,2,2-Tetrachloroethane			10.0	9.80		ug/L		98	60 - 150	1	17
1,1,2-Trichloroethane			10.0	9.35		ug/L		94	80 - 128	0	15
1,1-Dichloroethane			10.0	8.15		ug/L		81	80 - 125	3	20
1,1-Dichloropropene			10.0	8.26		ug/L		83	82 - 123	5	20
1,2,3-Trichlorobenzene			10.0	9.82		ug/L		98	70 - 137	4	30
1,2,3-Trichloropropane			10.0	9.29		ug/L		93	65 - 142	1	34
1,2,4-Trichlorobenzene			10.0	8.57		ug/L		86	76 - 131	4	24
1,2,4-Trimethylbenzene			10.0	8.77		ug/L		88	78 - 131	1	16
1,2-Dibromo-3-Chloropropane			10.0	10.3		ug/L		103	53 - 142	5	29
1,2-Dibromoethane (EDB)			10.0	9.55		ug/L		95	80 - 124	2	14
1,2-Dichlorobenzene			10.0	8.81		ug/L		88	80 - 120	0	14
1,2-Dichloropropane			10.0	8.10		ug/L		81	79 - 122	3	15
1,3,5-Trimethylbenzene			10.0	8.67		ug/L		87	76 - 129	1	17
1,3-Dichlorobenzene			10.0	9.06		ug/L		91	80 - 122	0	15
1,3-Dichloropropane			10.0	9.08		ug/L		91	78 - 129	1	17
1,4-Dichlorobenzene			10.0	8.84		ug/L		88	80 - 120	3	14
2,2-Dichloropropane			10.0	8.28		ug/L		83	73 - 140	5	18
2-Chlorotoluene			10.0	8.53		ug/L		85	74 - 129	0	19
4-Chlorotoluene			10.0	8.58		ug/L		86	79 - 125	0	16
Benzene			10.0	8.68		ug/L		87	80 - 120	4	15

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 590-50539/6
Matrix: Water
Analysis Batch: 50539

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Bromobenzene			10.0	8.62		ug/L		86	73 - 125	0	16
Bromochloromethane			10.0	9.53		ug/L		95	71 - 136	2	21
Bromodichloromethane			10.0	8.07		ug/L		81	80 - 120	3	16
Bromoform			10.0	9.57		ug/L		96	73 - 139	1	17
Carbon tetrachloride			10.0	8.22		ug/L		82	72 - 138	5	28
Chlorobenzene			10.0	9.42		ug/L		94	80 - 124	1	14
Chloroform			10.0	7.85	*-	ug/L		78	80 - 123	6	18
cis-1,2-Dichloroethene			10.0	7.91	*-	ug/L		79	80 - 122	5	17
cis-1,3-Dichloropropene			10.0	8.16		ug/L		82	80 - 121	3	16
Dibromochloromethane			10.0	9.68		ug/L		97	80 - 130	3	15
Dibromomethane			10.0	8.52		ug/L		85	80 - 122	2	16
Ethylbenzene			10.0	8.92		ug/L		89	80 - 122	2	35
Hexachlorobutadiene			10.0	9.51		ug/L		95	77 - 132	0	25
Isopropylbenzene			10.0	8.77		ug/L		88	80 - 122	1	16
m,p-Xylene			10.0	9.59		ug/L		96	80 - 125	0	35
Naphthalene			10.0	8.92		ug/L		89	61 - 140	4	25
n-Butylbenzene			10.0	8.27		ug/L		83	75 - 121	1	16
N-Propylbenzene			10.0	8.34		ug/L		83	73 - 136	1	18
o-Xylene			10.0	8.60		ug/L		86	80 - 130	2	35
p-Isopropyltoluene			10.0	8.47		ug/L		85	78 - 128	2	17
sec-Butylbenzene			10.0	8.55		ug/L		86	73 - 138	1	17
Styrene			10.0	8.83		ug/L		88	79 - 134	1	17
tert-Butylbenzene			10.0	8.41		ug/L		84	76 - 131	0	18
Tetrachloroethene			10.0	9.71		ug/L		97	80 - 139	3	20
Toluene			10.0	9.38		ug/L		94	80 - 129	2	35
trans-1,3-Dichloropropene			10.0	9.67		ug/L		97	73 - 138	0	17
Trichloroethene			10.0	8.99		ug/L		90	80 - 123	1	14

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*83*		*80 - 120*
4-Bromofluorobenzene (Surr)	*96*		*76 - 120*
Dibromofluoromethane (Surr)	*90*		*80 - 123*
Toluene-d8 (Surr)	*104*		*80 - 120*

Lab Sample ID: MB 590-50564/8
Matrix: Water
Analysis Batch: 50564

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		1.0	0.20	ug/L			10/30/24 12:22	1
1,2-Dichloroethane	ND		1.0	0.31	ug/L			10/30/24 12:22	1
Bromomethane	ND		5.0	0.76	ug/L			10/30/24 12:22	1
Chloroethane	ND		2.0	0.40	ug/L			10/30/24 12:22	1
Chloromethane	ND		3.0	0.50	ug/L			10/30/24 12:22	1
Dichlorodifluoromethane	ND		2.0	0.64	ug/L			10/30/24 12:22	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			10/30/24 12:22	1
Methylene Chloride	ND		5.0	2.2	ug/L			10/30/24 12:22	1
trans-1,2-Dichloroethene	ND		1.0	0.20	ug/L			10/30/24 12:22	1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 590-50564/8
Matrix: Water
Analysis Batch: 50564

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	ND		1.0	0.20	ug/L			10/30/24 12:22	1
Vinyl chloride	ND		0.40	0.13	ug/L			10/30/24 12:22	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*80 - 120*		*10/30/24 12:22*	*1*
4-Bromofluorobenzene (Surr)	*100*		*76 - 120*		*10/30/24 12:22*	*1*
Dibromofluoromethane (Surr)	*112*		*80 - 123*		*10/30/24 12:22*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*10/30/24 12:22*	*1*

Lab Sample ID: LCS 590-50564/1005
Matrix: Water
Analysis Batch: 50564

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,1-Dichloroethene			10.0	9.60		ug/L		96	65 - 141		
1,2-Dichloroethane			10.0	10.1		ug/L		101	80 - 120		
Bromomethane			10.0	8.98		ug/L		90	66 - 149		
Chloroethane			10.0	8.87		ug/L		89	64 - 134		
Chloromethane			10.0	9.53		ug/L		95	19 - 150		
Dichlorodifluoromethane			10.0	10.5		ug/L		105	30 - 150		
Methyl tert-butyl ether			10.0	9.63		ug/L		96	68 - 134		
Methylene Chloride			10.0	10.4		ug/L		104	30 - 150		
trans-1,2-Dichloroethene			10.0	9.99		ug/L		100	73 - 137		
Trichlorofluoromethane			10.0	9.26		ug/L		93	71 - 147		
Vinyl chloride			10.0	9.04		ug/L		90	50 - 150		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*105*		*76 - 120*
Dibromofluoromethane (Surr)	*98*		*80 - 123*
Toluene-d8 (Surr)	*102*		*80 - 120*

Lab Sample ID: LCSD 590-50564/6
Matrix: Water
Analysis Batch: 50564

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1-Dichloroethene			10.0	9.53		ug/L		95	65 - 141	1	19
1,2-Dichloroethane			10.0	10.3		ug/L		103	80 - 120	2	14
Bromomethane			10.0	9.14		ug/L		91	66 - 149	2	24
Chloroethane			10.0	8.88		ug/L		89	64 - 134	0	24
Chloromethane			10.0	8.90		ug/L		89	19 - 150	7	35
Dichlorodifluoromethane			10.0	10.0		ug/L		100	30 - 150	5	22
Methyl tert-butyl ether			10.0	9.00		ug/L		90	68 - 134	7	18
Methylene Chloride			10.0	10.1		ug/L		101	30 - 150	3	25
trans-1,2-Dichloroethene			10.0	9.62		ug/L		96	73 - 137	4	18
Trichlorofluoromethane			10.0	9.10		ug/L		91	71 - 147	2	24
Vinyl chloride			10.0	8.88		ug/L		89	50 - 150	2	26

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 590-50564/6
Matrix: Water
Analysis Batch: 50564

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*102*		*76 - 120*
Dibromofluoromethane (Surr)	*104*		*80 - 123*
Toluene-d8 (Surr)	*100*		*80 - 120*

Method: 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Lab Sample ID: MB 580-476706/1-A
Matrix: Water
Analysis Batch: 476868

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 476706

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.036	ug/L		11/04/24 09:10	11/05/24 13:00	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*51*		*40 - 140*	*11/04/24 09:10*	*11/05/24 13:00*	*1*

Lab Sample ID: LCS 580-476706/2-A
Matrix: Water
Analysis Batch: 476868

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 476706

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,4-Dioxane			8.00	8.97		ug/L		112	78 - 130		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,4-Dioxane-d8	*59*		*40 - 140*

Lab Sample ID: LCSD 580-476706/3-A
Matrix: Water
Analysis Batch: 476868

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 476706

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,4-Dioxane			8.00	8.93		ug/L		112	78 - 130	0	13

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,4-Dioxane-d8	*56*		*40 - 140*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 590-50546/1003
Matrix: Water
Analysis Batch: 50546

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.80	0.42	mg/L			10/29/24 12:23	1
Sulfate	ND		0.50	0.13	mg/L			10/29/24 12:23	1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 590-50546/1004
Matrix: Water
Analysis Batch: 50546

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	12.5	12.3		mg/L		98	90 - 110
Sulfate	12.5	11.6		mg/L		93	90 - 110

Lab Sample ID: MB 590-50547/1003
Matrix: Water
Analysis Batch: 50547

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20	0.057	mg/L			10/29/24 12:23	1
Nitrite as N	ND		0.20	0.069	mg/L			10/29/24 12:23	1

Lab Sample ID: LCS 590-50547/1004
Matrix: Water
Analysis Batch: 50547

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	5.00	5.00		mg/L		100	90 - 110
Nitrite as N	5.00	4.79		mg/L		96	90 - 110

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Lab Sample ID: MB 320-812904/1-A
Matrix: Water
Analysis Batch: 814107

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 812904

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.0	1.0	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	0.58	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluorotetradecanoic acid (PFTeDA)	ND		2.0	0.81	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.53	ng/L		11/07/24 07:08	11/11/24 20:46	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		4.0	1.0	ng/L		11/07/24 07:08	11/11/24 20:46	1

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: MB 320-812904/1-A
Matrix: Water
Analysis Batch: 814107

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 812904

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (PFOSA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		10	2.5	ng/L		11/07/24 07:08	11/11/24 20:46	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		10	2.5	ng/L		11/07/24 07:08	11/11/24 20:46	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/11/24 20:46	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		2.0	0.72	ng/L		11/07/24 07:08	11/11/24 20:46	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		2.0	0.58	ng/L		11/07/24 07:08	11/11/24 20:46	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		4.0	1.0	ng/L		11/07/24 07:08	11/11/24 20:46	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		10	2.5	ng/L		11/07/24 07:08	11/11/24 20:46	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		10	2.5	ng/L		11/07/24 07:08	11/11/24 20:46	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*106*		*5 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C5 PFPeA	*101*		*40 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C5 PFHxA	*101*		*40 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C4 PFHpA	*97.6*		*40 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C8 PFOA	*108*		*40 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C9 PFNA	*110*		*40 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C6 PFDA	*102*		*40 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C7 PFUnA	*95.4*		*30 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C2 PFDoA	*88.2*		*10 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C2 PFTeDA	*79.0*		*10 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C3 PFBS	*104*		*40 - 135*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C3 PFHxS	*109*		*40 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C8 PFOS	*101*		*40 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C8 FOSA	*83.1*		*40 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
d3-NMeFOSAA	*96.5*		*40 - 170*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
d5-NEtFOSAA	*87.5*		*25 - 135*	*11/07/24 07:08*	*11/11/24 20:46*	*1*

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: MB 320-812904/1-A
Matrix: Water
Analysis Batch: 814107

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 812904

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 4:2 FTS	89.7		40 - 200	11/07/24 07:08	11/11/24 20:46	1
13C3 HFPO-DA	106		40 - 130	11/07/24 07:08	11/11/24 20:46	1
d7-N-MeFOSE-M	77.0		10 - 130	11/07/24 07:08	11/11/24 20:46	1
d9-N-EtFOSE-M	81.0		10 - 130	11/07/24 07:08	11/11/24 20:46	1
d5-NEtPFOSA	71.8		10 - 130	11/07/24 07:08	11/11/24 20:46	1
d3-NMePFOSA	73.3		10 - 130	11/07/24 07:08	11/11/24 20:46	1

Lab Sample ID: LCS 320-812904/3-A
Matrix: Water
Analysis Batch: 814107

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 812904

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	80.0	77.6		ng/L		97	70 - 140
Perfluoropentanoic acid (PFPeA)	40.0	42.0		ng/L		105	65 - 135
Perfluorohexanoic acid (PFHxA)	40.0	41.0		ng/L		102	70 - 145
Perfluoroheptanoic acid (PFHpA)	40.0	38.2		ng/L		96	70 - 150
Perfluorooctanoic acid (PFOA)	40.0	36.5		ng/L		91	70 - 150
Perfluorononanoic acid (PFNA)	40.0	43.8		ng/L		110	70 - 150
Perfluorodecanoic acid (PFDA)	40.0	41.3		ng/L		103	70 - 140
Perfluoroundecanoic acid (PFUnA)	40.0	35.5		ng/L		89	70 - 145
Perfluorododecanoic acid (PFDoA)	40.0	43.1		ng/L		108	70 - 140
Perfluorotridecanoic acid (PFTrDA)	40.0	42.0		ng/L		105	65 - 140
Perfluorotetradecanoic acid (PFTeDA)	40.0	36.7		ng/L		92	60 - 140
Perfluorobutanesulfonic acid (PFBS)	35.5	36.0		ng/L		101	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	37.6	36.8		ng/L		98	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	36.5	34.8		ng/L		95	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	38.2	38.8		ng/L		102	70 - 150
Perfluorooctanesulfonic acid (PFOS)	37.2	35.8		ng/L		96	55 - 150
Perfluorononanesulfonic acid (PFNS)	38.5	36.3		ng/L		94	65 - 145
Perfluorodecanesulfonic acid (PFDS)	38.6	35.8		ng/L		93	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	38.8	31.2		ng/L		80	50 - 145
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	75.0	77.2		ng/L		103	70 - 145
Perfluorooctanesulfonamide (PFOSA)	40.0	40.5		ng/L		101	70 - 145
N-methylperfluorooctane sulfonamide (NMeFOSA)	40.0	38.2		ng/L		96	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA)	40.0	41.6		ng/L		104	65 - 145
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	38.9		ng/L		97	50 - 140

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-812904/3-A
Matrix: Water
Analysis Batch: 814107

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 812904

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	39.3		ng/L		98	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	200	199		ng/L		99	70 - 145
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	200	204		ng/L		102	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	30.0	29.5		ng/L		98	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	30.2		ng/L		80	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	40.0	44.4		ng/L		111	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	40.0	39.1		ng/L		98	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	40.0	37.3		ng/L		93	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	37.4	33.3		ng/L		89	70 - 155
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	37.8	30.7		ng/L		81	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	35.7	35.2		ng/L		99	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	80.0	88.6		ng/L		111	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	200	175		ng/L		87	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	200	151		ng/L		76	50 - 145

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*104*		*5 - 130*
13C5 PFPeA	*93.1*		*40 - 130*
13C5 PFHxA	*98.8*		*40 - 130*
13C4 PFHpA	*96.0*		*40 - 130*
13C8 PFOA	*99.1*		*40 - 130*
13C9 PFNA	*93.5*		*40 - 130*
13C6 PFDA	*102*		*40 - 130*
13C7 PFUnA	*103*		*30 - 130*
13C2 PFDoA	*85.2*		*10 - 130*
13C2 PFTeDA	*86.2*		*10 - 130*
13C3 PFBS	*106*		*40 - 135*
13C3 PFHxS	*99.9*		*40 - 130*
13C8 PFOS	*95.0*		*40 - 130*
13C8 FOSA	*82.0*		*40 - 130*
d3-NMeFOSAA	*87.9*		*40 - 170*
d5-NEtFOSAA	*85.2*		*25 - 135*
13C2 4:2 FTS	*91.1*		*40 - 200*
13C3 HFPO-DA	*103*		*40 - 130*
d7-N-MeFOSE-M	*74.5*		*10 - 130*
d9-N-EtFOSE-M	*71.1*		*10 - 130*

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-812904/3-A
Matrix: Water
Analysis Batch: 814107

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 812904

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
d5-NEtPFOSA	*73.3*		*10 - 130*
d3-NMePFOSA	*78.0*		*10 - 130*

Lab Sample ID: LCSD 320-812904/4-A
Matrix: Water
Analysis Batch: 814107

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 812904

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			80.0	76.8		ng/L		96	70 - 140	1	30
Perfluoropentanoic acid (PFPeA)			40.0	42.9		ng/L		107	65 - 135	2	30
Perfluorohexanoic acid (PFHxA)			40.0	39.6		ng/L		99	70 - 145	3	30
Perfluoroheptanoic acid (PFHpA)			40.0	38.9		ng/L		97	70 - 150	2	30
Perfluorooctanoic acid (PFOA)			40.0	37.5		ng/L		94	70 - 150	3	30
Perfluorononanoic acid (PFNA)			40.0	37.4		ng/L		93	70 - 150	16	30
Perfluorodecanoic acid (PFDA)			40.0	40.5		ng/L		101	70 - 140	2	30
Perfluoroundecanoic acid (PFUnA)			40.0	41.8		ng/L		104	70 - 145	16	30
Perfluorododecanoic acid (PFDoA)			40.0	41.9		ng/L		105	70 - 140	3	30
Perfluorotridecanoic acid (PFTrDA)			40.0	47.8		ng/L		120	65 - 140	13	30
Perfluorotetradecanoic acid (PFTeDA)			40.0	33.9		ng/L		85	60 - 140	8	30
Perfluorobutanesulfonic acid (PFBS)			35.5	36.8		ng/L		104	60 - 145	2	30
Perfluoropentanesulfonic acid (PFPeS)			37.6	37.4		ng/L		100	65 - 140	2	30
Perfluorohexanesulfonic acid (PFHxS)			36.5	34.5		ng/L		95	65 - 145	1	30
Perfluoroheptanesulfonic acid (PFHpS)			38.2	40.6		ng/L		106	70 - 150	4	30
Perfluorooctanesulfonic acid (PFOS)			37.2	35.6		ng/L		96	55 - 150	1	30
Perfluorononanesulfonic acid (PFNS)			38.5	36.6		ng/L		95	65 - 145	1	30
Perfluorodecanesulfonic acid (PFDS)			38.6	35.6		ng/L		92	60 - 145	1	30
Perfluorododecanesulfonic acid (PFDoS)			38.8	32.3		ng/L		83	50 - 145	4	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)			75.0	79.3		ng/L		106	70 - 145	3	30
Perfluorooctanesulfonamide (PFOSA)			40.0	39.8		ng/L		99	70 - 145	2	30
N-methylperfluorooctane sulfonamide (NMeFOSA)			40.0	38.9		ng/L		97	60 - 150	2	30
N-ethylperfluorooctane sulfonamide (NEtFOSA)			40.0	41.0		ng/L		103	65 - 145	1	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			40.0	37.1		ng/L		93	50 - 140	5	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			40.0	40.7		ng/L		102	70 - 145	4	30
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)			200	190		ng/L		95	70 - 145	5	30

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCSD 320-812904/4-A
Matrix: Water
Analysis Batch: 814107

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 812904

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)			200	183		ng/L		91	70 - 135	11	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			30.0	28.8		ng/L		96	70 - 140	2	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			37.8	32.2		ng/L		85	65 - 145	6	30
Perfluoro-3-methoxypropanoic acid (PFMPA)			40.0	45.9		ng/L		115	55 - 140	3	30
Perfluoro-4-methoxybutanoic acid (PFMBA)			40.0	39.2		ng/L		98	60 - 150	0	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)			40.0	37.4		ng/L		93	50 - 150	0	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)			37.4	35.7		ng/L		95	70 - 155	7	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)			37.8	33.2		ng/L		88	55 - 160	8	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			35.7	35.1		ng/L		98	70 - 140	0	30
3-Perfluoropropylpropanoic acid (3:3 FTCA)			80.0	85.8		ng/L		107	65 - 130	3	30
3-Perfluoropentylpropanoic acid (5:3 FTCA)			200	182		ng/L		91	70 - 135	4	30
3-Perfluoroheptylpropanoic acid (7:3 FTCA)			200	162		ng/L		81	50 - 145	7	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*107*		*5 - 130*
13C5 PFPeA	*99.8*		*40 - 130*
13C5 PFHxA	*98.4*		*40 - 130*
13C4 PFHpA	*95.9*		*40 - 130*
13C8 PFOA	*103*		*40 - 130*
13C9 PFNA	*108*		*40 - 130*
13C6 PFDA	*101*		*40 - 130*
13C7 PFUnA	*94.5*		*30 - 130*
13C2 PFDoA	*79.9*		*10 - 130*
13C2 PFTeDA	*70.3*		*10 - 130*
13C3 PFBS	*104*		*40 - 135*
13C3 PFHxS	*104*		*40 - 130*
13C8 PFOS	*102*		*40 - 130*
13C8 FOSA	*86.8*		*40 - 130*
d3-NMeFOSAA	*98.5*		*40 - 170*
d5-NEtFOSAA	*87.7*		*25 - 135*
13C2 4:2 FTS	*90.5*		*40 - 200*
13C3 HFPO-DA	*106*		*40 - 130*
d7-N-MeFOSE-M	*80.1*		*10 - 130*
d9-N-EtFOSE-M	*80.7*		*10 - 130*
d5-NEtPFOSA	*75.9*		*10 - 130*
d3-NMePFOSA	*75.5*		*10 - 130*

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-812904/2-A
Matrix: Water
Analysis Batch: 814107

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 812904

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	8.00	8.23		ng/L		103	70 - 140
Perfluoropentanoic acid (PFPeA)	4.00	4.56		ng/L		114	65 - 135
Perfluorohexanoic acid (PFHxA)	4.00	4.30		ng/L		107	70 - 145
Perfluoroheptanoic acid (PFHpA)	4.00	3.82		ng/L		95	70 - 150
Perfluorooctanoic acid (PFOA)	4.00	3.66		ng/L		92	70 - 150
Perfluorononanoic acid (PFNA)	4.00	3.72		ng/L		93	70 - 150
Perfluorodecanoic acid (PFDA)	4.00	4.34		ng/L		108	70 - 140
Perfluoroundecanoic acid (PFUnA)	4.00	4.23		ng/L		106	70 - 145
Perfluorododecanoic acid (PFDoA)	4.00	4.09		ng/L		102	70 - 140
Perfluorotridecanoic acid (PFTrDA)	4.00	3.92		ng/L		98	65 - 140
Perfluorotetradecanoic acid (PFTeDA)	4.00	3.37		ng/L		84	60 - 140
Perfluorobutanesulfonic acid (PFBS)	3.55	3.58		ng/L		101	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	3.76	3.82		ng/L		102	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	3.65	3.80		ng/L		104	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	3.82	3.90		ng/L		102	70 - 150
Perfluorooctanesulfonic acid (PFOS)	3.72	3.54		ng/L		95	55 - 150
Perfluorononanesulfonic acid (PFNS)	3.85	3.80		ng/L		99	65 - 145
Perfluorodecanesulfonic acid (PFDS)	3.86	3.75		ng/L		97	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	3.88	2.91		ng/L		75	50 - 145
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	7.50	7.16		ng/L		95	70 - 145
Perfluorooctanesulfonamide (PFOSA)	4.00	4.02		ng/L		101	70 - 145
N-methylperfluorooctane sulfonamide (NMeFOSA)	4.00	3.65		ng/L		91	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA)	4.00	3.99		ng/L		100	65 - 145
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	4.00	3.91		ng/L		98	50 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	4.00	4.37		ng/L		109	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	20.0	19.4		ng/L		97	70 - 145
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	20.0	18.3		ng/L		91	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	3.00	2.99		ng/L		100	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	3.78	3.17		ng/L		84	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	4.00	4.38		ng/L		109	55 - 140

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-812904/2-A
Matrix: Water
Analysis Batch: 814107

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 812904

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoro-4-methoxybutanoic acid (PFMBA)	4.00	4.29		ng/L		107	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	4.00	4.14		ng/L		103	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	3.74	3.54		ng/L		95	70 - 155
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	3.78	2.90		ng/L		77	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	3.57	3.77		ng/L		106	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	8.00	8.46		ng/L		106	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	20.0	17.7		ng/L		88	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	20.0	16.6		ng/L		83	50 - 145

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C4 PFBA	*105*		*5 - 130*
13C5 PFPeA	*91.3*		*40 - 130*
13C5 PFHxA	*90.1*		*40 - 130*
13C4 PFHpA	*90.8*		*40 - 130*
13C8 PFOA	*94.3*		*40 - 130*
13C9 PFNA	*102*		*40 - 130*
13C6 PFDA	*100*		*40 - 130*
13C7 PFUnA	*103*		*30 - 130*
13C2 PFDoA	*92.1*		*10 - 130*
13C2 PFTeDA	*79.1*		*10 - 130*
13C3 PFBS	*106*		*40 - 135*
13C3 PFHxS	*99.2*		*40 - 130*
13C8 PFOS	*101*		*40 - 130*
13C8 FOSA	*82.1*		*40 - 130*
d3-NMeFOSAA	*91.4*		*40 - 170*
d5-NEtFOSAA	*79.3*		*25 - 135*
13C2 4:2 FTS	*98.8*		*40 - 200*
13C3 HFPO-DA	*97.7*		*40 - 130*
d7-N-MeFOSE-M	*73.2*		*10 - 130*
d9-N-EtFOSE-M	*70.7*		*10 - 130*
d5-NEtPFOSA	*70.8*		*10 - 130*
d3-NMePFOSA	*75.9*		*10 - 130*

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Lab Sample ID: MB 320-812904/1-A
Matrix: Water
Analysis Batch: 815926

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 812904

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS) - RA	ND		4.0	1.0	ng/L		11/07/24 07:08	11/16/24 13:37	1

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA (Continued)

Lab Sample ID: MB 320-812904/1-A
Matrix: Water
Analysis Batch: 815926

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 812904

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) - RA	ND		4.0	1.0	ng/L		11/07/24 07:08	11/16/24 13:37	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 6:2 FTS - RA	*88.8*		*40 - 200*	*11/07/24 07:08*	*11/16/24 13:37*	*1*
13C2 8:2 FTS - RA	*83.7*		*40 - 300*	*11/07/24 07:08*	*11/16/24 13:37*	*1*

Lab Sample ID: LCS 320-812904/3-A
Matrix: Water
Analysis Batch: 815926

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 812904

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS) - RA			76.2	75.4		ng/L		99	65 - 155		
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) - RA			76.8	73.2		ng/L		95	60 - 150		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 6:2 FTS - RA	*85.3*		*40 - 200*
13C2 8:2 FTS - RA	*69.7*		*40 - 300*

Lab Sample ID: LCSD 320-812904/4-A
Matrix: Water
Analysis Batch: 815926

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 812904

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS) - RA			76.2	71.8		ng/L		94	65 - 155	5	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) - RA			76.8	68.0		ng/L		89	60 - 150	7	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 6:2 FTS - RA	*99.1*		*40 - 200*
13C2 8:2 FTS - RA	*91.3*		*40 - 300*

Lab Sample ID: LLCS 320-812904/2-A
Matrix: Water
Analysis Batch: 815926

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 812904

Analyte			Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits		
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS) - RA			7.62	7.36		ng/L		97	65 - 155		
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) - RA			7.68	6.98		ng/L		91	60 - 150		

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C2 6:2 FTS - RA	*92.7*		*40 - 200*
13C2 8:2 FTS - RA	*86.2*		*40 - 300*

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 590-50531/2-A
Matrix: Water
Analysis Batch: 50607

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 50531

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	ND	^1+	2.0	0.29	mg/L		10/29/24 09:10	10/30/24 17:59	1
Magnesium	ND		0.50	0.13	mg/L		10/29/24 09:10	10/30/24 17:59	1
Sodium	ND	^1+	2.0	0.20	mg/L		10/29/24 09:10	10/30/24 17:59	1

Lab Sample ID: LCS 590-50531/1-A
Matrix: Water
Analysis Batch: 50607

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 50531

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Potassium	50.0	42.6	^1+	mg/L		85	80 - 135
Magnesium	50.0	42.7		mg/L		85	80 - 120
Sodium	50.0	44.8	^1+	mg/L		90	80 - 154

Lab Sample ID: MB 590-50748/2-B
Matrix: Water
Analysis Batch: 50786

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 50750

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.0	0.20	mg/L		11/08/24 09:54	11/08/24 13:26	1
Iron	ND		2.0	0.074	mg/L		11/08/24 09:54	11/08/24 13:26	1
Magnesium	ND		0.50	0.13	mg/L		11/08/24 09:54	11/08/24 13:26	1

Lab Sample ID: LCS 590-50748/1-B
Matrix: Water
Analysis Batch: 50786

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 50750

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	50.0	48.4		mg/L		97	80 - 120
Iron	10.0	9.71		mg/L		97	80 - 120
Magnesium	50.0	49.2		mg/L		98	80 - 120

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 580-476655/25-A
Matrix: Water
Analysis Batch: 476845

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 476655

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010	0.00020	mg/L		11/01/24 17:51	11/04/24 19:39	1
Cadmium	ND		0.00040	0.000037	mg/L		11/01/24 17:51	11/04/24 19:39	1
Iron	ND		0.10	0.013	mg/L		11/01/24 17:51	11/04/24 19:39	1
Lead	0.0000876	J	0.00040	0.000040	mg/L		11/01/24 17:51	11/04/24 19:39	1
Manganese	0.00166	J	0.0020	0.00046	mg/L		11/01/24 17:51	11/04/24 19:39	1
Zinc	0.00189	J	0.0070	0.00093	mg/L		11/01/24 17:51	11/04/24 19:39	1

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 580-476655/26-A
Matrix: Water
Analysis Batch: 476845

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 476655

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	0.969		mg/L		97	80 - 120
Cadmium	1.00	0.981		mg/L		98	80 - 120
Iron	20.0	18.5		mg/L		92	80 - 120
Lead	1.00	1.00		mg/L		100	80 - 120
Manganese	1.00	0.986		mg/L		99	80 - 120
Zinc	1.00	1.00		mg/L		100	80 - 120

Lab Sample ID: MB 580-476660/15-B
Matrix: Water
Analysis Batch: 477006

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 476799

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010	0.00020	mg/L		11/04/24 17:02	11/05/24 17:52	1
Cadmium	0.0000657	J	0.00040	0.000037	mg/L		11/04/24 17:02	11/05/24 17:52	1
Iron	ND		0.10	0.013	mg/L		11/04/24 17:02	11/05/24 17:52	1
Lead	0.000157	J	0.00040	0.000040	mg/L		11/04/24 17:02	11/05/24 17:52	1
Manganese	0.00212		0.0020	0.00046	mg/L		11/04/24 17:02	11/05/24 17:52	1
Zinc	0.00525	J	0.0070	0.00093	mg/L		11/04/24 17:02	11/05/24 17:52	1

Lab Sample ID: LCS 580-476660/16-B
Matrix: Water
Analysis Batch: 477006

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 476799

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	0.918		mg/L		92	80 - 120
Cadmium	1.00	0.993		mg/L		99	80 - 120
Iron	20.0	18.4		mg/L		92	80 - 120
Lead	1.00	0.993		mg/L		99	80 - 120
Manganese	1.00	0.924		mg/L		92	80 - 120
Zinc	1.00	0.944		mg/L		94	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 590-50532/9-A
Matrix: Water
Analysis Batch: 50548

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 50532

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		10/29/24 09:11	10/29/24 11:47	1

Lab Sample ID: LCS 590-50532/8-A
Matrix: Water
Analysis Batch: 50548

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 50532

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	2.00	2.28		ug/L		114	80 - 120

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: MB 590-50748/2-C
Matrix: Water
Analysis Batch: 50771

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 50752

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		11/08/24 09:59	11/08/24 16:45	1

Lab Sample ID: LCS 590-50748/1-C
Matrix: Water
Analysis Batch: 50771

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 50752

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	2.00	2.04		ug/L		102	80 - 120

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 280-673494/18
Matrix: Water
Analysis Batch: 673494

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	ND		0.10	0.029	mg/L			11/02/24 12:05	1

Lab Sample ID: LCS 280-673494/19
Matrix: Water
Analysis Batch: 673494

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	2.51	2.45		mg/L		98	90 - 110

Lab Sample ID: 590-27772-1 MS
Matrix: Water
Analysis Batch: 673494

Client Sample ID: MW-11A:102824
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	ND		1.00	0.991		mg/L		99	90 - 110

Lab Sample ID: 590-27772-1 MSD
Matrix: Water
Analysis Batch: 673494

Client Sample ID: MW-11A:102824
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia as N	ND		1.00	1.01		mg/L		100	90 - 110	1	10

Lab Sample ID: 590-27772-3 MS
Matrix: Water
Analysis Batch: 673494

Client Sample ID: MW-15A:102824
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	ND		1.00	0.998		mg/L		100	90 - 110

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: 590-27772-3 MSD
Matrix: Water
Analysis Batch: 673494

Client Sample ID: MW-15A:102824
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia as N	ND		1.00	1.03		mg/L		103	90 - 110	3	10

Lab Sample ID: MB 280-673869/131
Matrix: Water
Analysis Batch: 673869

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	ND		0.10	0.029	mg/L			11/05/24 16:18	1

Lab Sample ID: LCS 280-673869/132
Matrix: Water
Analysis Batch: 673869

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	2.51	2.43		mg/L		97	90 - 110

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 590-50757/1
Matrix: Water
Analysis Batch: 50757

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.00	J	20	5.0	mg/L			11/08/24 11:27	1
Bicarbonate Alkalinity as CaCO3	5.00	J	20	5.0	mg/L			11/08/24 11:27	1

Lab Sample ID: LCS 590-50757/2
Matrix: Water
Analysis Batch: 50757

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	501	485		mg/L		97	90 - 110

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 590-50640/1
Matrix: Water
Analysis Batch: 50640

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		25	13	mg/L			11/04/24 10:47	1

Lab Sample ID: LCS 590-50640/2
Matrix: Water
Analysis Batch: 50640

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	503	515		mg/L		102	80 - 120

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: 590-27772-1 DU
Matrix: Water
Analysis Batch: 50640

Client Sample ID: MW-11A:102824
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	200			199		mg/L				0.5	10

Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 280-673997/68
Matrix: Water
Analysis Batch: 673997

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		1.0	0.35	mg/L			11/06/24 07:27	1

Lab Sample ID: LCS 280-673997/67
Matrix: Water
Analysis Batch: 673997

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Organic Carbon - Duplicates			25.0	26.7		mg/L		107	88 - 112		

Lab Chronicle

Client: GeoEngineers Inc
Job ID: 590-27772-1
Project/Site: Marshall Landfill GWM

Client Sample ID: MW-11A:102824
Lab Sample ID: 590-27772-1
Date Collected: 10/28/24 10:10
Matrix: Water
Date Received: 10/28/24 16:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	5 mL	5 mL	50546	10/29/24 14:19	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	50547	10/29/24 14:19	NMI	EET SPK
Total/NA	Prep	1633			162.1 mL	5.0 mL	812904	11/07/24 07:08	JS	EET SAC
Total/NA	Analysis	1633		1			814107	11/11/24 21:42	RS1	EET SAC
Total/NA	Prep	1633	RA		162.1 mL	5.0 mL	812904	11/07/24 07:08	JS	EET SAC
Total/NA	Analysis	1633	RA	1			815926	11/16/24 16:24	SS	EET SAC
Dissolved	Filtration	FILTRATION			250 mL	250 mL	50748	11/08/24 09:11	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	50750	11/08/24 09:54	AMB	EET SPK
Dissolved	Analysis	6010D		1			50786	11/08/24 17:22	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	50531	10/29/24 09:10	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			50607	10/30/24 18:59	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	673494	11/02/24 12:10	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	50757	11/08/24 11:28	RMA	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	50640	11/04/24 10:48	RMA	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	673997	11/06/24 09:16	GMW	EET DEN

Client Sample ID: MW-7B:102824
Lab Sample ID: 590-27772-2
Date Collected: 10/28/24 11:10
Matrix: Water
Date Received: 10/28/24 16:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	43 mL	43 mL	50539	10/29/24 14:13	JSP	EET SPK
Total/NA	Prep	3510C			253.1 mL	1 mL	476706	11/04/24 09:10	JW	EET SEA
Total/NA	Analysis	8270C SIM ID		1	1 mL	1 mL	476868	11/05/24 13:42	K1K	EET SEA
Total/NA	Analysis	300.0		1	5 mL	5 mL	50546	10/29/24 14:29	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	50547	10/29/24 14:29	NMI	EET SPK
Total/NA	Prep	1633			159.1 mL	5.0 mL	812904	11/07/24 07:08	JS	EET SAC
Total/NA	Analysis	1633		1			814107	11/11/24 22:23	RS1	EET SAC
Total/NA	Prep	1633	RA		159.1 mL	5.0 mL	812904	11/07/24 07:08	JS	EET SAC
Total/NA	Analysis	1633	RA	1			815926	11/16/24 16:37	SS	EET SAC
Dissolved	Filtration	FILTRATION			250 mL	250 mL	50748	11/08/24 09:11	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	50750	11/08/24 09:54	AMB	EET SPK
Dissolved	Analysis	6010D		1			50786	11/08/24 17:27	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	50531	10/29/24 09:10	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			50607	10/30/24 19:04	AMB	EET SPK
Dissolved	Filtration	FILTRATION			200 mL	200 mL	476660	11/01/24 19:16		EET SEA
Dissolved	Prep	3005A			50 mL	50 mL	476799	11/04/24 17:02		EET SEA
Dissolved	Analysis	6020B		5			477006	11/05/24 18:59	CA	EET SEA
Total Recoverable	Prep	3005A			50 mL	50 mL	476655	11/01/24 17:51		EET SEA
Total Recoverable	Analysis	6020B		5			476845	11/04/24 20:29	CA	EET SEA
Dissolved	Filtration	FILTRATION			250 mL	250 mL	50748	11/08/24 09:11	AMB	EET SPK
Dissolved	Prep	7470A			50 mL	50 mL	50752	11/08/24 09:59	AMB	EET SPK
Dissolved	Analysis	7470A		1			50771	11/08/24 17:01	AMB	EET SPK

Lab Chronicle

Client: GeoEngineers Inc
Job ID: 590-27772-1
Project/Site: Marshall Landfill GWM

Client Sample ID: MW-7B:102824
Lab Sample ID: 590-27772-2
Date Collected: 10/28/24 11:10
Matrix: Water
Date Received: 10/28/24 16:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			50 mL	50 mL	50532	10/29/24 09:11	AMB	EET SPK
Total/NA	Analysis	7470A		1			50548	10/29/24 12:04	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	673869	11/05/24 17:45	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	50757	11/08/24 11:28	RMA	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	50640	11/04/24 10:48	RMA	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	673997	11/06/24 10:03	GMW	EET DEN

Client Sample ID: MW-15A:102824
Lab Sample ID: 590-27772-3
Date Collected: 10/28/24 12:40
Matrix: Water
Date Received: 10/28/24 16:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	5 mL	5 mL	50546	10/29/24 14:39	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	50547	10/29/24 14:39	NMI	EET SPK
Total/NA	Prep	1633			175.1 mL	5.0 mL	812904	11/07/24 07:08	JS	EET SAC
Total/NA	Analysis	1633		1			814107	11/11/24 22:37	RS1	EET SAC
Total/NA	Prep	1633	RA		175.1 mL	5.0 mL	812904	11/07/24 07:08	JS	EET SAC
Total/NA	Analysis	1633	RA	1			815926	11/16/24 16:51	SS	EET SAC
Dissolved	Filtration	FILTRATION			250 mL	250 mL	50748	11/08/24 09:11	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	50750	11/08/24 09:54	AMB	EET SPK
Dissolved	Analysis	6010D		1			50786	11/08/24 17:32	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	50531	10/29/24 09:10	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			50607	10/30/24 19:09	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	673494	11/02/24 12:54	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	50757	11/08/24 11:28	RMA	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	50640	11/04/24 10:48	RMA	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	673997	11/06/24 10:22	GMW	EET DEN

Client Sample ID: MW-15:102824
Lab Sample ID: 590-27772-4
Date Collected: 10/28/24 13:40
Matrix: Water
Date Received: 10/28/24 16:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	5 mL	5 mL	50546	10/29/24 15:09	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	50547	10/29/24 15:09	NMI	EET SPK
Total/NA	Prep	1633			177.2 mL	5.0 mL	812904	11/07/24 07:08	JS	EET SAC
Total/NA	Analysis	1633		1			814107	11/11/24 22:51	RS1	EET SAC
Total/NA	Prep	1633	RA		177.2 mL	5.0 mL	812904	11/07/24 07:08	JS	EET SAC
Total/NA	Analysis	1633	RA	1			815926	11/16/24 17:33	SS	EET SAC
Dissolved	Filtration	FILTRATION			250 mL	250 mL	50748	11/08/24 09:11	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	50750	11/08/24 09:54	AMB	EET SPK
Dissolved	Analysis	6010D		1			50786	11/08/24 17:37	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	50531	10/29/24 09:10	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			50607	10/30/24 19:15	AMB	EET SPK

Lab Chronicle

Client: GeoEngineers Inc
Job ID: 590-27772-1
Project/Site: Marshall Landfill GWM

Client Sample ID: MW-15:102824
Lab Sample ID: 590-27772-4
Date Collected: 10/28/24 13:40
Matrix: Water
Date Received: 10/28/24 16:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	350.1		1	10 mL	10 mL	673494	11/02/24 13:02	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	50757	11/08/24 11:28	RMA	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	50640	11/04/24 10:48	RMA	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	673997	11/06/24 10:36	GMW	EET DEN

Client Sample ID: MW-8B:102824
Lab Sample ID: 590-27772-5
Date Collected: 10/28/24 15:10
Matrix: Water
Date Received: 10/28/24 16:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	5 mL	5 mL	50546	10/29/24 15:19	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	50547	10/29/24 15:19	NMI	EET SPK
Total/NA	Prep	1633			166.7 mL	5.0 mL	812904	11/07/24 07:08	JS	EET SAC
Total/NA	Analysis	1633		1			814107	11/11/24 23:05	RS1	EET SAC
Total/NA	Prep	1633	RA		166.7 mL	5.0 mL	812904	11/07/24 07:08	JS	EET SAC
Total/NA	Analysis	1633	RA	1			815926	11/16/24 17:47	SS	EET SAC
Dissolved	Filtration	FILTRATION			250 mL	250 mL	50748	11/08/24 09:11	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	50750	11/08/24 09:54	AMB	EET SPK
Dissolved	Analysis	6010D		1			50786	11/08/24 17:42	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	50531	10/29/24 09:10	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			50607	10/30/24 19:21	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	673494	11/02/24 13:05	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	50757	11/08/24 11:28	RMA	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	50640	11/04/24 10:48	RMA	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	673997	11/06/24 10:50	GMW	EET DEN

Client Sample ID: Trip Blank
Lab Sample ID: 590-27772-6
Date Collected: 10/28/24 08:00
Matrix: Water
Date Received: 10/28/24 16:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	43 mL	43 mL	50539	10/29/24 14:35	JSP	EET SPK
Total/NA	Analysis	8260D		1	43 mL	43 mL	50564	10/30/24 12:46	JSP	EET SPK

Laboratory References:

EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600
EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310
EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Accreditation/Certification Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-27772-1

Laboratory: Eurofins Spokane

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C569	01-07-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3

Laboratory: Eurofins Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-25
A2LA	ISO/IEC 17025	2907.01	10-31-25
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	11-30-25
Arizona	State	AZ0713	12-20-24
Arkansas DEQ	State	19-047-0	04-21-25
California	State	2513	01-08-25
Colorado	Petroleum Storage Tank Program	4025 (or)	01-08-25
Colorado	State	CO00026	06-30-25
Connecticut	State	PH-0686	11-06-24
Florida	NELAP	E87667-57	06-30-25
Georgia	State	4025-011	01-08-25
Illinois	NELAP	2000172024-9	05-31-25
Iowa	State	370	12-01-24
Kansas	NELAP	E-10166	04-30-25
Kentucky (WW)	State	KY98047	12-31-24
Louisiana	NELAP	30785	06-30-14 *
Louisiana (All)	NELAP	30785	06-30-25
Minnesota	NELAP	1788752	12-31-24
Nevada	State	CO000262024-08	07-31-25
New Hampshire	NELAP	2053	04-28-25
New Jersey	NELAP	230001	06-30-25
New York	NELAP	59923	04-01-25
North Dakota	State	R-034	01-08-25
Oklahoma	NELAP	8614	08-31-24 *
Oregon	NELAP	4025	01-08-25
Pennsylvania	NELAP	013	07-31-25
South Carolina	State	72002001	01-08-24 *
Texas	NELAP	TX104704183-08-TX	09-30-09 *
Texas	NELAP	T104704183	09-30-25
US Fish & Wildlife	US Federal Programs	058448	07-31-25
USDA	US Federal Programs	P330-20-00065	12-19-25
Utah	NELAP	QUAN5	06-30-13 *
Utah	NELAP	CO00026	07-31-25
Virginia	NELAP	460232	06-14-25
Washington	State	C583	08-03-25
West Virginia DEP	State	354	11-30-24
Wisconsin	State	999615430	08-31-25
Wyoming (UST)	A2LA	2907.01	10-31-25

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GeoEngineers Inc
Job ID: 590-27772-1
Project/Site: Marshall Landfill GWM

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-27
ANAB	Dept. of Defense ELAP	L2468	01-20-27
ANAB	Dept. of Energy	L2468.01	01-20-27
ANAB	ISO/IEC 17025	L2468	01-20-27
Arizona	State	AZ0708	08-11-25
Arkansas DEQ	State	88-0691	05-18-25
California	State	2897	01-31-26
Colorado	State	CA00044	08-31-25
Florida	NELAP	E87570	06-30-25
Georgia	State	4040	01-29-25
Hawaii	State	Eurofins Sacramento	01-29-25
Illinois	NELAP	200060	03-31-25
Kansas	NELAP	E-10375	10-31-25
Louisiana	NELAP	01944	06-30-25
Louisiana (All)	NELAP	01944	06-30-25
Maine	State	CA00004	04-14-26
Michigan	State	9947	01-29-25
Minnesota	NELAP	2749448	12-31-24
Nevada	State	CA00044	07-31-25
New Hampshire	NELAP	2997	04-19-25
New Jersey	NELAP	CA005	06-30-25
New York	NELAP	11666	04-01-25
Ohio	State	41252	01-29-25
Oregon	NELAP	4040	01-29-25
Texas	NELAP	T104704399-23-17	05-31-25
US Fish & Wildlife	US Federal Programs	A22139	04-30-25
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442023-16	02-28-25
Virginia	NELAP	460278	03-14-25
Washington	State	C581	05-05-25
West Virginia (DW)	State	9930C	01-31-25
Wisconsin	State	998204680	08-31-25
Wyoming	State Program	8TMS-L	01-28-19 *

Laboratory: Eurofins Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-004	02-19-25
ANAB	Dept. of Defense ELAP	L2236	01-19-25
ANAB	Dept. of Energy	L2236	01-19-25
ANAB	ISO/IEC 17025	L2236	01-19-25
California	State	2954	07-07-25
Florida	NELAP	E87575	06-30-25
Louisiana	NELAP	03073	06-30-25
Louisiana (All)	NELAP	03073	06-30-25
Maine	State	WA01273	05-02-26
Montana (UST)	State	NA	04-14-27
New Jersey	NELAP	WA014	06-30-25
New York	NELAP	11662	04-01-25

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GeoEngineers Inc
Job ID: 590-27772-1
Project/Site: Marshall Landfill GWM

Laboratory: Eurofins Seattle (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4167	07-07-25
US Fish & Wildlife	US Federal Programs	A20571	06-30-25
USDA	US Federal Programs	525-23-4-22573	01-04-26
Washington	State	C788-24	07-13-25
Wisconsin	State	399133460	09-01-25

Method Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-27772-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET SPK
8270C SIM ID	Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)	SW846	EET SEA
300.0	Anions, Ion Chromatography	EPA	EET SPK
1633	Per- and Polyfluoroalkyl Substances by LC/MS/MS	EPA	EET SAC
6010D	Metals (ICP)	SW846	EET SPK
6020B	Metals (ICP/MS)	SW846	EET SEA
7470A	Mercury (CVAA)	SW846	EET SPK
350.1	Nitrogen, Ammonia	EPA	EET DEN
SM 2320B	Alkalinity	SM	EET SPK
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET SPK
SM 5310B	Organic Carbon, Total (TOC)	SM	EET DEN
1633	Solid-Phase Extraction (SPE)	EPA	EET SAC
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET SEA
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET SPK
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET SEA
5030C	Purge and Trap	SW846	EET SPK
7470A	Preparation, Mercury	SW846	EET SPK
FILTRATION	Sample Filtration	None	EET SEA
FILTRATION	Sample Filtration	None	EET SPK

Protocol References:

EPA = US Environmental Protection Agency
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600
EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310
EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Eurofins Spokane
11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record

eurofins | Environment Testing America

Regulatory Program ☐ DW ☐ NPDES ☐ RCRA ☐ Other

Eurofins Environment Testing America

Client Contact	Project Manager: Sydney Bronson	Site Contact: Alex Navarra	Date:	COC No:
GeoEngineers, Inc.	Email: sbronson@geoengineers.com	Lab Contact:	Carrier:	1 of 1 COCs
523 E 2nd Ave	Tel/Fax: 509.570.0779			TALS Project #
Spokane, WA 99202	Analysis Turnaround Time			Sampler:
509.363.3125 Phone	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
FAX	TAT if different from Below: Standard			Walk-in Client:
Project Name: Marshall Landfill GWM	☐ 2 weeks			Lab Sampling:
Site: Marshall Landfill Site Design	☐ 1 week			Job / SDG No.
P O # 0504-104-01	☐ 2 days ☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	PFAS / EPA 1633	Ammonia as N / EPA 350.1	Alkalinity bicarbonate / SM 2320B	TDS / SM 2540C	TOC / SM 5310B	Total K, Mg, Na / EPA 6010D	Dissolved Fe, Ca, Mg / EPA 6010D[1]	Chloride, sulfate, nitrate, nitrite / EPA 300.0	Diss. Fe, Mn / EPA 6020B	Total Hg / EPA 7470A	Diss Hg / 7470A	Total As, Cd, Fe, Mn, Pb, Zn / EPA 6020B	Diss As, Cd, Fe, Mn, Pb, Zn / EPA 6020B[1]	PCE, 1,1,1 TCA / EPA 8260D	1,4-dioxane / EPA 8270E SIM	VOCs 8260D	Sample Specific Notes.
MW-11A:102824	10/28/24	1010	G	W	10			X	X	X	X	X	X	X	X									
MW-7B:102824	10/28/24	1110	G	W				X	X	X	X	X	X	X	X		X	X	X	X	X	X		
MW-15A:102824	10/28/24	1240	G	W				X	X	X	X	X	X	X	X									
MW-15:102824	10/28/24	1340	G	W				X	X	X	X	X	X	X	X									
MW-8B:102824	10/28/24	1510	G	W				X	X	X	X	X	X	X	X									
Trip Blank	10/28/24	0800	G	W																			X	

590-27772 Chain of Custody

Preservation Used. 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= Other

Possible Hazard Identification.
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments
DISSOLVED METALS LAB FILTERED

6.0 6.5 IR006

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No. | Cooler Temp. (°C): Obs'd: 5.3 Corr'd: 4.9 | Therm ID No.: IR005

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
[signature]	GeoEngineers	10/28/24 1602			
Relinquished by	Company	Date/Time:	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received in Laboratory by: [signature]	Company EEL SPK	Date/Time 10/28/24 1603

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler: N/A	Lab PM: Arrington, Randee E	Carrier Tracking No(s): N/A	COC No: 590-10013.1
Client Contact: Shipping/Receiving	Phone: N/A	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Washington		Job #: 590-27772-1
Address: 4955 Yarrow Street, ,	Due Date Requested: 11/11/2024			
City: Arvada	TAT Requested (days): N/A			
State, Zip: CO, 80002				
Phone: 303-736-0100(Tel) 303-431-7171(Fax)	PO #: N/A			
Email: N/A	WO #: N/A			
Project Name: Marshall Landfill GWM	Project #: 59002669			
Site: N/A	SSOW#: N/A			

Analysis Requested

Preservation Codes: -

Other: N/A

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	350.1	SM5310B/ (MOD) TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
MW-11A:102824 (590-27772-1)	10/28/24	10:10 Pacific	G	Water			X	X	2	
MW-7B:102824 (590-27772-2)	10/28/24	11:10 Pacific	G	Water			X	X	2	
MW-15A:102824 (590-27772-3)	10/28/24	12:40 Pacific	G	Water			X	X	2	
MW-15:102824 (590-27772-4)	10/28/24	13:40 Pacific	G	Water			X	X	2	
MW-8B:102824 (590-27772-5)	10/28/24	15:10 Pacific	G	Water			X	X	2	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)***
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	10/30/24 1550	EEC890	[signature]	10/31/24 0910	EEC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.6, CF:+.1, IR:TV1

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone. 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler: N/A	Lab PM: Arrington, Randee E	Carrier Tracking No(s): N/A	COC No: 590-10010 1
Client Contact: Shipping/Receiving	Phone: N/A	E-Mail: Randee.Arrington@et.eurofinsus com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note): State Program - Washington		Job #: 590-27772-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 11/11/2024			
City: West Sacramento	TAT Requested (days): N/A			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #: N/A			
Email: N/A	WO #: N/A			
Project Name: Marshall Landfill GWM	Project #: 59002669			
Site: N/A	SSOW#: N/A			

Analysis Requested

Preservation Codes:

Other: N/A

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1633/1633_SPE EPA 1633 Method List	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-11A.102824 (590-27772-1)	10/28/24	10:10 Pacific	G	Water			X	3	
MW-7B 102824 (590-27772-2)	10/28/24	11 10 Pacific	G	Water			X	3	
MW-15A.102824 (590-27772-3)	10/28/24	12.40 Pacific	G	Water			X	3	
MW-15 102824 (590-27772-4)	10/28/24	13.40 Pacific	G	Water			X	3	
MW-8B 102824 (590-27772-5)	10/28/24	15 10 Pacific	G	Water			X	3	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements.

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/30/24 1511	EESPO		11.1.24 930	EESNO
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks:
	2284022	0.7c

Ver: 10/10/2024

11/18/2024

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler: N/A	Lab PM: Arrington, Randee E	Carrier Tracking No(s): N/A	COC No: 590-10007.1
Client Contact: Shipping/Receiving	Phone: N/A	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Northwest,		Accreditations Required (See note): State Program - Washington		Job #: 590-27772-1
Address: 5755 8th Street East, ,	Due Date Requested: 11/11/2024			Preservation Codes: -
City: Tacoma	TAT Requested (days): N/A			
State, Zip: WA, 98424				
Phone: 253-922-2310(Tel)	PO #: N/A			
Email: N/A	WO #: N/A			
Project Name: Marshall Landfill	Project #: 59002669			
Site: N/A	SSOW#: N/A			Other: N/A

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020B/3005A (MOD) Total As, Cd, Fe, Mn, Pb & Zn	6020B/FILTRATION (MOD) Diss As, Cd, Fe, Mn, Pb & Zn	8270C_SIM_MS_ID/3510C_LVI 1,4-Dioxane	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-7B:102824 (590-27772-2)	10/28/24	11:10 Pacific	G	Water			X	X	X		

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification: Unconfirmed	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/29/24 1420	EETSPO		10/30/24 0940	EETNW
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: TBIL 1.5 12.3

Ver: 10/10/2024

11/18/2024

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-27772-1

Login Number: 27772
List Number: 1
Creator: Morris, Mackenzie 1

List Source: Eurofins Spokane

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	False	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-27772-1

Login Number: 27772
List Number: 2
Creator: Little, Matthew L

List Source: Eurofins Denver
List Creation: 10/31/24 05:39 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-27772-1

Login Number: 27772
List Number: 4
Creator: Simmons, Jason C

List Source: Eurofins Sacramento
List Creation: 11/01/24 01:35 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	2287022
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.7c 3.5c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-27772-1

Login Number: 27772
List Number: 3
Creator: Moore, Brook 1

List Source: Eurofins Seattle
List Creation: 10/31/24 05:38 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	cor 1.5 un 2.3 ID IR11
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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Sacramento Sample Receiving Notes (SSRN)

Job ____ 590-27772 Field Sheet

Tracking # 410804807989 6

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier
GSL / OnTrac / Goldstreak / USPS / Other_____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations
File in the job folder with the COC

Therm ID L-11 Corr Factor (+ / -) _____°C

Ice 1 Wet 1 Gel _____ Other _____

Cooler Custody Seal 2287922

Cooler ID. 2 2823

Temp Observed 0.1 °C Corrected: 0.1 °C

From Temp Blank ☐ Sandwich ☑ Sidewall ☐

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Frozen samples show signs of thaw?	☐	☐	☑

Initials. KP Date 11.1.24

Unpacking/Labeling The Samples	Yes	No	NA
Containers are not broken or leaking?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
COC is complete w/o discrepancies	☑	☐	☐
Sample custody seal?	☐	☐	☑
Sample containers have legible labels?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Is the Field Sampler's name on COC?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials KP Date 11.1.24

Notes:_____

Trizma Lot #(s): _____

Ammonium Acetate Lot #(s) _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☑	☐	☐
NCM Filed?	☐	☐	☑
Samples received within hold time?	☐	☐	☑
Log Release checked in TALS?	☐	☐	☑

Initials: KP Date: 11.1.24

eurofins | Environment Testing

Sacramento Sample Receiving Notes (SSRN)

Tracking # 410804802 9885

Job _____

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSL / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations
File in the job folder with the COC

Therm ID: 211 Corr Factor (+ / -) _____ °C

Ice 1 Wet 1 Gel _____ Other _____

Cooler Custody Seal: _____

Cooler ID 1 & 2

Temp Observed: 3.5 °C Corrected: 3.5 °C

From. Temp Blank ☐ Sandwich ☑ Sidewall ☐

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Frozen samples show signs of thaw?	☐	☐	☑

Initials KV Date 11.1.24

Unpacking/Labeling The Samples	Yes	No	NA
Containers are not broken or leaking?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
COC is complete w/o discrepancies	☑	☐	☐
Sample custody seal?	☐	☐	☑
Sample containers have legible labels?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Is the Field Sampler's name on COC?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials KV Date 11.1.24

Notes: _____

Trizma Lot #(s). _____

Ammonium Acetate Lot #(s): _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☑	☐	☐
NCM Filed?	☐	☐	☑
Samples received within hold time?	☐	☐	☑
Log Release checked in TALS?	☐	☐	☑

Initials KV Date 11.1.24

Isotope Dilution Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill GWM

Job ID: 590-27772-1

Method: 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		DXE							
Lab Sample ID	Client Sample ID	(40-140)							
590-27772-2	MW-7B:102824	56							
LCS 580-476706/2-A	Lab Control Sample	59							
LCSD 580-476706/3-A	Lab Control Sample Dup	56							
MB 580-476706/1-A	Method Blank	51							

Surrogate Legend

DXE = 1,4-Dioxane-d8

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA	PFPeA	13C5PHA	C4PFHA	C8PFOA	C9PFNA	C6PFDA	13C7PUA
Lab Sample ID	Client Sample ID	(5-130)	(40-130)	(40-130)	(40-130)	(40-130)	(40-130)	(40-130)	(30-130)
590-27772-1	MW-11A:102824	111	106	103	98.3	101	104	104	87.7
590-27772-2	MW-7B:102824	110	106	106	96.5	107	103	110	122
590-27772-3	MW-15A:102824	114	98.0	103	91.0	93.9	102	103	93.3
590-27772-4	MW-15:102824	107	98.2	103	94.1	103	101	96.2	93.2
590-27772-5	MW-8B:102824	108	99.1	102	93.3	101	101	107	96.2
LCS 320-812904/3-A	Lab Control Sample	104	93.1	98.8	96.0	99.1	93.5	102	103
LCSD 320-812904/4-A	Lab Control Sample Dup	107	99.8	98.4	95.9	103	108	101	94.5
LLCS 320-812904/2-A	Lab Control Sample	105	91.3	90.1	90.8	94.3	102	100	103
MB 320-812904/1-A	Method Blank	106	101	101	97.6	108	110	102	95.4

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFDoA	PFTDA	C3PFBS	C3PFHS	C8PFOS	PFOSA	d3NMFOS	d5NEFOS
Lab Sample ID	Client Sample ID	(10-130)	(10-130)	(40-135)	(40-130)	(40-130)	(40-130)	(40-170)	(25-135)
590-27772-1	MW-11A:102824	84.5	80.8	103	107	93.6	87.2	88.3	71.8
590-27772-2	MW-7B:102824	88.6	91.0	97.0	104	107	86.5	100	82.6
590-27772-3	MW-15A:102824	80.6	70.4	104	105	95.0	89.6	96.7	81.5
590-27772-4	MW-15:102824	72.7	69.3	104	105	94.8	84.7	82.7	69.4
590-27772-5	MW-8B:102824	88.8	82.1	103	103	97.2	81.9	91.6	80.2
LCS 320-812904/3-A	Lab Control Sample	85.2	86.2	106	99.9	95.0	82.0	87.9	85.2
LCSD 320-812904/4-A	Lab Control Sample Dup	79.9	70.3	104	104	102	86.8	98.5	87.7
LLCS 320-812904/2-A	Lab Control Sample	92.1	79.1	106	99.2	101	82.1	91.4	79.3
MB 320-812904/1-A	Method Blank	88.2	79.0	104	109	101	83.1	96.5	87.5

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		M242FTS	M282FTS	HFPODA	NMFM	NEFM	d5NPFSA	d3NMFSA	
Lab Sample ID	Client Sample ID	(40-200)	(40-300)	(40-130)	(10-130)	(10-130)	(10-130)	(10-130)	
590-27772-1	MW-11A:102824	94.3		108	77.0	69.6	70.6	76.0	
590-27772-2	MW-7B:102824	111	69.4	104	74.1	71.2	80.2	83.7	
590-27772-3	MW-15A:102824	93.7	73.7	103	68.6	68.0	72.0	76.4	
590-27772-4	MW-15:102824	81.1	74.7	101	64.2	60.2	65.8	68.0	
590-27772-5	MW-8B:102824	100	76.0	96.1	69.1	70.3	77.3	71.8	
LCS 320-812904/3-A	Lab Control Sample	91.1		103	74.5	71.1	73.3	78.0	
LCSD 320-812904/4-A	Lab Control Sample Dup	90.5		106	80.1	80.7	75.9	75.5	
LLCS 320-812904/2-A	Lab Control Sample	98.8		97.7	73.2	70.7	70.8	75.9	
MB 320-812904/1-A	Method Blank	89.7		106	77.0	81.0	71.8	73.3	

Surrogate Legend

PFBA = 13C4 PFBA

Isotope Dilution Summary

Client: GeoEngineers Inc
Job ID: 590-27772-1
Project/Site: Marshall Landfill GWM

PFPeA = 13C5 PFPeA
13C5PHA = 13C5 PFHxA
C4PFHA = 13C4 PFHpA
C8PFOA = 13C8 PFOA
C9PFNA = 13C9 PFNA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
C8PFOS = 13C8 PFOS
PFOSA = 13C8 FOSA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
M242FTS = 13C2 4:2 FTS
M282FTS = 13C2 8:2 FTS
HFPODA = 13C3 HFPO-DA
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
d5NPFSA = d5-NEtPFOSA
d3NMFSA = d3-NMePFOSA

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M262FTS (40-200)	M282FTS (40-300)						
590-27772-1 - RA	MW-11A:102824	91.7	87.6						
LCS 320-812904/3-A - RA	Lab Control Sample	85.3	69.7						
LCSD 320-812904/4-A - RA	Lab Control Sample Dup	99.1	91.3						
LLCS 320-812904/2-A - RA	Lab Control Sample	92.7	86.2						
MB 320-812904/1-A - RA	Method Blank	88.8	83.7						

Surrogate Legend

M262FTS = 13C2 6:2 FTS
M282FTS = 13C2 8:2 FTS

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	M262FTS (40-200)						
590-27772-2 - RA	MW-7B:102824	91.4						
590-27772-3 - RA	MW-15A:102824	87.5						
590-27772-4 - RA	MW-15:102824	91.5						
590-27772-5 - RA	MW-8B:102824	84.4						

Surrogate Legend

M262FTS = 13C2 6:2 FTS

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1 2 3 4 5 6 7 8 9 10 11 12 13 14

ANALYTICAL REPORT

PREPARED FOR

Attn: Sydney Bronson
GeoEngineers Inc
523 East Second Ave
Spokane, Washington 99202

Generated 11/18/2024 11:39:10 AM

JOB DESCRIPTION

Marshall Landfill

JOB NUMBER

590-27797-1

Eurofins Spokane
11922 East 1st Ave
Spokane WA 99206

See page two for job notes and contact information.

myEOL

Job Notes

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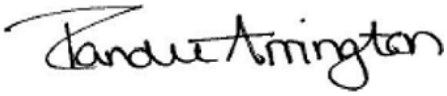
The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northwest, LLC Project Manager.

Authorization



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Job Narrative
590-27797-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 10/29/2024 3:08 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 3.3°C and 4.9°C.

GC/MS VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS Semi VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

PFAS
Method 1633_Final: The "I" qualifier means the transition mass ratio for the indicated analyte was outside the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty. The associated analytes have been flagged: MW-16:102924 (590-27797-3).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
Method 6010D - Total Recoverable: The low level initial calibration verification (ICVL) associated with batch 590-50809 recovered above the upper control limit for Potassium and Sodium. The samples associated with this ICVL were either 10x the spike amount, have hits below the RL, or non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
Method 2320B: The method blank for analytical batch 590-50757 contained Alkalinity and Bicarbonate Alkalinity as CaCO3 above the method detection limit (MDL) but below the reporting limit (RL). Associated sample(s) were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the method blank.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Sample Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-27797-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-27797-1	MW-9A:102924	Water	10/29/24 09:40	10/29/24 15:08
590-27797-2	MW-4A:102924	Water	10/29/24 10:40	10/29/24 15:08
590-27797-3	MW-16:102924	Water	10/29/24 11:40	10/29/24 15:08
590-27797-4	MW-5A:102924	Water	10/29/24 13:00	10/29/24 15:08
590-27797-5	Trip Blank	Water	10/29/24 08:00	10/29/24 15:08
590-27797-6	Equipment Blank	Water	10/29/24 14:00	10/29/24 15:08
590-27797-7	Field Blank	Water	10/29/24 14:00	10/29/24 15:08
590-27797-8	DUP:102924	Water	10/29/24 08:00	10/29/24 15:08

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

LCMS

Qualifier	Qualifier Description
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
^1+	Initial Calibration Verification (ICV) is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-27797-1

Client Sample ID: MW-9A:102924
Date Collected: 10/29/24 09:40
Date Received: 10/29/24 15:08

Lab Sample ID: 590-27797-1
Matrix: Water

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**60**		0.80	0.42	mg/L			10/30/24 12:01	1
Nitrate as N	ND		0.20	0.057	mg/L			10/30/24 12:01	1
Nitrite as N	ND		0.20	0.069	mg/L			10/30/24 12:01	1
Sulfate	**11**		0.50	0.13	mg/L			10/30/24 12:01	1

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.0**	**J**	3.2	0.80	ng/L		11/07/24 07:08	11/11/24 23:19	1
Perfluoropentanoic acid (PFPeA)	**1.8**		1.6	0.40	ng/L		11/07/24 07:08	11/11/24 23:19	1
Perfluorohexanoic acid (PFHxA)	**0.94**	**J**	1.6	0.40	ng/L		11/07/24 07:08	11/11/24 23:19	1
Perfluoroheptanoic acid (PFHpA)	**0.49**	**J**	1.6	0.40	ng/L		11/07/24 07:08	11/11/24 23:19	1
Perfluorooctanoic acid (PFOA)	**3.0**		1.6	0.40	ng/L		11/07/24 07:08	11/11/24 23:19	1
Perfluorononanoic acid (PFNA)	**0.64**	**J**	1.6	0.40	ng/L		11/07/24 07:08	11/11/24 23:19	1
Perfluorodecanoic acid (PFDA)	ND		1.6	0.40	ng/L		11/07/24 07:08	11/11/24 23:19	1
Perfluoroundecanoic acid (PFUnA)	ND		1.6	0.40	ng/L		11/07/24 07:08	11/11/24 23:19	1
Perfluorododecanoic acid (PFDoA)	ND		1.6	0.44	ng/L		11/07/24 07:08	11/11/24 23:19	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.6	0.47	ng/L		11/07/24 07:08	11/11/24 23:19	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.6	0.65	ng/L		11/07/24 07:08	11/11/24 23:19	1
Perfluorobutanesulfonic acid (PFBS)	**3.0**		1.6	0.40	ng/L		11/07/24 07:08	11/11/24 23:19	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.6	0.40	ng/L		11/07/24 07:08	11/11/24 23:19	1
Perfluorohexanesulfonic acid (PFHxS)	**1.0**	**J**	1.6	0.40	ng/L		11/07/24 07:08	11/11/24 23:19	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.6	0.40	ng/L		11/07/24 07:08	11/11/24 23:19	1
Perfluorooctanesulfonic acid (PFOS)	**4.5**		1.6	0.40	ng/L		11/07/24 07:08	11/11/24 23:19	1
Perfluorononanesulfonic acid (PFNS)	ND		1.6	0.40	ng/L		11/07/24 07:08	11/11/24 23:19	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.6	0.40	ng/L		11/07/24 07:08	11/11/24 23:19	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.6	0.43	ng/L		11/07/24 07:08	11/11/24 23:19	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		3.2	0.80	ng/L		11/07/24 07:08	11/11/24 23:19	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		3.2	0.80	ng/L		11/07/24 07:08	11/11/24 23:19	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.6	0.40	ng/L		11/07/24 07:08	11/11/24 23:19	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.6	0.40	ng/L		11/07/24 07:08	11/11/24 23:19	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.6	0.40	ng/L		11/07/24 07:08	11/11/24 23:19	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.6	0.40	ng/L		11/07/24 07:08	11/11/24 23:19	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.6	0.40	ng/L		11/07/24 07:08	11/11/24 23:19	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		8.0	2.0	ng/L		11/07/24 07:08	11/11/24 23:19	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		8.0	2.0	ng/L		11/07/24 07:08	11/11/24 23:19	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.2	0.31	ng/L		11/07/24 07:08	11/11/24 23:19	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.6	0.40	ng/L		11/07/24 07:08	11/11/24 23:19	1

Client Sample ID: MW-9A:102924
Date Collected: 10/29/24 09:40
Date Received: 10/29/24 15:08

Lab Sample ID: 590-27797-1
Matrix: Water

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.6	0.40	ng/L		11/07/24 07:08	11/11/24 23:19	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.6	0.40	ng/L		11/07/24 07:08	11/11/24 23:19	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.6	0.58	ng/L		11/07/24 07:08	11/11/24 23:19	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1.6	0.47	ng/L		11/07/24 07:08	11/11/24 23:19	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1.6	0.40	ng/L		11/07/24 07:08	11/11/24 23:19	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.6	0.40	ng/L		11/07/24 07:08	11/11/24 23:19	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		3.2	0.80	ng/L		11/07/24 07:08	11/11/24 23:19	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		8.0	2.0	ng/L		11/07/24 07:08	11/11/24 23:19	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		8.0	2.0	ng/L		11/07/24 07:08	11/11/24 23:19	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*103*		*5 - 130*	*11/07/24 07:08*	*11/11/24 23:19*	*1*
13C5 PFPeA	*97.7*		*40 - 130*	*11/07/24 07:08*	*11/11/24 23:19*	*1*
13C5 PFHxA	*102*		*40 - 130*	*11/07/24 07:08*	*11/11/24 23:19*	*1*
13C4 PFHpA	*91.3*		*40 - 130*	*11/07/24 07:08*	*11/11/24 23:19*	*1*
13C8 PFOA	*101*		*40 - 130*	*11/07/24 07:08*	*11/11/24 23:19*	*1*
13C9 PFNA	*97.7*		*40 - 130*	*11/07/24 07:08*	*11/11/24 23:19*	*1*
13C6 PFDA	*99.2*		*40 - 130*	*11/07/24 07:08*	*11/11/24 23:19*	*1*
13C7 PFUnA	*93.1*		*30 - 130*	*11/07/24 07:08*	*11/11/24 23:19*	*1*
13C2 PFDoA	*71.5*		*10 - 130*	*11/07/24 07:08*	*11/11/24 23:19*	*1*
13C2 PFTeDA	*54.8*		*10 - 130*	*11/07/24 07:08*	*11/11/24 23:19*	*1*
13C3 PFBS	*101*		*40 - 135*	*11/07/24 07:08*	*11/11/24 23:19*	*1*
13C3 PFHxS	*102*		*40 - 130*	*11/07/24 07:08*	*11/11/24 23:19*	*1*
13C8 PFOS	*90.1*		*40 - 130*	*11/07/24 07:08*	*11/11/24 23:19*	*1*
13C8 FOSA	*80.1*		*40 - 130*	*11/07/24 07:08*	*11/11/24 23:19*	*1*
d3-NMeFOSAA	*87.3*		*40 - 170*	*11/07/24 07:08*	*11/11/24 23:19*	*1*
d5-NEtFOSAA	*73.1*		*25 - 135*	*11/07/24 07:08*	*11/11/24 23:19*	*1*
13C2 4:2 FTS	*92.7*		*40 - 200*	*11/07/24 07:08*	*11/11/24 23:19*	*1*
13C2 8:2 FTS	*66.9*		*40 - 300*	*11/07/24 07:08*	*11/11/24 23:19*	*1*
13C3 HFPO-DA	*97.8*		*40 - 130*	*11/07/24 07:08*	*11/11/24 23:19*	*1*
d7-N-MeFOSE-M	*58.8*		*10 - 130*	*11/07/24 07:08*	*11/11/24 23:19*	*1*
d9-N-EtFOSE-M	*55.9*		*10 - 130*	*11/07/24 07:08*	*11/11/24 23:19*	*1*
d5-NEtPFOSA	*61.3*		*10 - 130*	*11/07/24 07:08*	*11/11/24 23:19*	*1*
d3-NMePFOSA	*70.4*		*10 - 130*	*11/07/24 07:08*	*11/11/24 23:19*	*1*

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		3.2	0.80	ng/L		11/07/24 07:08	11/16/24 18:01	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 6:2 FTS	*89.5*		*40 - 200*	*11/07/24 07:08*	*11/16/24 18:01*	*1*

Client Sample ID: MW-9A:102924

Lab Sample ID: 590-27797-1

Date Collected: 10/29/24 09:40

Matrix: Water

Date Received: 10/29/24 15:08

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**19**		0.50	0.13	mg/L		11/08/24 09:52	11/11/24 21:52	1
Potassium	**8.8**	**^1+**	2.0	0.29	mg/L		11/08/24 09:52	11/11/24 21:52	1
Sodium	**44**	**^1+**	2.0	0.20	mg/L		11/08/24 09:52	11/11/24 21:52	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**38**		1.0	0.20	mg/L		11/08/24 09:54	11/08/24 17:47	1
Iron	ND		2.0	0.074	mg/L		11/08/24 09:54	11/08/24 17:47	1
Magnesium	**16**		0.50	0.13	mg/L		11/08/24 09:54	11/08/24 17:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	ND		0.10	0.029	mg/L			11/02/24 13:16	1
Alkalinity (SM 2320B)	**200**	**B**	20	5.0	mg/L			11/08/24 11:28	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**200**	**B**	20	5.0	mg/L			11/08/24 11:28	1
Total Dissolved Solids (SM 2540C)	**290**		25	13	mg/L			11/04/24 10:48	1
Total Organic Carbon - Duplicates (SM 5310B)	**4.0**		1.0	0.35	mg/L			11/06/24 11:04	1

Client Sample ID: MW-4A:102924

Lab Sample ID: 590-27797-2

Date Collected: 10/29/24 10:40

Matrix: Water

Date Received: 10/29/24 15:08

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**47**		0.80	0.42	mg/L			10/30/24 12:11	1
Nitrate as N	**1.1**		0.20	0.057	mg/L			10/30/24 12:11	1
Nitrite as N	ND		0.20	0.069	mg/L			10/30/24 12:11	1
Sulfate	**14**		0.50	0.13	mg/L			10/30/24 12:11	1

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.1	0.76	ng/L		11/07/24 07:08	11/12/24 00:00	1
Perfluoropentanoic acid (PFPeA)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:00	1
Perfluorohexanoic acid (PFHxA)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:00	1
Perfluoroheptanoic acid (PFHpA)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:00	1
Perfluorooctanoic acid (PFOA)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:00	1
Perfluorononanoic acid (PFNA)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:00	1
Perfluorodecanoic acid (PFDA)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:00	1
Perfluoroundecanoic acid (PFUnA)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:00	1
Perfluorododecanoic acid (PFDoA)	ND		1.5	0.42	ng/L		11/07/24 07:08	11/12/24 00:00	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.5	0.44	ng/L		11/07/24 07:08	11/12/24 00:00	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.5	0.62	ng/L		11/07/24 07:08	11/12/24 00:00	1
Perfluorobutanesulfonic acid (PFBS)	**0.95**	**J**	1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:00	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:00	1
Perfluorohexanesulfonic acid (PFHxS)	**0.61**	**J**	1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:00	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:00	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-27797-1

Client Sample ID: MW-4A:102924
Date Collected: 10/29/24 10:40
Date Received: 10/29/24 15:08

Lab Sample ID: 590-27797-2
Matrix: Water

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**1.7**		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:00	1
Perfluorononanesulfonic acid (PFNS)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:00	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:00	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.5	0.40	ng/L		11/07/24 07:08	11/12/24 00:00	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		3.1	0.76	ng/L		11/07/24 07:08	11/12/24 00:00	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		3.1	0.76	ng/L		11/07/24 07:08	11/12/24 00:00	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:00	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:00	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:00	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:00	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:00	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		7.6	1.9	ng/L		11/07/24 07:08	11/12/24 00:00	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		7.6	1.9	ng/L		11/07/24 07:08	11/12/24 00:00	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.1	0.30	ng/L		11/07/24 07:08	11/12/24 00:00	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:00	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:00	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:00	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.5	0.55	ng/L		11/07/24 07:08	11/12/24 00:00	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1.5	0.44	ng/L		11/07/24 07:08	11/12/24 00:00	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:00	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:00	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		3.1	0.76	ng/L		11/07/24 07:08	11/12/24 00:00	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		7.6	1.9	ng/L		11/07/24 07:08	11/12/24 00:00	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		7.6	1.9	ng/L		11/07/24 07:08	11/12/24 00:00	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*108*		*5 - 130*	*11/07/24 07:08*	*11/12/24 00:00*	*1*
13C5 PFPeA	*89.4*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:00*	*1*
13C5 PFHxA	*104*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:00*	*1*
13C4 PFHpA	*92.4*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:00*	*1*
13C8 PFOA	*101*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:00*	*1*
13C9 PFNA	*100*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:00*	*1*
13C6 PFDA	*98.2*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:00*	*1*
13C7 PFUnA	*85.6*		*30 - 130*	*11/07/24 07:08*	*11/12/24 00:00*	*1*

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-27797-1

Client Sample ID: MW-4A:102924

Date Collected: 10/29/24 10:40
Date Received: 10/29/24 15:08

Lab Sample ID: 590-27797-2

Matrix: Water

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDoA	*67.9*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:00*	*1*
13C2 PFTeDA	*58.8*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:00*	*1*
13C3 PFBS	*111*		*40 - 135*	*11/07/24 07:08*	*11/12/24 00:00*	*1*
13C3 PFHxS	*102*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:00*	*1*
13C8 PFOS	*86.1*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:00*	*1*
13C8 FOSA	*83.4*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:00*	*1*
d3-NMeFOSAA	*96.0*		*40 - 170*	*11/07/24 07:08*	*11/12/24 00:00*	*1*
d5-NEtFOSAA	*75.9*		*25 - 135*	*11/07/24 07:08*	*11/12/24 00:00*	*1*
13C2 4:2 FTS	*101*		*40 - 200*	*11/07/24 07:08*	*11/12/24 00:00*	*1*
13C2 8:2 FTS	*70.5*		*40 - 300*	*11/07/24 07:08*	*11/12/24 00:00*	*1*
13C3 HFPO-DA	*102*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:00*	*1*
d7-N-MeFOSE-M	*71.4*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:00*	*1*
d9-N-EtFOSE-M	*62.7*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:00*	*1*
d5-NEtPFOSA	*71.2*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:00*	*1*
d3-NMePFOSA	*74.6*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:00*	*1*

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		3.1	0.76	ng/L		11/07/24 07:08	11/16/24 18:14	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 6:2 FTS	*90.0*		*40 - 200*	*11/07/24 07:08*	*11/16/24 18:14*	*1*

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**13**		0.50	0.13	mg/L		11/08/24 09:52	11/11/24 21:57	1
Potassium	**5.9**	**^1+**	2.0	0.29	mg/L		11/08/24 09:52	11/11/24 21:57	1
Sodium	**34**	**^1+**	2.0	0.20	mg/L		11/08/24 09:52	11/11/24 21:57	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**29**		1.0	0.20	mg/L		11/08/24 09:54	11/08/24 17:52	1
Iron	ND		2.0	0.074	mg/L		11/08/24 09:54	11/08/24 17:52	1
Magnesium	**12**		0.50	0.13	mg/L		11/08/24 09:54	11/08/24 17:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	ND		0.10	0.029	mg/L			11/02/24 13:18	1
Alkalinity (SM 2320B)	**150**	**B**	20	5.0	mg/L			11/08/24 11:28	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**150**	**B**	20	5.0	mg/L			11/08/24 11:28	1
Total Dissolved Solids (SM 2540C)	**230**		25	13	mg/L			11/04/24 10:48	1
Total Organic Carbon - Duplicates (SM 5310B)	**2.9**		1.0	0.35	mg/L			11/06/24 11:21	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-27797-1

Client Sample ID: MW-16:102924
Date Collected: 10/29/24 11:40
Date Received: 10/29/24 15:08

Lab Sample ID: 590-27797-3
Matrix: Water

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**62**		0.80	0.42	mg/L			10/30/24 12:41	1
Nitrate as N	ND		0.20	0.057	mg/L			10/30/24 12:41	1
Nitrite as N	ND		0.20	0.069	mg/L			10/30/24 12:41	1
Sulfate	**10**		0.50	0.13	mg/L			10/30/24 12:41	1

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**22**		3.4	0.84	ng/L		11/07/24 07:08	11/12/24 00:14	1
Perfluoropentanoic acid (PFPeA)	**4.9**		1.7	0.42	ng/L		11/07/24 07:08	11/12/24 00:14	1
Perfluorohexanoic acid (PFHxA)	**2.8**		1.7	0.42	ng/L		11/07/24 07:08	11/12/24 00:14	1
Perfluoroheptanoic acid (PFHpA)	**0.56**	**J**	1.7	0.42	ng/L		11/07/24 07:08	11/12/24 00:14	1
Perfluorooctanoic acid (PFOA)	**3.5**		1.7	0.42	ng/L		11/07/24 07:08	11/12/24 00:14	1
Perfluorononanoic acid (PFNA)	**0.53**	**J**	1.7	0.42	ng/L		11/07/24 07:08	11/12/24 00:14	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.42	ng/L		11/07/24 07:08	11/12/24 00:14	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.42	ng/L		11/07/24 07:08	11/12/24 00:14	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.46	ng/L		11/07/24 07:08	11/12/24 00:14	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.7	0.49	ng/L		11/07/24 07:08	11/12/24 00:14	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.7	0.68	ng/L		11/07/24 07:08	11/12/24 00:14	1
Perfluorobutanesulfonic acid (PFBS)	**18**		1.7	0.42	ng/L		11/07/24 07:08	11/12/24 00:14	1
Perfluoropentanesulfonic acid (PFPeS)	**4.4**		1.7	0.42	ng/L		11/07/24 07:08	11/12/24 00:14	1
Perfluorohexanesulfonic acid (PFHxS)	**26**		1.7	0.42	ng/L		11/07/24 07:08	11/12/24 00:14	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.7	0.42	ng/L		11/07/24 07:08	11/12/24 00:14	1
Perfluorooctanesulfonic acid (PFOS)	**15**	**I**	1.7	0.42	ng/L		11/07/24 07:08	11/12/24 00:14	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.42	ng/L		11/07/24 07:08	11/12/24 00:14	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.42	ng/L		11/07/24 07:08	11/12/24 00:14	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.45	ng/L		11/07/24 07:08	11/12/24 00:14	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		3.4	0.84	ng/L		11/07/24 07:08	11/12/24 00:14	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		3.4	0.84	ng/L		11/07/24 07:08	11/12/24 00:14	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.7	0.42	ng/L		11/07/24 07:08	11/12/24 00:14	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.7	0.42	ng/L		11/07/24 07:08	11/12/24 00:14	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.7	0.42	ng/L		11/07/24 07:08	11/12/24 00:14	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.7	0.42	ng/L		11/07/24 07:08	11/12/24 00:14	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.7	0.42	ng/L		11/07/24 07:08	11/12/24 00:14	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		8.4	2.1	ng/L		11/07/24 07:08	11/12/24 00:14	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		8.4	2.1	ng/L		11/07/24 07:08	11/12/24 00:14	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.3	0.33	ng/L		11/07/24 07:08	11/12/24 00:14	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.42	ng/L		11/07/24 07:08	11/12/24 00:14	1

Client Sample ID: MW-16:102924
Date Collected: 10/29/24 11:40
Date Received: 10/29/24 15:08

Lab Sample ID: 590-27797-3
Matrix: Water

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.7	0.42	ng/L		11/07/24 07:08	11/12/24 00:14	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.7	0.42	ng/L		11/07/24 07:08	11/12/24 00:14	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.7	0.61	ng/L		11/07/24 07:08	11/12/24 00:14	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1.7	0.49	ng/L		11/07/24 07:08	11/12/24 00:14	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1.7	0.42	ng/L		11/07/24 07:08	11/12/24 00:14	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.7	0.42	ng/L		11/07/24 07:08	11/12/24 00:14	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		3.4	0.84	ng/L		11/07/24 07:08	11/12/24 00:14	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		8.4	2.1	ng/L		11/07/24 07:08	11/12/24 00:14	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		8.4	2.1	ng/L		11/07/24 07:08	11/12/24 00:14	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*112*		*5 - 130*	*11/07/24 07:08*	*11/12/24 00:14*	*1*
13C5 PFPeA	*93.7*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:14*	*1*
13C5 PFHxA	*102*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:14*	*1*
13C4 PFHpA	*99.9*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:14*	*1*
13C8 PFOA	*93.8*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:14*	*1*
13C9 PFNA	*101*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:14*	*1*
13C6 PFDA	*105*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:14*	*1*
13C7 PFUnA	*99.5*		*30 - 130*	*11/07/24 07:08*	*11/12/24 00:14*	*1*
13C2 PFDoA	*76.9*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:14*	*1*
13C2 PFTeDA	*73.2*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:14*	*1*
13C3 PFBS	*107*		*40 - 135*	*11/07/24 07:08*	*11/12/24 00:14*	*1*
13C3 PFHxS	*97.1*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:14*	*1*
13C8 PFOS	*93.4*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:14*	*1*
13C8 FOSA	*86.3*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:14*	*1*
d3-NMeFOSAA	*81.4*		*40 - 170*	*11/07/24 07:08*	*11/12/24 00:14*	*1*
d5-NEtFOSAA	*71.4*		*25 - 135*	*11/07/24 07:08*	*11/12/24 00:14*	*1*
13C2 4:2 FTS	*90.7*		*40 - 200*	*11/07/24 07:08*	*11/12/24 00:14*	*1*
13C2 8:2 FTS	*68.5*		*40 - 300*	*11/07/24 07:08*	*11/12/24 00:14*	*1*
13C3 HFPO-DA	*108*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:14*	*1*
d7-N-MeFOSE-M	*64.8*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:14*	*1*
d9-N-EtFOSE-M	*60.8*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:14*	*1*
d5-NEtPFOSA	*74.8*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:14*	*1*
d3-NMePFOSA	*72.5*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:14*	*1*

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		3.4	0.84	ng/L		11/07/24 07:08	11/16/24 18:28	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 6:2 FTS	*85.3*		*40 - 200*	*11/07/24 07:08*	*11/16/24 18:28*	*1*

Client Sample ID: MW-16:102924

Lab Sample ID: 590-27797-3

Date Collected: 10/29/24 11:40

Matrix: Water

Date Received: 10/29/24 15:08

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	18		0.50	0.13	mg/L		11/08/24 09:52	11/11/24 22:02	1
Potassium	7.4	^1+	2.0	0.29	mg/L		11/08/24 09:52	11/11/24 22:02	1
Sodium	37	^1+	2.0	0.20	mg/L		11/08/24 09:52	11/11/24 22:02	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	100		1.0	0.20	mg/L		11/08/24 09:54	11/08/24 17:57	1
Iron	ND		2.0	0.074	mg/L		11/08/24 09:54	11/08/24 17:57	1
Magnesium	15		0.50	0.13	mg/L		11/08/24 09:54	11/08/24 17:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	ND		0.10	0.029	mg/L			11/02/24 13:37	1
Alkalinity (SM 2320B)	190	B	20	5.0	mg/L			11/08/24 11:28	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	190	B	20	5.0	mg/L			11/08/24 11:28	1
Total Dissolved Solids (SM 2540C)	450		25	13	mg/L			11/04/24 10:48	1
Total Organic Carbon - Duplicates (SM 5310B)	4.3		1.0	0.35	mg/L			11/06/24 11:37	1

Client Sample ID: MW-5A:102924

Lab Sample ID: 590-27797-4

Date Collected: 10/29/24 13:00

Matrix: Water

Date Received: 10/29/24 15:08

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			11/04/24 17:15	1
Tetrachloroethene	0.60	J	1.0	0.22	ug/L			11/04/24 17:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 120*		*11/04/24 17:15*	*1*
4-Bromofluorobenzene (Surr)	*107*		*76 - 120*		*11/04/24 17:15*	*1*
Dibromofluoromethane (Surr)	*103*		*80 - 123*		*11/04/24 17:15*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*11/04/24 17:15*	*1*

Method: SW846 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.043	J	0.19	0.034	ug/L		11/04/24 09:10	11/05/24 13:56	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*55*		*40 - 140*	*11/04/24 09:10*	*11/05/24 13:56*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	54		0.80	0.42	mg/L			10/30/24 12:51	1
Nitrate as N	6.9		0.20	0.057	mg/L			10/30/24 12:51	1
Nitrite as N	ND		0.20	0.069	mg/L			10/30/24 12:51	1
Sulfate	70		0.50	0.13	mg/L			10/30/24 12:51	1

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	42		3.1	0.77	ng/L		11/07/24 07:08	11/12/24 00:28	1
Perfluoropentanoic acid (PFPeA)	44		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:28	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-27797-1

Client Sample ID: MW-5A:102924
Date Collected: 10/29/24 13:00
Date Received: 10/29/24 15:08

Lab Sample ID: 590-27797-4
Matrix: Water

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**61**		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:28	1
Perfluoroheptanoic acid (PFHpA)	**23**		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:28	1
Perfluorooctanoic acid (PFOA)	**52**		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:28	1
Perfluorononanoic acid (PFNA)	**1.4**	**J**	1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:28	1
Perfluorodecanoic acid (PFDA)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:28	1
Perfluoroundecanoic acid (PFUnA)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:28	1
Perfluorododecanoic acid (PFDoA)	ND		1.5	0.42	ng/L		11/07/24 07:08	11/12/24 00:28	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.5	0.44	ng/L		11/07/24 07:08	11/12/24 00:28	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.5	0.62	ng/L		11/07/24 07:08	11/12/24 00:28	1
Perfluorobutanesulfonic acid (PFBS)	**28**		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:28	1
Perfluoropentanesulfonic acid (PFPeS)	**18**		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:28	1
Perfluorohexanesulfonic acid (PFHxS)	**45**		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:28	1
Perfluoroheptanesulfonic acid (PFHpS)	**0.53**	**J**	1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:28	1
Perfluorooctanesulfonic acid (PFOS)	**20**		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:28	1
Perfluorononanesulfonic acid (PFNS)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:28	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:28	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.5	0.41	ng/L		11/07/24 07:08	11/12/24 00:28	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		3.1	0.77	ng/L		11/07/24 07:08	11/12/24 00:28	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		3.1	0.77	ng/L		11/07/24 07:08	11/12/24 00:28	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:28	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:28	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:28	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:28	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:28	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		7.7	1.9	ng/L		11/07/24 07:08	11/12/24 00:28	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		7.7	1.9	ng/L		11/07/24 07:08	11/12/24 00:28	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.2	0.30	ng/L		11/07/24 07:08	11/12/24 00:28	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:28	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:28	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:28	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.5	0.55	ng/L		11/07/24 07:08	11/12/24 00:28	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1.5	0.44	ng/L		11/07/24 07:08	11/12/24 00:28	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:28	1

Client Sample ID: MW-5A:102924
Date Collected: 10/29/24 13:00
Date Received: 10/29/24 15:08

Lab Sample ID: 590-27797-4
Matrix: Water

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.5	0.38	ng/L		11/07/24 07:08	11/12/24 00:28	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		3.1	0.77	ng/L		11/07/24 07:08	11/12/24 00:28	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		7.7	1.9	ng/L		11/07/24 07:08	11/12/24 00:28	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		7.7	1.9	ng/L		11/07/24 07:08	11/12/24 00:28	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*107*		*5 - 130*	*11/07/24 07:08*	*11/12/24 00:28*	*1*
13C5 PFPeA	*104*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:28*	*1*
13C5 PFHxA	*107*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:28*	*1*
13C4 PFHpA	*96.5*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:28*	*1*
13C8 PFOA	*94.2*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:28*	*1*
13C9 PFNA	*103*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:28*	*1*
13C6 PFDA	*101*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:28*	*1*
13C7 PFUnA	*88.2*		*30 - 130*	*11/07/24 07:08*	*11/12/24 00:28*	*1*
13C2 PFDoA	*80.2*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:28*	*1*
13C2 PFTeDA	*73.6*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:28*	*1*
13C3 PFBS	*107*		*40 - 135*	*11/07/24 07:08*	*11/12/24 00:28*	*1*
13C3 PFHxS	*105*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:28*	*1*
13C8 PFOS	*101*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:28*	*1*
13C8 FOSA	*83.0*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:28*	*1*
d3-NMeFOSAA	*86.7*		*40 - 170*	*11/07/24 07:08*	*11/12/24 00:28*	*1*
d5-NEtFOSAA	*70.5*		*25 - 135*	*11/07/24 07:08*	*11/12/24 00:28*	*1*
13C2 4:2 FTS	*95.9*		*40 - 200*	*11/07/24 07:08*	*11/12/24 00:28*	*1*
13C2 8:2 FTS	*69.2*		*40 - 300*	*11/07/24 07:08*	*11/12/24 00:28*	*1*
13C3 HFPO-DA	*101*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:28*	*1*
d7-N-MeFOSE-M	*67.6*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:28*	*1*
d9-N-EtFOSE-M	*65.9*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:28*	*1*
d5-NEtPFOSA	*77.3*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:28*	*1*
d3-NMePFOSA	*77.3*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:28*	*1*

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		3.1	0.77	ng/L		11/07/24 07:08	11/16/24 19:10	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 6:2 FTS	*86.5*		*40 - 200*	*11/07/24 07:08*	*11/16/24 19:10*	*1*

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**15**		0.50	0.13	mg/L		11/08/24 09:52	11/11/24 22:08	1
Potassium	**4.8**	**^1+**	2.0	0.29	mg/L		11/08/24 09:52	11/11/24 22:08	1
Sodium	**29**	**^1+**	2.0	0.20	mg/L		11/08/24 09:52	11/11/24 22:08	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**100**		1.0	0.20	mg/L		11/08/24 09:54	11/08/24 18:02	1
Iron	ND		2.0	0.074	mg/L		11/08/24 09:54	11/08/24 18:02	1
Magnesium	**15**		0.50	0.13	mg/L		11/08/24 09:54	11/08/24 18:02	1

Client Sample ID: MW-5A:102924

Lab Sample ID: 590-27797-4

Date Collected: 10/29/24 13:00

Matrix: Water

Date Received: 10/29/24 15:08

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0014**	**J**	0.0050	0.0010	mg/L		11/01/24 18:02	11/05/24 17:28	5
Cadmium	ND		0.0020	0.00019	mg/L		11/01/24 18:02	11/05/24 17:28	5
Iron	ND		0.50	0.067	mg/L		11/01/24 18:02	11/05/24 17:28	5
Lead	**0.00028**	**J B**	0.0020	0.00020	mg/L		11/01/24 18:02	11/05/24 17:28	5
Manganese	ND		0.010	0.0023	mg/L		11/01/24 18:02	11/05/24 17:28	5
Zinc	ND		0.035	0.0046	mg/L		11/01/24 18:02	11/05/24 17:28	5

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0014**	**J**	0.0050	0.0010	mg/L		11/04/24 17:02	11/05/24 18:23	5
Cadmium	ND		0.0020	0.00019	mg/L		11/04/24 17:02	11/05/24 18:23	5
Iron	ND		0.50	0.067	mg/L		11/04/24 17:02	11/05/24 18:23	5
Lead	**0.00023**	**J B**	0.0020	0.00020	mg/L		11/04/24 17:02	11/05/24 18:23	5
Manganese	ND		0.010	0.0023	mg/L		11/04/24 17:02	11/05/24 18:23	5
Zinc	ND		0.035	0.0046	mg/L		11/04/24 17:02	11/05/24 18:23	5

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		11/11/24 11:28	11/11/24 17:53	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		11/08/24 09:59	11/08/24 17:03	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	ND		0.10	0.029	mg/L			11/02/24 13:44	1
Alkalinity (SM 2320B)	**270**	**B**	20	5.0	mg/L			11/08/24 11:28	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**270**	**B**	20	5.0	mg/L			11/08/24 11:28	1
Total Dissolved Solids (SM 2540C)	**280**		25	13	mg/L			11/04/24 10:48	1
Total Organic Carbon - Duplicates (SM 5310B)	**2.4**		1.0	0.35	mg/L			11/06/24 13:12	1

Client Sample ID: Trip Blank

Lab Sample ID: 590-27797-5

Date Collected: 10/29/24 08:00

Matrix: Water

Date Received: 10/29/24 15:08

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			11/04/24 17:37	1
Tetrachloroethene	ND		1.0	0.22	ug/L			11/04/24 17:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*80 - 120*		*11/04/24 17:37*	*1*
4-Bromofluorobenzene (Surr)	*106*		*76 - 120*		*11/04/24 17:37*	*1*
Dibromofluoromethane (Surr)	*104*		*80 - 123*		*11/04/24 17:37*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*11/04/24 17:37*	*1*

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-27797-1

Client Sample ID: Equipment Blank
Date Collected: 10/29/24 14:00
Date Received: 10/29/24 15:08

Lab Sample ID: 590-27797-6
Matrix: Water

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.1	0.78	ng/L		11/07/24 07:08	11/12/24 00:42	1
Perfluoropentanoic acid (PFPeA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/12/24 00:42	1
Perfluorohexanoic acid (PFHxA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/12/24 00:42	1
Perfluoroheptanoic acid (PFHpA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/12/24 00:42	1
Perfluorooctanoic acid (PFOA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/12/24 00:42	1
Perfluorononanoic acid (PFNA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/12/24 00:42	1
Perfluorodecanoic acid (PFDA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/12/24 00:42	1
Perfluoroundecanoic acid (PFUnA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/12/24 00:42	1
Perfluorododecanoic acid (PFDoA)	ND		1.6	0.43	ng/L		11/07/24 07:08	11/12/24 00:42	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.6	0.45	ng/L		11/07/24 07:08	11/12/24 00:42	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.6	0.64	ng/L		11/07/24 07:08	11/12/24 00:42	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/12/24 00:42	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/12/24 00:42	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/12/24 00:42	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/12/24 00:42	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/12/24 00:42	1
Perfluorononanesulfonic acid (PFNS)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/12/24 00:42	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/12/24 00:42	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.6	0.42	ng/L		11/07/24 07:08	11/12/24 00:42	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		3.1	0.78	ng/L		11/07/24 07:08	11/12/24 00:42	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		3.1	0.78	ng/L		11/07/24 07:08	11/12/24 00:42	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/12/24 00:42	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/12/24 00:42	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/12/24 00:42	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/12/24 00:42	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/12/24 00:42	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		7.8	2.0	ng/L		11/07/24 07:08	11/12/24 00:42	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		7.8	2.0	ng/L		11/07/24 07:08	11/12/24 00:42	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.2	0.31	ng/L		11/07/24 07:08	11/12/24 00:42	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/12/24 00:42	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/12/24 00:42	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/12/24 00:42	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.6	0.56	ng/L		11/07/24 07:08	11/12/24 00:42	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1.6	0.45	ng/L		11/07/24 07:08	11/12/24 00:42	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/12/24 00:42	1

Client Sample ID: Equipment Blank

Lab Sample ID: 590-27797-6

Date Collected: 10/29/24 14:00

Matrix: Water

Date Received: 10/29/24 15:08

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.6	0.39	ng/L		11/07/24 07:08	11/12/24 00:42	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		3.1	0.78	ng/L		11/07/24 07:08	11/12/24 00:42	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		7.8	2.0	ng/L		11/07/24 07:08	11/12/24 00:42	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		7.8	2.0	ng/L		11/07/24 07:08	11/12/24 00:42	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*110*		*5 - 130*	*11/07/24 07:08*	*11/12/24 00:42*	*1*
13C5 PFPeA	*99.1*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:42*	*1*
13C5 PFHxA	*102*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:42*	*1*
13C4 PFHpA	*97.8*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:42*	*1*
13C8 PFOA	*103*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:42*	*1*
13C9 PFNA	*106*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:42*	*1*
13C6 PFDA	*113*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:42*	*1*
13C7 PFUnA	*113*		*30 - 130*	*11/07/24 07:08*	*11/12/24 00:42*	*1*
13C2 PFDoA	*101*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:42*	*1*
13C2 PFTeDA	*72.2*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:42*	*1*
13C3 PFBS	*104*		*40 - 135*	*11/07/24 07:08*	*11/12/24 00:42*	*1*
13C3 PFHxS	*108*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:42*	*1*
13C8 PFOS	*106*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:42*	*1*
13C8 FOSA	*97.9*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:42*	*1*
d3-NMeFOSAA	*98.9*		*40 - 170*	*11/07/24 07:08*	*11/12/24 00:42*	*1*
d5-NEtFOSAA	*85.1*		*25 - 135*	*11/07/24 07:08*	*11/12/24 00:42*	*1*
13C2 4:2 FTS	*89.0*		*40 - 200*	*11/07/24 07:08*	*11/12/24 00:42*	*1*
13C2 8:2 FTS	*82.0*		*40 - 300*	*11/07/24 07:08*	*11/12/24 00:42*	*1*
13C3 HFPO-DA	*101*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:42*	*1*
d7-N-MeFOSE-M	*74.1*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:42*	*1*
d9-N-EtFOSE-M	*74.8*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:42*	*1*
d5-NEtPFOSA	*82.2*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:42*	*1*
d3-NMePFOSA	*87.1*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:42*	*1*

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		3.1	0.78	ng/L		11/07/24 07:08	11/16/24 19:24	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 6:2 FTS	*88.2*		*40 - 200*	*11/07/24 07:08*	*11/16/24 19:24*	*1*

Client Sample ID: Field Blank

Lab Sample ID: 590-27797-7

Date Collected: 10/29/24 14:00

Matrix: Water

Date Received: 10/29/24 15:08

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.1	0.77	ng/L		11/07/24 07:08	11/12/24 00:56	1
Perfluoropentanoic acid (PFPeA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/12/24 00:56	1
Perfluorohexanoic acid (PFHxA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/12/24 00:56	1
Perfluoroheptanoic acid (PFHpA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/12/24 00:56	1
Perfluorooctanoic acid (PFOA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/12/24 00:56	1

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-27797-1

Client Sample ID: Field Blank
Date Collected: 10/29/24 14:00
Date Received: 10/29/24 15:08

Lab Sample ID: 590-27797-7
Matrix: Water

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/12/24 00:56	1
Perfluorodecanoic acid (PFDA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/12/24 00:56	1
Perfluoroundecanoic acid (PFUnA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/12/24 00:56	1
Perfluorododecanoic acid (PFDoA)	ND		1.5	0.42	ng/L		11/07/24 07:08	11/12/24 00:56	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.5	0.45	ng/L		11/07/24 07:08	11/12/24 00:56	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.5	0.63	ng/L		11/07/24 07:08	11/12/24 00:56	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/12/24 00:56	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/12/24 00:56	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/12/24 00:56	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/12/24 00:56	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/12/24 00:56	1
Perfluorononanesulfonic acid (PFNS)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/12/24 00:56	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/12/24 00:56	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.5	0.41	ng/L		11/07/24 07:08	11/12/24 00:56	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		3.1	0.77	ng/L		11/07/24 07:08	11/12/24 00:56	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		3.1	0.77	ng/L		11/07/24 07:08	11/12/24 00:56	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/12/24 00:56	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/12/24 00:56	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/12/24 00:56	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/12/24 00:56	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/12/24 00:56	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		7.7	1.9	ng/L		11/07/24 07:08	11/12/24 00:56	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		7.7	1.9	ng/L		11/07/24 07:08	11/12/24 00:56	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.2	0.30	ng/L		11/07/24 07:08	11/12/24 00:56	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/12/24 00:56	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/12/24 00:56	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/12/24 00:56	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.5	0.56	ng/L		11/07/24 07:08	11/12/24 00:56	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1.5	0.45	ng/L		11/07/24 07:08	11/12/24 00:56	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/12/24 00:56	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/12/24 00:56	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		3.1	0.77	ng/L		11/07/24 07:08	11/12/24 00:56	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		7.7	1.9	ng/L		11/07/24 07:08	11/12/24 00:56	1

Client Sample ID: Field Blank

Lab Sample ID: 590-27797-7

Date Collected: 10/29/24 14:00

Matrix: Water

Date Received: 10/29/24 15:08

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		7.7	1.9	ng/L		11/07/24 07:08	11/12/24 00:56	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*114*		*5 - 130*	*11/07/24 07:08*	*11/12/24 00:56*	*1*
13C5 PFPeA	*108*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:56*	*1*
13C5 PFHxA	*117*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:56*	*1*
13C4 PFHpA	*112*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:56*	*1*
13C8 PFOA	*109*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:56*	*1*
13C9 PFNA	*103*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:56*	*1*
13C6 PFDA	*106*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:56*	*1*
13C7 PFUnA	*98.9*		*30 - 130*	*11/07/24 07:08*	*11/12/24 00:56*	*1*
13C2 PFDoA	*84.1*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:56*	*1*
13C2 PFTeDA	*81.5*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:56*	*1*
13C3 PFBS	*101*		*40 - 135*	*11/07/24 07:08*	*11/12/24 00:56*	*1*
13C3 PFHxS	*109*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:56*	*1*
13C8 PFOS	*102*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:56*	*1*
13C8 FOSA	*84.8*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:56*	*1*
d3-NMeFOSAA	*94.7*		*40 - 170*	*11/07/24 07:08*	*11/12/24 00:56*	*1*
d5-NEtFOSAA	*83.7*		*25 - 135*	*11/07/24 07:08*	*11/12/24 00:56*	*1*
13C2 4:2 FTS	*97.8*		*40 - 200*	*11/07/24 07:08*	*11/12/24 00:56*	*1*
13C2 8:2 FTS	*69.7*		*40 - 300*	*11/07/24 07:08*	*11/12/24 00:56*	*1*
13C3 HFPO-DA	*114*		*40 - 130*	*11/07/24 07:08*	*11/12/24 00:56*	*1*
d7-N-MeFOSE-M	*67.3*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:56*	*1*
d9-N-EtFOSE-M	*73.3*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:56*	*1*
d5-NEtPFOSA	*77.8*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:56*	*1*
d3-NMePFOSA	*73.9*		*10 - 130*	*11/07/24 07:08*	*11/12/24 00:56*	*1*

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		3.1	0.77	ng/L		11/07/24 07:08	11/16/24 19:38	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 6:2 FTS	*76.3*		*40 - 200*	*11/07/24 07:08*	*11/16/24 19:38*	*1*

Client Sample ID: DUP:102924

Lab Sample ID: 590-27797-8

Date Collected: 10/29/24 08:00

Matrix: Water

Date Received: 10/29/24 15:08

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			11/04/24 18:20	1
Tetrachloroethene	0.69	J	1.0	0.22	ug/L			11/04/24 18:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*80 - 120*		*11/04/24 18:20*	*1*
4-Bromofluorobenzene (Surr)	*107*		*76 - 120*		*11/04/24 18:20*	*1*
Dibromofluoromethane (Surr)	*103*		*80 - 123*		*11/04/24 18:20*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*11/04/24 18:20*	*1*

Client Sample ID: DUP:102924
Date Collected: 10/29/24 08:00
Date Received: 10/29/24 15:08

Lab Sample ID: 590-27797-8
Matrix: Water

Method: SW846 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.046	J	0.19	0.034	ug/L		11/04/24 09:10	11/05/24 14:10	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*55*		*40 - 140*	*11/04/24 09:10*	*11/05/24 14:10*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	53		0.80	0.42	mg/L			10/30/24 13:01	1
Nitrate as N	6.9		0.20	0.057	mg/L			10/30/24 13:01	1
Nitrite as N	ND		0.20	0.069	mg/L			10/30/24 13:01	1
Sulfate	69		0.50	0.13	mg/L			10/30/24 13:01	1

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	40		2.8	0.71	ng/L		11/07/24 07:08	11/12/24 01:09	1
Perfluoropentanoic acid (PFPeA)	47		1.4	0.35	ng/L		11/07/24 07:08	11/12/24 01:09	1
Perfluorohexanoic acid (PFHxA)	62		1.4	0.35	ng/L		11/07/24 07:08	11/12/24 01:09	1
Perfluoroheptanoic acid (PFHpA)	25		1.4	0.35	ng/L		11/07/24 07:08	11/12/24 01:09	1
Perfluorooctanoic acid (PFOA)	45		1.4	0.35	ng/L		11/07/24 07:08	11/12/24 01:09	1
Perfluorononanoic acid (PFNA)	1.4		1.4	0.35	ng/L		11/07/24 07:08	11/12/24 01:09	1
Perfluorodecanoic acid (PFDA)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/12/24 01:09	1
Perfluoroundecanoic acid (PFUnA)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/12/24 01:09	1
Perfluorododecanoic acid (PFDoA)	ND		1.4	0.39	ng/L		11/07/24 07:08	11/12/24 01:09	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.4	0.41	ng/L		11/07/24 07:08	11/12/24 01:09	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.4	0.57	ng/L		11/07/24 07:08	11/12/24 01:09	1
Perfluorobutanesulfonic acid (PFBS)	29		1.4	0.35	ng/L		11/07/24 07:08	11/12/24 01:09	1
Perfluoropentanesulfonic acid (PFPeS)	17		1.4	0.35	ng/L		11/07/24 07:08	11/12/24 01:09	1
Perfluorohexanesulfonic acid (PFHxS)	45		1.4	0.35	ng/L		11/07/24 07:08	11/12/24 01:09	1
Perfluoroheptanesulfonic acid (PFHpS)	0.63	J	1.4	0.35	ng/L		11/07/24 07:08	11/12/24 01:09	1
Perfluorooctanesulfonic acid (PFOS)	22		1.4	0.35	ng/L		11/07/24 07:08	11/12/24 01:09	1
Perfluorononanesulfonic acid (PFNS)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/12/24 01:09	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/12/24 01:09	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.4	0.37	ng/L		11/07/24 07:08	11/12/24 01:09	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		2.8	0.71	ng/L		11/07/24 07:08	11/12/24 01:09	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		2.8	0.71	ng/L		11/07/24 07:08	11/12/24 01:09	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/12/24 01:09	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/12/24 01:09	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/12/24 01:09	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/12/24 01:09	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/12/24 01:09	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		7.1	1.8	ng/L		11/07/24 07:08	11/12/24 01:09	1

Client Sample ID: DUP:102924
Date Collected: 10/29/24 08:00
Date Received: 10/29/24 15:08

Lab Sample ID: 590-27797-8
Matrix: Water

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		7.1	1.8	ng/L		11/07/24 07:08	11/12/24 01:09	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.1	0.28	ng/L		11/07/24 07:08	11/12/24 01:09	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/12/24 01:09	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/12/24 01:09	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/12/24 01:09	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.4	0.51	ng/L		11/07/24 07:08	11/12/24 01:09	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1.4	0.41	ng/L		11/07/24 07:08	11/12/24 01:09	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/12/24 01:09	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.4	0.35	ng/L		11/07/24 07:08	11/12/24 01:09	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		2.8	0.71	ng/L		11/07/24 07:08	11/12/24 01:09	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		7.1	1.8	ng/L		11/07/24 07:08	11/12/24 01:09	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		7.1	1.8	ng/L		11/07/24 07:08	11/12/24 01:09	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*114*		*5 - 130*	*11/07/24 07:08*	*11/12/24 01:09*	*1*
13C5 PFPeA	*99.9*		*40 - 130*	*11/07/24 07:08*	*11/12/24 01:09*	*1*
13C5 PFHxA	*106*		*40 - 130*	*11/07/24 07:08*	*11/12/24 01:09*	*1*
13C4 PFHpA	*94.5*		*40 - 130*	*11/07/24 07:08*	*11/12/24 01:09*	*1*
13C8 PFOA	*105*		*40 - 130*	*11/07/24 07:08*	*11/12/24 01:09*	*1*
13C9 PFNA	*103*		*40 - 130*	*11/07/24 07:08*	*11/12/24 01:09*	*1*
13C6 PFDA	*98.4*		*40 - 130*	*11/07/24 07:08*	*11/12/24 01:09*	*1*
13C7 PFUnA	*91.4*		*30 - 130*	*11/07/24 07:08*	*11/12/24 01:09*	*1*
13C2 PFDoA	*72.8*		*10 - 130*	*11/07/24 07:08*	*11/12/24 01:09*	*1*
13C2 PFTeDA	*62.6*		*10 - 130*	*11/07/24 07:08*	*11/12/24 01:09*	*1*
13C3 PFBS	*109*		*40 - 135*	*11/07/24 07:08*	*11/12/24 01:09*	*1*
13C3 PFHxS	*100*		*40 - 130*	*11/07/24 07:08*	*11/12/24 01:09*	*1*
13C8 PFOS	*100*		*40 - 130*	*11/07/24 07:08*	*11/12/24 01:09*	*1*
13C8 FOSA	*89.4*		*40 - 130*	*11/07/24 07:08*	*11/12/24 01:09*	*1*
d3-NMeFOSAA	*83.5*		*40 - 170*	*11/07/24 07:08*	*11/12/24 01:09*	*1*
d5-NEtFOSAA	*75.5*		*25 - 135*	*11/07/24 07:08*	*11/12/24 01:09*	*1*
13C2 4:2 FTS	*103*		*40 - 200*	*11/07/24 07:08*	*11/12/24 01:09*	*1*
13C2 8:2 FTS	*68.8*		*40 - 300*	*11/07/24 07:08*	*11/12/24 01:09*	*1*
13C3 HFPO-DA	*99.2*		*40 - 130*	*11/07/24 07:08*	*11/12/24 01:09*	*1*
d7-N-MeFOSE-M	*70.6*		*10 - 130*	*11/07/24 07:08*	*11/12/24 01:09*	*1*
d9-N-EtFOSE-M	*62.9*		*10 - 130*	*11/07/24 07:08*	*11/12/24 01:09*	*1*
d5-NEtPFOSA	*74.7*		*10 - 130*	*11/07/24 07:08*	*11/12/24 01:09*	*1*
d3-NMePFOSA	*76.2*		*10 - 130*	*11/07/24 07:08*	*11/12/24 01:09*	*1*

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		2.8	0.71	ng/L		11/07/24 07:08	11/16/24 19:51	1

Client Sample ID: DUP:102924
Date Collected: 10/29/24 08:00
Date Received: 10/29/24 15:08

Lab Sample ID: 590-27797-8
Matrix: Water

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 6:2 FTS	101		40 - 200	11/07/24 07:08	11/16/24 19:51	1

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	16		0.50	0.13	mg/L		11/08/24 09:52	11/11/24 22:13	1
Potassium	4.9	^1+	2.0	0.29	mg/L		11/08/24 09:52	11/11/24 22:13	1
Sodium	31	^1+	2.0	0.20	mg/L		11/08/24 09:52	11/11/24 22:13	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	100		1.0	0.20	mg/L		11/08/24 09:54	11/08/24 18:07	1
Iron	0.19	J	2.0	0.074	mg/L		11/08/24 09:54	11/08/24 18:07	1
Magnesium	15		0.50	0.13	mg/L		11/08/24 09:54	11/08/24 18:07	1

Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0014	J	0.0050	0.0010	mg/L		11/01/24 18:02	11/05/24 17:35	5
Cadmium	ND		0.0020	0.00019	mg/L		11/01/24 18:02	11/05/24 17:35	5
Iron	ND		0.50	0.067	mg/L		11/01/24 18:02	11/05/24 17:35	5
Lead	0.00033	J B	0.0020	0.00020	mg/L		11/01/24 18:02	11/05/24 17:35	5
Manganese	ND		0.010	0.0023	mg/L		11/01/24 18:02	11/05/24 17:35	5
Zinc	ND		0.035	0.0046	mg/L		11/01/24 18:02	11/05/24 17:35	5

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0012	J	0.0050	0.0010	mg/L		11/04/24 17:02	11/05/24 19:04	5
Cadmium	ND		0.0020	0.00019	mg/L		11/04/24 17:02	11/05/24 19:04	5
Iron	ND		0.50	0.067	mg/L		11/04/24 17:02	11/05/24 19:04	5
Lead	ND		0.0020	0.00020	mg/L		11/04/24 17:02	11/05/24 19:04	5
Manganese	ND		0.010	0.0023	mg/L		11/04/24 17:02	11/05/24 19:04	5
Zinc	ND		0.035	0.0046	mg/L		11/04/24 17:02	11/05/24 19:04	5

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		11/11/24 11:28	11/11/24 17:56	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		11/08/24 09:59	11/08/24 17:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	ND		0.10	0.029	mg/L			11/02/24 13:46	1
Alkalinity (SM 2320B)	270	B	20	5.0	mg/L			11/08/24 11:28	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	270	B	20	5.0	mg/L			11/08/24 11:28	1
Total Dissolved Solids (SM 2540C)	510		25	13	mg/L			11/04/24 10:48	1
Total Organic Carbon - Duplicates (SM 5310B)	2.4		1.0	0.35	mg/L			11/06/24 06:52	1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 590-50648/8
Matrix: Water
Analysis Batch: 50648

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.17	ug/L			11/04/24 14:21	1
Tetrachloroethene	ND		1.0	0.22	ug/L			11/04/24 14:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*80 - 120*		*11/04/24 14:21*	*1*
4-Bromofluorobenzene (Surr)	*105*		*76 - 120*		*11/04/24 14:21*	*1*
Dibromofluoromethane (Surr)	*112*		*80 - 123*		*11/04/24 14:21*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*11/04/24 14:21*	*1*

Lab Sample ID: LCS 590-50648/1005
Matrix: Water
Analysis Batch: 50648

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,1,1-Trichloroethane			10.0	9.85		ug/L		99	71 - 138		
Tetrachloroethene			10.0	9.68		ug/L		97	80 - 139		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*97*		*80 - 120*
4-Bromofluorobenzene (Surr)	*112*		*76 - 120*
Dibromofluoromethane (Surr)	*97*		*80 - 123*
Toluene-d8 (Surr)	*100*		*80 - 120*

Lab Sample ID: LCSD 590-50648/6
Matrix: Water
Analysis Batch: 50648

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane			10.0	9.60		ug/L		96	71 - 138	3	17
Tetrachloroethene			10.0	9.86		ug/L		99	80 - 139	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*99*		*80 - 120*
4-Bromofluorobenzene (Surr)	*110*		*76 - 120*
Dibromofluoromethane (Surr)	*94*		*80 - 123*
Toluene-d8 (Surr)	*99*		*80 - 120*

Method: 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Lab Sample ID: MB 580-476706/1-A
Matrix: Water
Analysis Batch: 476868

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 476706

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.036	ug/L		11/04/24 09:10	11/05/24 13:00	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*51*		*40 - 140*	*11/04/24 09:10*	*11/05/24 13:00*	*1*

Method: 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Lab Sample ID: LCS 580-476706/2-A
Matrix: Water
Analysis Batch: 476868

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 476706

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,4-Dioxane			8.00	8.97		ug/L		112	78 - 130		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,4-Dioxane-d8	*59*		*40 - 140*

Lab Sample ID: LCSD 580-476706/3-A
Matrix: Water
Analysis Batch: 476868

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 476706

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,4-Dioxane			8.00	8.93		ug/L		112	78 - 130	0	13

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,4-Dioxane-d8	*56*		*40 - 140*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 590-50590/1003
Matrix: Water
Analysis Batch: 50590

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.80	0.42	mg/L			10/30/24 10:21	1
Sulfate	ND		0.50	0.13	mg/L			10/30/24 10:21	1

Lab Sample ID: LCS 590-50590/1004
Matrix: Water
Analysis Batch: 50590

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			12.5	12.5		mg/L		100	90 - 110		
Sulfate			12.5	11.3		mg/L		91	90 - 110		

Lab Sample ID: MB 590-50591/1003
Matrix: Water
Analysis Batch: 50591

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20	0.057	mg/L			10/30/24 10:21	1
Nitrite as N	ND		0.20	0.069	mg/L			10/30/24 10:21	1

Lab Sample ID: LCS 590-50591/1004
Matrix: Water
Analysis Batch: 50591

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate as N			5.00	5.09		mg/L		102	90 - 110		
Nitrite as N			5.00	4.88		mg/L		98	90 - 110		

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Lab Sample ID: MB 320-812904/1-A
Matrix: Water
Analysis Batch: 814107

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 812904

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.0	1.0	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	0.58	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluorotetradecanoic acid (PFTeDA)	ND		2.0	0.81	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.53	ng/L		11/07/24 07:08	11/11/24 20:46	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		4.0	1.0	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluorooctanesulfonamide (PFOSA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		10	2.5	ng/L		11/07/24 07:08	11/11/24 20:46	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		10	2.5	ng/L		11/07/24 07:08	11/11/24 20:46	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.5	0.39	ng/L		11/07/24 07:08	11/11/24 20:46	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		2.0	0.72	ng/L		11/07/24 07:08	11/11/24 20:46	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		2.0	0.58	ng/L		11/07/24 07:08	11/11/24 20:46	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		2.0	0.50	ng/L		11/07/24 07:08	11/11/24 20:46	1

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: MB 320-812904/1-A
Matrix: Water
Analysis Batch: 814107

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 812904

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		4.0	1.0	ng/L		11/07/24 07:08	11/11/24 20:46	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		10	2.5	ng/L		11/07/24 07:08	11/11/24 20:46	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		10	2.5	ng/L		11/07/24 07:08	11/11/24 20:46	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*106*		*5 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C5 PFPeA	*101*		*40 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C5 PFHxA	*101*		*40 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C4 PFHpA	*97.6*		*40 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C8 PFOA	*108*		*40 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C9 PFNA	*110*		*40 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C6 PFDA	*102*		*40 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C7 PFUnA	*95.4*		*30 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C2 PFDoA	*88.2*		*10 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C2 PFTeDA	*79.0*		*10 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C3 PFBS	*104*		*40 - 135*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C3 PFHxS	*109*		*40 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C8 PFOS	*101*		*40 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C8 FOSA	*83.1*		*40 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
d3-NMeFOSAA	*96.5*		*40 - 170*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
d5-NEtFOSAA	*87.5*		*25 - 135*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C2 4:2 FTS	*89.7*		*40 - 200*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
13C3 HFPO-DA	*106*		*40 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
d7-N-MeFOSE-M	*77.0*		*10 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
d9-N-EtFOSE-M	*81.0*		*10 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
d5-NEtPFOSA	*71.8*		*10 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*
d3-NMePFOSA	*73.3*		*10 - 130*	*11/07/24 07:08*	*11/11/24 20:46*	*1*

Lab Sample ID: LCS 320-812904/3-A
Matrix: Water
Analysis Batch: 814107

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 812904

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	80.0	77.6		ng/L		97	70 - 140
Perfluoropentanoic acid (PFPeA)	40.0	42.0		ng/L		105	65 - 135
Perfluorohexanoic acid (PFHxA)	40.0	41.0		ng/L		102	70 - 145
Perfluoroheptanoic acid (PFHpA)	40.0	38.2		ng/L		96	70 - 150
Perfluorooctanoic acid (PFOA)	40.0	36.5		ng/L		91	70 - 150
Perfluorononanoic acid (PFNA)	40.0	43.8		ng/L		110	70 - 150
Perfluorodecanoic acid (PFDA)	40.0	41.3		ng/L		103	70 - 140
Perfluoroundecanoic acid (PFUnA)	40.0	35.5		ng/L		89	70 - 145
Perfluorododecanoic acid (PFDoA)	40.0	43.1		ng/L		108	70 - 140
Perfluorotridecanoic acid (PFTrDA)	40.0	42.0		ng/L		105	65 - 140
Perfluorotetradecanoic acid (PFTeDA)	40.0	36.7		ng/L		92	60 - 140

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-812904/3-A
Matrix: Water
Analysis Batch: 814107

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 812904

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanesulfonic acid (PFBS)	35.5	36.0		ng/L		101	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	37.6	36.8		ng/L		98	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	36.5	34.8		ng/L		95	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	38.2	38.8		ng/L		102	70 - 150
Perfluorooctanesulfonic acid (PFOS)	37.2	35.8		ng/L		96	55 - 150
Perfluorononanesulfonic acid (PFNS)	38.5	36.3		ng/L		94	65 - 145
Perfluorodecanesulfonic acid (PFDS)	38.6	35.8		ng/L		93	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	38.8	31.2		ng/L		80	50 - 145
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	75.0	77.2		ng/L		103	70 - 145
Perfluorooctanesulfonamide (PFOSA)	40.0	40.5		ng/L		101	70 - 145
N-methylperfluorooctane sulfonamide (NMeFOSA)	40.0	38.2		ng/L		96	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA)	40.0	41.6		ng/L		104	65 - 145
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	38.9		ng/L		97	50 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	39.3		ng/L		98	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	200	199		ng/L		99	70 - 145
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	200	204		ng/L		102	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	30.0	29.5		ng/L		98	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	30.2		ng/L		80	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	40.0	44.4		ng/L		111	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	40.0	39.1		ng/L		98	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	40.0	37.3		ng/L		93	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	37.4	33.3		ng/L		89	70 - 155
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	37.8	30.7		ng/L		81	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	35.7	35.2		ng/L		99	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	80.0	88.6		ng/L		111	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	200	175		ng/L		87	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	200	151		ng/L		76	50 - 145

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFBA	104		5 - 130
13C5 PFPeA	93.1		40 - 130
13C5 PFHxA	98.8		40 - 130
13C4 PFHpA	96.0		40 - 130
13C8 PFOA	99.1		40 - 130
13C9 PFNA	93.5		40 - 130
13C6 PFDA	102		40 - 130
13C7 PFUnA	103		30 - 130
13C2 PFDoA	85.2		10 - 130
13C2 PFTeDA	86.2		10 - 130
13C3 PFBS	106		40 - 135
13C3 PFHxS	99.9		40 - 130
13C8 PFOS	95.0		40 - 130
13C8 FOSA	82.0		40 - 130
d3-NMeFOSAA	87.9		40 - 170
d5-NEtFOSAA	85.2		25 - 135
13C2 4:2 FTS	91.1		40 - 200
13C3 HFPO-DA	103		40 - 130
d7-N-MeFOSE-M	74.5		10 - 130
d9-N-EtFOSE-M	71.1		10 - 130
d5-NEtPFOSA	73.3		10 - 130
d3-NMePFOSA	78.0		10 - 130

Lab Sample ID: LCSD 320-812904/4-A
Matrix: Water
Analysis Batch: 814107

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 812904

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			80.0	76.8		ng/L		96	70 - 140	1	30
Perfluoropentanoic acid (PFPeA)			40.0	42.9		ng/L		107	65 - 135	2	30
Perfluorohexanoic acid (PFHxA)			40.0	39.6		ng/L		99	70 - 145	3	30
Perfluoroheptanoic acid (PFHpA)			40.0	38.9		ng/L		97	70 - 150	2	30
Perfluorooctanoic acid (PFOA)			40.0	37.5		ng/L		94	70 - 150	3	30
Perfluorononanoic acid (PFNA)			40.0	37.4		ng/L		93	70 - 150	16	30
Perfluorodecanoic acid (PFDA)			40.0	40.5		ng/L		101	70 - 140	2	30
Perfluoroundecanoic acid (PFUnA)			40.0	41.8		ng/L		104	70 - 145	16	30
Perfluorododecanoic acid (PFDoA)			40.0	41.9		ng/L		105	70 - 140	3	30
Perfluorotridecanoic acid (PFTrDA)			40.0	47.8		ng/L		120	65 - 140	13	30
Perfluorotetradecanoic acid (PFTeDA)			40.0	33.9		ng/L		85	60 - 140	8	30
Perfluorobutanesulfonic acid (PFBS)			35.5	36.8		ng/L		104	60 - 145	2	30
Perfluoropentanesulfonic acid (PFPeS)			37.6	37.4		ng/L		100	65 - 140	2	30
Perfluorohexanesulfonic acid (PFHxS)			36.5	34.5		ng/L		95	65 - 145	1	30
Perfluoroheptanesulfonic acid (PFHpS)			38.2	40.6		ng/L		106	70 - 150	4	30
Perfluorooctanesulfonic acid (PFOS)			37.2	35.6		ng/L		96	55 - 150	1	30

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCSD 320-812904/4-A
Matrix: Water
Analysis Batch: 814107

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 812904

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorononanesulfonic acid (PFNS)			38.5	36.6		ng/L		95	65 - 145	1	30
Perfluorodecanesulfonic acid (PFDS)			38.6	35.6		ng/L		92	60 - 145	1	30
Perfluorododecanesulfonic acid (PFDoS)			38.8	32.3		ng/L		83	50 - 145	4	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)			75.0	79.3		ng/L		106	70 - 145	3	30
Perfluorooctanesulfonamide (PFOSA)			40.0	39.8		ng/L		99	70 - 145	2	30
N-methylperfluorooctane sulfonamide (NMeFOSA)			40.0	38.9		ng/L		97	60 - 150	2	30
N-ethylperfluorooctane sulfonamide (NEtFOSA)			40.0	41.0		ng/L		103	65 - 145	1	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			40.0	37.1		ng/L		93	50 - 140	5	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			40.0	40.7		ng/L		102	70 - 145	4	30
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)			200	190		ng/L		95	70 - 145	5	30
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)			200	183		ng/L		91	70 - 135	11	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			30.0	28.8		ng/L		96	70 - 140	2	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			37.8	32.2		ng/L		85	65 - 145	6	30
Perfluoro-3-methoxypropanoic acid (PFMPA)			40.0	45.9		ng/L		115	55 - 140	3	30
Perfluoro-4-methoxybutanoic acid (PFMBA)			40.0	39.2		ng/L		98	60 - 150	0	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)			40.0	37.4		ng/L		93	50 - 150	0	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)			37.4	35.7		ng/L		95	70 - 155	7	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)			37.8	33.2		ng/L		88	55 - 160	8	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			35.7	35.1		ng/L		98	70 - 140	0	30
3-Perfluoropropylpropanoic acid (3:3 FTCA)			80.0	85.8		ng/L		107	65 - 130	3	30
3-Perfluoropentylpropanoic acid (5:3 FTCA)			200	182		ng/L		91	70 - 135	4	30
3-Perfluoroheptylpropanoic acid (7:3 FTCA)			200	162		ng/L		81	50 - 145	7	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*107*		*5 - 130*
13C5 PFPeA	*99.8*		*40 - 130*
13C5 PFHxA	*98.4*		*40 - 130*
13C4 PFHpA	*95.9*		*40 - 130*
13C8 PFOA	*103*		*40 - 130*
13C9 PFNA	*108*		*40 - 130*

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCSD 320-812904/4-A
Matrix: Water
Analysis Batch: 814107

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 812904

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C6 PFDA	*101*		*40 - 130*
13C7 PFUnA	*94.5*		*30 - 130*
13C2 PFDoA	*79.9*		*10 - 130*
13C2 PFTeDA	*70.3*		*10 - 130*
13C3 PFBS	*104*		*40 - 135*
13C3 PFHxS	*104*		*40 - 130*
13C8 PFOS	*102*		*40 - 130*
13C8 FOSA	*86.8*		*40 - 130*
d3-NMeFOSAA	*98.5*		*40 - 170*
d5-NEtFOSAA	*87.7*		*25 - 135*
13C2 4:2 FTS	*90.5*		*40 - 200*
13C3 HFPO-DA	*106*		*40 - 130*
d7-N-MeFOSE-M	*80.1*		*10 - 130*
d9-N-EtFOSE-M	*80.7*		*10 - 130*
d5-NEtPFOSA	*75.9*		*10 - 130*
d3-NMePFOSA	*75.5*		*10 - 130*

Lab Sample ID: LLCS 320-812904/2-A
Matrix: Water
Analysis Batch: 814107

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 812904

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	8.00	8.23		ng/L		103	70 - 140
Perfluoropentanoic acid (PFPeA)	4.00	4.56		ng/L		114	65 - 135
Perfluorohexanoic acid (PFHxA)	4.00	4.30		ng/L		107	70 - 145
Perfluoroheptanoic acid (PFHpA)	4.00	3.82		ng/L		95	70 - 150
Perfluorooctanoic acid (PFOA)	4.00	3.66		ng/L		92	70 - 150
Perfluorononanoic acid (PFNA)	4.00	3.72		ng/L		93	70 - 150
Perfluorodecanoic acid (PFDA)	4.00	4.34		ng/L		108	70 - 140
Perfluoroundecanoic acid (PFUnA)	4.00	4.23		ng/L		106	70 - 145
Perfluorododecanoic acid (PFDoA)	4.00	4.09		ng/L		102	70 - 140
Perfluorotridecanoic acid (PFTrDA)	4.00	3.92		ng/L		98	65 - 140
Perfluorotetradecanoic acid (PFTeDA)	4.00	3.37		ng/L		84	60 - 140
Perfluorobutanesulfonic acid (PFBS)	3.55	3.58		ng/L		101	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	3.76	3.82		ng/L		102	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	3.65	3.80		ng/L		104	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	3.82	3.90		ng/L		102	70 - 150
Perfluorooctanesulfonic acid (PFOS)	3.72	3.54		ng/L		95	55 - 150
Perfluorononanesulfonic acid (PFNS)	3.85	3.80		ng/L		99	65 - 145
Perfluorodecanesulfonic acid (PFDS)	3.86	3.75		ng/L		97	60 - 145

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-812904/2-A
Matrix: Water
Analysis Batch: 814107

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 812904

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorododecanesulfonic acid (PFDoS)	3.88	2.91		ng/L		75	50 - 145
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	7.50	7.16		ng/L		95	70 - 145
Perfluorooctanesulfonamide (PFOSA)	4.00	4.02		ng/L		101	70 - 145
N-methylperfluorooctane sulfonamide (NMeFOSA)	4.00	3.65		ng/L		91	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA)	4.00	3.99		ng/L		100	65 - 145
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	4.00	3.91		ng/L		98	50 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	4.00	4.37		ng/L		109	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	20.0	19.4		ng/L		97	70 - 145
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	20.0	18.3		ng/L		91	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	3.00	2.99		ng/L		100	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	3.78	3.17		ng/L		84	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	4.00	4.38		ng/L		109	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	4.00	4.29		ng/L		107	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	4.00	4.14		ng/L		103	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	3.74	3.54		ng/L		95	70 - 155
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	3.78	2.90		ng/L		77	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	3.57	3.77		ng/L		106	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	8.00	8.46		ng/L		106	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	20.0	17.7		ng/L		88	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	20.0	16.6		ng/L		83	50 - 145

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C4 PFBA	*105*		*5 - 130*
13C5 PFPeA	*91.3*		*40 - 130*
13C5 PFHxA	*90.1*		*40 - 130*
13C4 PFHpA	*90.8*		*40 - 130*
13C8 PFOA	*94.3*		*40 - 130*
13C9 PFNA	*102*		*40 - 130*
13C6 PFDA	*100*		*40 - 130*
13C7 PFUnA	*103*		*30 - 130*
13C2 PFDoA	*92.1*		*10 - 130*
13C2 PFTeDA	*79.1*		*10 - 130*

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-812904/2-A
Matrix: Water
Analysis Batch: 814107

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 812904

Isotope Dilution	LLCS %Recovery	LLCS Qualifier	Limits
13C3 PFBS	106		40 - 135
13C3 PFHxS	99.2		40 - 130
13C8 PFOS	101		40 - 130
13C8 FOSA	82.1		40 - 130
d3-NMeFOSAA	91.4		40 - 170
d5-NEtFOSAA	79.3		25 - 135
13C2 4:2 FTS	98.8		40 - 200
13C3 HFPO-DA	97.7		40 - 130
d7-N-MeFOSE-M	73.2		10 - 130
d9-N-EtFOSE-M	70.7		10 - 130
d5-NEtPFOSA	70.8		10 - 130
d3-NMePFOSA	75.9		10 - 130

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Lab Sample ID: MB 320-812904/1-A
Matrix: Water
Analysis Batch: 815926

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 812904

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS) - RA	ND		4.0	1.0	ng/L		11/07/24 07:08	11/16/24 13:37	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) - RA	ND		4.0	1.0	ng/L		11/07/24 07:08	11/16/24 13:37	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 6:2 FTS - RA	88.8		40 - 200	11/07/24 07:08	11/16/24 13:37	1
13C2 8:2 FTS - RA	83.7		40 - 300	11/07/24 07:08	11/16/24 13:37	1

Lab Sample ID: LCS 320-812904/3-A
Matrix: Water
Analysis Batch: 815926

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 812904

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS) - RA			76.2	75.4		ng/L		99	65 - 155		
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) - RA			76.8	73.2		ng/L		95	60 - 150		

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C2 6:2 FTS - RA	85.3		40 - 200
13C2 8:2 FTS - RA	69.7		40 - 300

Lab Sample ID: LCSD 320-812904/4-A
Matrix: Water
Analysis Batch: 815926

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 812904

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS) - RA			76.2	71.8		ng/L		94	65 - 155	5	30

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA (Continued)

Lab Sample ID: LCSD 320-812904/4-A
Matrix: Water
Analysis Batch: 815926

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 812904

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) - RA			76.8	68.0		ng/L		89	60 - 150	7	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 6:2 FTS - RA	*99.1*		*40 - 200*
13C2 8:2 FTS - RA	*91.3*		*40 - 300*

Lab Sample ID: LLCS 320-812904/2-A
Matrix: Water
Analysis Batch: 815926

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 812904

Analyte			Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits		
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS) - RA			7.62	7.36		ng/L		97	65 - 155		
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) - RA			7.68	6.98		ng/L		91	60 - 150		

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C2 6:2 FTS - RA	*92.7*		*40 - 200*
13C2 8:2 FTS - RA	*86.2*		*40 - 300*

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 590-50749/2-A
Matrix: Water
Analysis Batch: 50809

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 50749

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	ND	^1+	2.0	0.29	mg/L		11/08/24 09:52	11/11/24 21:02	1
Magnesium	ND		0.50	0.13	mg/L		11/08/24 09:52	11/11/24 21:02	1
Sodium	ND	^1+	2.0	0.20	mg/L		11/08/24 09:52	11/11/24 21:02	1

Lab Sample ID: LCS 590-50749/1-A
Matrix: Water
Analysis Batch: 50809

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 50749

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Potassium			50.0	46.7	^1+	mg/L		93	80 - 135		
Magnesium			50.0	48.0		mg/L		96	80 - 120		
Sodium			50.0	48.2	^1+	mg/L		96	80 - 154		

Lab Sample ID: MB 590-50748/2-B
Matrix: Water
Analysis Batch: 50786

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 50750

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.0	0.20	mg/L		11/08/24 09:54	11/08/24 13:26	1
Iron	ND		2.0	0.074	mg/L		11/08/24 09:54	11/08/24 13:26	1
Magnesium	ND		0.50	0.13	mg/L		11/08/24 09:54	11/08/24 13:26	1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCS 590-50748/1-B
Matrix: Water
Analysis Batch: 50786

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 50750

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	50.0	48.4		mg/L		97	80 - 120
Iron	10.0	9.71		mg/L		97	80 - 120
Magnesium	50.0	49.2		mg/L		98	80 - 120

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 580-476657/25-A
Matrix: Water
Analysis Batch: 477006

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 476657

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010	0.00020	mg/L		11/01/24 18:02	11/05/24 16:39	1
Cadmium	ND		0.00040	0.000037	mg/L		11/01/24 18:02	11/05/24 16:39	1
Iron	0.0182	J	0.10	0.013	mg/L		11/01/24 18:02	11/05/24 16:39	1
Lead	0.0000462	J	0.00040	0.000040	mg/L		11/01/24 18:02	11/05/24 16:39	1
Manganese	ND		0.0020	0.00046	mg/L		11/01/24 18:02	11/05/24 16:39	1
Zinc	0.000935	J	0.0070	0.00093	mg/L		11/01/24 18:02	11/05/24 16:39	1

Lab Sample ID: LCS 580-476657/26-A
Matrix: Water
Analysis Batch: 477006

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 476657

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	0.977		mg/L		98	80 - 120
Cadmium	1.00	1.04		mg/L		104	80 - 120
Iron	20.0	19.6		mg/L		98	80 - 120
Lead	1.00	1.03		mg/L		103	80 - 120
Manganese	1.00	0.978		mg/L		98	80 - 120
Zinc	1.00	0.976		mg/L		98	80 - 120

Lab Sample ID: MB 580-476660/15-B
Matrix: Water
Analysis Batch: 477006

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 476799

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010	0.00020	mg/L		11/04/24 17:02	11/05/24 17:52	1
Cadmium	0.0000657	J	0.00040	0.000037	mg/L		11/04/24 17:02	11/05/24 17:52	1
Iron	ND		0.10	0.013	mg/L		11/04/24 17:02	11/05/24 17:52	1
Lead	0.000157	J	0.00040	0.000040	mg/L		11/04/24 17:02	11/05/24 17:52	1
Manganese	0.00212		0.0020	0.00046	mg/L		11/04/24 17:02	11/05/24 17:52	1
Zinc	0.00525	J	0.0070	0.00093	mg/L		11/04/24 17:02	11/05/24 17:52	1

Lab Sample ID: LCS 580-476660/16-B
Matrix: Water
Analysis Batch: 477006

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 476799

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	0.918		mg/L		92	80 - 120
Cadmium	1.00	0.993		mg/L		99	80 - 120
Iron	20.0	18.4		mg/L		92	80 - 120

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 580-476660/16-B
Matrix: Water
Analysis Batch: 477006

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 476799

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Lead	1.00	0.993		mg/L		99	80 - 120
Manganese	1.00	0.924		mg/L		92	80 - 120
Zinc	1.00	0.944		mg/L		94	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 590-50797/9-A
Matrix: Water
Analysis Batch: 50800

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 50797

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		11/11/24 11:28	11/11/24 16:39	1

Lab Sample ID: LCS 590-50797/8-A
Matrix: Water
Analysis Batch: 50800

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 50797

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	2.00	1.98		ug/L		99	80 - 120

Lab Sample ID: MB 590-50748/2-C
Matrix: Water
Analysis Batch: 50771

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 50752

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.090	ug/L		11/08/24 09:59	11/08/24 16:45	1

Lab Sample ID: LCS 590-50748/1-C
Matrix: Water
Analysis Batch: 50771

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 50752

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	2.00	2.04		ug/L		102	80 - 120

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 280-673494/18
Matrix: Water
Analysis Batch: 673494

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	ND		0.10	0.029	mg/L			11/02/24 12:05	1

Lab Sample ID: MB 280-673494/58
Matrix: Water
Analysis Batch: 673494

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	ND		0.10	0.029	mg/L			11/02/24 13:33	1

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: LCS 280-673494/19
Matrix: Water
Analysis Batch: 673494

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	2.51	2.45		mg/L		98	90 - 110

Lab Sample ID: LCS 280-673494/59
Matrix: Water
Analysis Batch: 673494

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	2.51	2.50		mg/L		100	90 - 110

Lab Sample ID: 590-27797-3 MS
Matrix: Water
Analysis Batch: 673494

Client Sample ID: MW-16:102924
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	ND		1.00	1.04		mg/L		103	90 - 110

Lab Sample ID: 590-27797-3 MSD
Matrix: Water
Analysis Batch: 673494

Client Sample ID: MW-16:102924
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia as N	ND		1.00	1.00		mg/L		100	90 - 110	3	10

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 590-50757/1
Matrix: Water
Analysis Batch: 50757

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.00	J	20	5.0	mg/L			11/08/24 11:27	1
Bicarbonate Alkalinity as CaCO3	5.00	J	20	5.0	mg/L			11/08/24 11:27	1

Lab Sample ID: LCS 590-50757/2
Matrix: Water
Analysis Batch: 50757

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	501	485		mg/L		97	90 - 110

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 590-50640/1
Matrix: Water
Analysis Batch: 50640

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		25	13	mg/L			11/04/24 10:47	1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 590-50640/2
Matrix: Water
Analysis Batch: 50640

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	503	515		mg/L		102	80 - 120

Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 280-673997/35
Matrix: Water
Analysis Batch: 673997

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		1.0	0.35	mg/L			11/05/24 22:55	1

Lab Sample ID: MB 280-673997/68
Matrix: Water
Analysis Batch: 673997

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		1.0	0.35	mg/L			11/06/24 07:27	1

Lab Sample ID: LCS 280-673997/34
Matrix: Water
Analysis Batch: 673997

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon - Duplicates	25.0	26.4		mg/L		106	88 - 112

Lab Sample ID: LCS 280-673997/67
Matrix: Water
Analysis Batch: 673997

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon - Duplicates	25.0	26.7		mg/L		107	88 - 112

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-27797-1

Client Sample ID: MW-9A:102924

Lab Sample ID: 590-27797-1

Date Collected: 10/29/24 09:40

Matrix: Water

Date Received: 10/29/24 15:08

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	5 mL	5 mL	50590	10/30/24 12:01	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	50591	10/30/24 12:01	NMI	EET SPK
Total/NA	Prep	1633			155.5 mL	5.0 mL	812904	11/07/24 07:08	JS	EET SAC
Total/NA	Analysis	1633		1			814107	11/11/24 23:19	RS1	EET SAC
Total/NA	Prep	1633	RA		155.5 mL	5.0 mL	812904	11/07/24 07:08	JS	EET SAC
Total/NA	Analysis	1633	RA	1			815926	11/16/24 18:01	SS	EET SAC
Dissolved	Filtration	FILTRATION			250 mL	250 mL	50748	11/08/24 09:11	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	50750	11/08/24 09:54	AMB	EET SPK
Dissolved	Analysis	6010D		1			50786	11/08/24 17:47	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	50749	11/08/24 09:52	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			50809	11/11/24 21:52	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	673494	11/02/24 13:16	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	50757	11/08/24 11:28	RMA	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	50640	11/04/24 10:48	RMA	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	673997	11/06/24 11:04	GMW	EET DEN

Client Sample ID: MW-4A:102924

Lab Sample ID: 590-27797-2

Date Collected: 10/29/24 10:40

Matrix: Water

Date Received: 10/29/24 15:08

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	5 mL	5 mL	50590	10/30/24 12:11	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	50591	10/30/24 12:11	NMI	EET SPK
Total/NA	Prep	1633			163.8 mL	5.0 mL	812904	11/07/24 07:08	JS	EET SAC
Total/NA	Analysis	1633		1			814107	11/12/24 00:00	RS1	EET SAC
Total/NA	Prep	1633	RA		163.8 mL	5.0 mL	812904	11/07/24 07:08	JS	EET SAC
Total/NA	Analysis	1633	RA	1			815926	11/16/24 18:14	SS	EET SAC
Dissolved	Filtration	FILTRATION			250 mL	250 mL	50748	11/08/24 09:11	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	50750	11/08/24 09:54	AMB	EET SPK
Dissolved	Analysis	6010D		1			50786	11/08/24 17:52	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	50749	11/08/24 09:52	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			50809	11/11/24 21:57	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	673494	11/02/24 13:18	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	50757	11/08/24 11:28	RMA	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	50640	11/04/24 10:48	RMA	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	673997	11/06/24 11:21	GMW	EET DEN

Client Sample ID: MW-16:102924

Lab Sample ID: 590-27797-3

Date Collected: 10/29/24 11:40

Matrix: Water

Date Received: 10/29/24 15:08

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	5 mL	5 mL	50590	10/30/24 12:41	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	50591	10/30/24 12:41	NMI	EET SPK

Client Sample ID: MW-16:102924

Lab Sample ID: 590-27797-3

Date Collected: 10/29/24 11:40

Matrix: Water

Date Received: 10/29/24 15:08

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633			148.2 mL	5.0 mL	812904	11/07/24 07:08	JS	EET SAC
Total/NA	Analysis	1633		1			814107	11/12/24 00:14	RS1	EET SAC
Total/NA	Prep	1633	RA		148.2 mL	5.0 mL	812904	11/07/24 07:08	JS	EET SAC
Total/NA	Analysis	1633	RA	1			815926	11/16/24 18:28	SS	EET SAC
Dissolved	Filtration	FILTRATION			250 mL	250 mL	50748	11/08/24 09:11	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	50750	11/08/24 09:54	AMB	EET SPK
Dissolved	Analysis	6010D		1			50786	11/08/24 17:57	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	50749	11/08/24 09:52	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			50809	11/11/24 22:02	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	673494	11/02/24 13:37	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	50757	11/08/24 11:28	RMA	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	50640	11/04/24 10:48	RMA	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	673997	11/06/24 11:37	GMW	EET DEN

Client Sample ID: MW-5A:102924

Lab Sample ID: 590-27797-4

Date Collected: 10/29/24 13:00

Matrix: Water

Date Received: 10/29/24 15:08

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	43 mL	43 mL	50648	11/04/24 17:15	JSP	EET SPK
Total/NA	Prep	3510C			260.9 mL	1 mL	476706	11/04/24 09:10	JW	EET SEA
Total/NA	Analysis	8270C SIM ID		1	1 mL	1 mL	476868	11/05/24 13:56	K1K	EET SEA
Total/NA	Analysis	300.0		1	5 mL	5 mL	50590	10/30/24 12:51	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	50591	10/30/24 12:51	NMI	EET SPK
Total/NA	Prep	1633			163 mL	5.0 mL	812904	11/07/24 07:08	JS	EET SAC
Total/NA	Analysis	1633		1			814107	11/12/24 00:28	RS1	EET SAC
Total/NA	Prep	1633	RA		163 mL	5.0 mL	812904	11/07/24 07:08	JS	EET SAC
Total/NA	Analysis	1633	RA	1			815926	11/16/24 19:10	SS	EET SAC
Dissolved	Filtration	FILTRATION			250 mL	250 mL	50748	11/08/24 09:11	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	50750	11/08/24 09:54	AMB	EET SPK
Dissolved	Analysis	6010D		1			50786	11/08/24 18:02	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	50749	11/08/24 09:52	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			50809	11/11/24 22:08	AMB	EET SPK
Dissolved	Filtration	FILTRATION			200 mL	200 mL	476660	11/01/24 19:16		EET SEA
Dissolved	Prep	3005A			50 mL	50 mL	476799	11/04/24 17:02		EET SEA
Dissolved	Analysis	6020B		5			477006	11/05/24 18:23	CA	EET SEA
Total Recoverable	Prep	3005A			50 mL	50 mL	476657	11/01/24 18:02		EET SEA
Total Recoverable	Analysis	6020B		5			477006	11/05/24 17:28	CA	EET SEA
Dissolved	Filtration	FILTRATION			250 mL	250 mL	50748	11/08/24 09:11	AMB	EET SPK
Dissolved	Prep	7470A			50 mL	50 mL	50752	11/08/24 09:59	AMB	EET SPK
Dissolved	Analysis	7470A		1			50771	11/08/24 17:03	AMB	EET SPK
Total/NA	Prep	7470A			50 mL	50 mL	50797	11/11/24 11:28	AMB	EET SPK
Total/NA	Analysis	7470A		1			50800	11/11/24 17:53	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	673494	11/02/24 13:44	LBR	EET DEN

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-27797-1

Client Sample ID: MW-5A:102924

Lab Sample ID: 590-27797-4

Date Collected: 10/29/24 13:00
Matrix: Water
Date Received: 10/29/24 15:08

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	50757	11/08/24 11:28	RMA	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	50640	11/04/24 10:48	RMA	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	673997	11/06/24 13:12	GMW	EET DEN

Client Sample ID: Trip Blank

Lab Sample ID: 590-27797-5

Date Collected: 10/29/24 08:00
Matrix: Water
Date Received: 10/29/24 15:08

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	43 mL	43 mL	50648	11/04/24 17:37	JSP	EET SPK

Client Sample ID: Equipment Blank

Lab Sample ID: 590-27797-6

Date Collected: 10/29/24 14:00
Matrix: Water
Date Received: 10/29/24 15:08

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633			159.4 mL	5.0 mL	812904	11/07/24 07:08	JS	EET SAC
Total/NA	Analysis	1633		1			814107	11/12/24 00:42	RS1	EET SAC
Total/NA	Prep	1633	RA		159.4 mL	5.0 mL	812904	11/07/24 07:08	JS	EET SAC
Total/NA	Analysis	1633	RA	1			815926	11/16/24 19:24	SS	EET SAC

Client Sample ID: Field Blank

Lab Sample ID: 590-27797-7

Date Collected: 10/29/24 14:00
Matrix: Water
Date Received: 10/29/24 15:08

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633			162 mL	5.0 mL	812904	11/07/24 07:08	JS	EET SAC
Total/NA	Analysis	1633		1			814107	11/12/24 00:56	RS1	EET SAC
Total/NA	Prep	1633	RA		162 mL	5.0 mL	812904	11/07/24 07:08	JS	EET SAC
Total/NA	Analysis	1633	RA	1			815926	11/16/24 19:38	SS	EET SAC

Client Sample ID: DUP:102924

Lab Sample ID: 590-27797-8

Date Collected: 10/29/24 08:00
Matrix: Water
Date Received: 10/29/24 15:08

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	43 mL	43 mL	50648	11/04/24 18:20	JSP	EET SPK
Total/NA	Prep	3510C			264.5 mL	1 mL	476706	11/04/24 09:10	JW	EET SEA
Total/NA	Analysis	8270C SIM ID		1	1 mL	1 mL	476868	11/05/24 14:10	K1K	EET SEA
Total/NA	Analysis	300.0		1	5 mL	5 mL	50590	10/30/24 13:01	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	50591	10/30/24 13:01	NMI	EET SPK
Total/NA	Prep	1633			177.1 mL	5.0 mL	812904	11/07/24 07:08	JS	EET SAC
Total/NA	Analysis	1633		1			814107	11/12/24 01:09	RS1	EET SAC
Total/NA	Prep	1633	RA		177.1 mL	5.0 mL	812904	11/07/24 07:08	JS	EET SAC
Total/NA	Analysis	1633	RA	1			815926	11/16/24 19:51	SS	EET SAC

Lab Chronicle

Client: GeoEngineers Inc
Job ID: 590-27797-1
Project/Site: Marshall Landfill

Client Sample ID: DUP:102924
Lab Sample ID: 590-27797-8
Date Collected: 10/29/24 08:00
Matrix: Water
Date Received: 10/29/24 15:08

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			250 mL	250 mL	50748	11/08/24 09:11	AMB	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	50750	11/08/24 09:54	AMB	EET SPK
Dissolved	Analysis	6010D		1			50786	11/08/24 18:07	AMB	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	50749	11/08/24 09:52	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			50809	11/11/24 22:13	AMB	EET SPK
Dissolved	Filtration	FILTRATION			200 mL	200 mL	476660	11/01/24 19:16		EET SEA
Dissolved	Prep	3005A			50 mL	50 mL	476799	11/04/24 17:02		EET SEA
Dissolved	Analysis	6020B		5			477006	11/05/24 19:04	CA	EET SEA
Total Recoverable	Prep	3005A			50 mL	50 mL	476657	11/01/24 18:02		EET SEA
Total Recoverable	Analysis	6020B		5			477006	11/05/24 17:35	CA	EET SEA
Dissolved	Filtration	FILTRATION			250 mL	250 mL	50748	11/08/24 09:11	AMB	EET SPK
Dissolved	Prep	7470A			50 mL	50 mL	50752	11/08/24 09:59	AMB	EET SPK
Dissolved	Analysis	7470A		1			50771	11/08/24 17:06	AMB	EET SPK
Total/NA	Prep	7470A			50 mL	50 mL	50797	11/11/24 11:28	AMB	EET SPK
Total/NA	Analysis	7470A		1			50800	11/11/24 17:56	AMB	EET SPK
Total/NA	Analysis	350.1		1	10 mL	10 mL	673494	11/02/24 13:46	LBR	EET DEN
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	50757	11/08/24 11:28	RMA	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	50640	11/04/24 10:48	RMA	EET SPK
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	673997	11/06/24 06:52	GMW	EET DEN

Laboratory References:

EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Accreditation/Certification Summary

Client: GeoEngineers Inc
Job ID: 590-27797-1
Project/Site: Marshall Landfill

Laboratory: Eurofins Spokane

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C569	01-07-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3

Laboratory: Eurofins Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-25
A2LA	ISO/IEC 17025	2907.01	10-31-25
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	11-30-25
Arizona	State	AZ0713	12-20-24
Arkansas DEQ	State	19-047-0	04-21-25
California	State	2513	01-08-25
Colorado	Petroleum Storage Tank Program	4025 (or)	01-08-25
Colorado	State	CO00026	06-30-25
Connecticut	State	PH-0686	11-06-24
Florida	NELAP	E87667-57	06-30-25
Georgia	State	4025-011	01-08-25
Illinois	NELAP	2000172024-9	05-31-25
Iowa	State	370	12-01-24
Kansas	NELAP	E-10166	04-30-25
Kentucky (WW)	State	KY98047	12-31-24
Louisiana	NELAP	30785	06-30-14 *
Louisiana (All)	NELAP	30785	06-30-25
Minnesota	NELAP	1788752	12-31-24
Nevada	State	CO000262024-08	07-31-25
New Hampshire	NELAP	2053	04-28-25
New Jersey	NELAP	230001	06-30-25
New York	NELAP	59923	04-01-25
North Dakota	State	R-034	01-08-25
Oklahoma	NELAP	8614	08-31-24 *
Oregon	NELAP	4025	01-08-25
Pennsylvania	NELAP	013	07-31-25
South Carolina	State	72002001	01-08-24 *
Texas	NELAP	TX104704183-08-TX	09-30-09 *
Texas	NELAP	T104704183	09-30-25
US Fish & Wildlife	US Federal Programs	058448	07-31-25
USDA	US Federal Programs	P330-20-00065	12-19-25
Utah	NELAP	QUAN5	06-30-13 *
Utah	NELAP	CO00026	07-31-25
Virginia	NELAP	460232	06-14-25
Washington	State	C583	08-03-25
West Virginia DEP	State	354	11-30-24
Wisconsin	State	999615430	08-31-25
Wyoming (UST)	A2LA	2907.01	10-31-25

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-27797-1

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-27
ANAB	Dept. of Defense ELAP	L2468	01-20-27
ANAB	Dept. of Energy	L2468.01	01-20-27
ANAB	ISO/IEC 17025	L2468	01-20-27
Arizona	State	AZ0708	08-11-25
Arkansas DEQ	State	88-0691	05-18-25
California	State	2897	01-31-26
Colorado	State	CA00044	08-31-25
Florida	NELAP	E87570	06-30-25
Georgia	State	4040	01-29-25
Hawaii	State	Eurofins Sacramento	01-29-25
Illinois	NELAP	200060	03-31-25
Kansas	NELAP	E-10375	10-31-25
Louisiana	NELAP	01944	06-30-25
Louisiana (All)	NELAP	01944	06-30-25
Maine	State	CA00004	04-14-26
Michigan	State	9947	01-29-25
Minnesota	NELAP	2749448	12-31-24
Nevada	State	CA00044	07-31-25
New Hampshire	NELAP	2997	04-19-25
New Jersey	NELAP	CA005	06-30-25
New York	NELAP	11666	04-01-25
Ohio	State	41252	01-29-25
Oregon	NELAP	4040	01-29-25
Texas	NELAP	T104704399-23-17	05-31-25
US Fish & Wildlife	US Federal Programs	A22139	04-30-25
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442023-16	02-28-25
Virginia	NELAP	460278	03-14-25
Washington	State	C581	05-05-25
West Virginia (DW)	State	9930C	01-31-25
Wisconsin	State	998204680	08-31-25
Wyoming	State Program	8TMS-L	01-28-19 *

Laboratory: Eurofins Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-004	02-19-25
ANAB	Dept. of Defense ELAP	L2236	01-19-25
ANAB	Dept. of Energy	L2236	01-19-25
ANAB	ISO/IEC 17025	L2236	01-19-25
California	State	2954	07-07-25
Florida	NELAP	E87575	06-30-25
Louisiana	NELAP	03073	06-30-25
Louisiana (All)	NELAP	03073	06-30-25
Maine	State	WA01273	05-02-26
Montana (UST)	State	NA	04-14-27
New Jersey	NELAP	WA014	06-30-25
New York	NELAP	11662	04-01-25

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-27797-1

Laboratory: Eurofins Seattle (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4167	07-07-25
US Fish & Wildlife	US Federal Programs	A20571	06-30-25
USDA	US Federal Programs	525-23-4-22573	01-04-26
Washington	State	C788-24	07-13-25
Wisconsin	State	399133460	09-01-25

Method Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-27797-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET SPK
8270C SIM ID	Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)	SW846	EET SEA
300.0	Anions, Ion Chromatography	EPA	EET SPK
1633	Per- and Polyfluoroalkyl Substances by LC/MS/MS	EPA	EET SAC
6010D	Metals (ICP)	SW846	EET SPK
6020B	Metals (ICP/MS)	SW846	EET SEA
7470A	Mercury (CVAA)	SW846	EET SPK
350.1	Nitrogen, Ammonia	EPA	EET DEN
SM 2320B	Alkalinity	SM	EET SPK
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET SPK
SM 5310B	Organic Carbon, Total (TOC)	SM	EET DEN
1633	Solid-Phase Extraction (SPE)	EPA	EET SAC
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET SEA
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET SPK
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET SEA
5030C	Purge and Trap	SW846	EET SPK
7470A	Preparation, Mercury	SW846	EET SPK
FILTRATION	Sample Filtration	None	EET SEA
FILTRATION	Sample Filtration	None	EET SPK

Protocol References:

EPA = US Environmental Protection Agency

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Chain of Custody Record

Eurofins Spokane
11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924 9290

eurofins | Environment Testing America

Regulatory Program ☐ DW ☐ NPDES ☐ RCRA ☐ Other

Eurofins Environment Testing America

Client Contact	**Project Manager** Sydney Bronson	**Site Contact.** Alex Navarro / **Date:** / **COC No:**
GeoEngineers, Inc.	Email sbronson@geoengineers.com	**Lab Contact.** / **Carrier:** / ____ of ____ COCs
523 E 2nd Ave	Tel/Fax: 509.570.0779	TALS Project #:
Spokane, WA 99202	**Analysis Turnaround Time**	Sampler:
509.363.3125 Phone	☐ CALENDAR DAYS ☐ WORKING DAYS	**For Lab Use Only**
FAX	TAT if different from Below Standard	Walk-in Client:
Project Name: Marshall Landfill GWM	☒ 2 weeks	Lab Sampling
Site: Marshall Landfill Site Design	☐ 1 week	Job / SDG No.
P O # 0504-104-01	☐ 2 days ☐ 1 day	

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PFAS / EPA 1633	Ammonia as N / EPA 350.1	Alkalinity bicarbonate / SM 2320B	TDS / SM 2540C	TOC / SM 5310B	Total K, Mg, Na / EPA 6010D	Dissolved Fe, Ca, Mg / EPA 6010D	Chloride, sulfate, nitrate, nitrite / EPA 300.0	Total Hg / EPA 7470A	Diss Hg / 7470A1	Total As, Cd, Fe, Mn, Pb, Zn / EPA 6020B	Diss As, Cd, Fe, Mn, Pb, Zn / EPA 6020B1	PCE, 1,1,1 TCA / EPA 8260D	1,4-dioxane / EPA 8270E SIM	VOCs 8260D	Sample Specific Notes.
MW-9A:102924	10/29/24	0940	G	W				X	X	X	X	X	X	X	X								
MW-4A 102924	10/29/24	1046	G	W				X	X	X	X	X	X	X	X								
MW-16:102924	10/29/24	1140	G	W				X	X	X	X	X	X	X	X								
MW-5A:102924	10/29/24	1300	G	W				X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Trip Blank	10/29/24	0800	G	W																		X	
Equipment Blank	10/29/24	1400	G	W				X															
Field Blank	10/29/24	1400	G	W				X															
DUP 102924	10/29/24	0800	G	W				X	X	X	X	X	X	X	X	X	X	X	X	X	X		

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4, 4=HNO_3; 5=NaOH; 6= Other ____

590-27797 Chain of Custody

Possible Hazard Identification
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if
☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments
DISSOLVED METALS LAB FILTERED

4.4, 4.9 corr IR0016

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No. | Cooler Temp. (°C) Obs'd: 2.8 Corr'd. 3.3 Therm ID No.: IR0016

Relinquished by:	Company: GeoEngineers	Date/Time: 10/29/24 1433	Received by:	Company: GEL	Date/Time: 10/29/24 1434
Relinquished by:	Company: GEL	Date/Time: 10/29/24 1508	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: EESPO	Date/Time: 10/29/24 1508

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler: N/A	Lab PM: Arrington, Randee E	Carrier Tracking No(s): N/A	COC No: 590-10013.1
Client Contact: Shipping/Receiving	Phone: N/A	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Washington		Job #: 590-27797-1
Address: 4955 Yarrow Street, ,	Due Date Requested: 11/11/2024			Preservation Codes: -
City: Arvada	TAT Requested (days): N/A			
State, Zip: CO, 80002				
Phone: 303-736-0100(Tel) 303-431-7171(Fax)	PO #: N/A			
Email: N/A	WO #: N/A			
Project Name: Marshall Landfill	Project #: 59002669			
Site: N/A	SSOW#: N/A			Other: N/A

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	350.1	SM5310B/ (MOD) TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
MW-9A:102924 (590-27797-1)	10/29/24	09:40 Pacific	G	Water			X	X	2	
MW-4A:102924 (590-27797-2)	10/29/24	10:40 Pacific	G	Water			X	X	2	
MW-16:102924 (590-27797-3)	10/29/24	11:40 Pacific	G	Water			X	X	2	
MW-5A:102924 (590-27797-4)	10/29/24	13:00 Pacific	G	Water			X	X	2	
DUP:102924 (590-27797-8)	10/29/24	08:00 Pacific	G	Water			X	X	2	

Analysis Requested

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	10/30/24 1550	EETSPO	[signature]	10/31/24 0910	EETDEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.6, IR-1, IR-TV1

Ver: 10/10/2024

11/18/2024

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler: N/A	Lab PM: Arrington, Randee E	Carrier Tracking No(s): N/A	COC No: 590-10010 1
Client Contact: Shipping/Receiving	Phone: N/A	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note): State Program - Washington		Job #: 590-27797-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 11/11/2024			Preservation Codes: -
City: West Sacramento	TAT Requested (days): N/A			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #: N/A			
Email: N/A	WO #: N/A			
Project Name: Marshall Landfill	Project #: 59002669			
Site: N/A	SSOW#: N/A			Other: N/A

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1633/1633_SPE EPA 1633 Method List	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-9A.102924 (590-27797-1)	10/29/24	09.40 Pacific	G	Water			X	3	
MW-4A.102924 (590-27797-2)	10/29/24	10 40 Pacific	G	Water			X	3	
MW-16:102924 (590-27797-3)	10/29/24	11.40 Pacific	G	Water			X	3	
MW-5A.102924 (590-27797-4)	10/29/24	13.00 Pacific	G	Water			X	3	
Equipment Blank (590-27797-6)	10/29/24	14 00 Pacific	G	Water			X	3	
Field Blank (590-27797-7)	10/29/24	14 00 Pacific	G	Water			X	3	
DUP-102924 (590-27797-8)	10/29/24	08:00 Pacific	G	Water			X	3	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested. I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	10/30/24 1511	EEC&P	[signature]	11.1.24 930	EEFNW
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.	Cooler Temperature(s) °C and Other Remarks:
	2287022	0.7c

Ver: 10/10/2024

11/18/2024

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

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11/18/2024

Client Information (Sub Contract Lab)	Sampler: N/A	Lab PM: Arrington, Randee E	Carrier Tracking No(s): N/A	COC No: 590-10011.1
Client Contact: Shipping/Receiving	Phone: N/A	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Northwest,		Accreditations Required (See note): State Program - Washington		Job #: 590-27797-1
Address: 5755 8th Street East, ,	Due Date Requested: 11/11/2024			Preservation Codes: -
City: Tacoma	TAT Requested (days): N/A			
State, Zip: WA, 98424				
Phone: 253-922-2310(Tel)	PO #: N/A			
Email: N/A	WO #: N/A			
Project Name: Marshall Landfill	Project #: 59002669			
Site: N/A	SSOW#: N/A			Other: N/A

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample	Perform MS/MSD (Y/N)	6020B/3005A (MOD) Total As, Cd, Fe, Mn, Pb & Zn	6020B/FILTRATION (MOD) Diss As, Cd, Fe, Mn, Pb & Zn	8270C_SIM_MS_ID/3510C_LVI 1,4-Dioxane	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-5A:102924 (590-27797-4)	10/29/24	13:00 Pacific	G	Water			X	X	X		
DUP:102924 (590-27797-8)	10/29/24	08:00 Pacific	G	Water			X	X	X		

Analysis Requested

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		10/30/24 1530	EBSPO		10/31/24 0745	EEN
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.1 0.7 0.6

Ver: 10/10/2024

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-27797-1

Login Number: 27797

List Source: Eurofins Spokane

List Number: 1

Creator: Morris, Mackenzie 1

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-27797-1

Login Number: 27797
List Number: 2
Creator: Little, Matthew L

List Source: Eurofins Denver
List Creation: 10/31/24 05:39 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-27797-1

Login Number: 27797
List Number: 3
Creator: Simmons, Jason C

List Source: Eurofins Sacramento
List Creation: 11/01/24 01:35 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	2287022
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.7c 3.5c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-27797-1

Login Number: 27797
List Number: 4
Creator: O'Connell, Jason I

List Source: Eurofins Seattle
List Creation: 11/01/24 02:02 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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Sacramento Sample Receiving Notes (SSRN)

Job: ___ 590-27797 Field Sheet ___

Tracking # 4080 4802 9896

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSL / OnTrac / Goldstreak / USPS / Other ____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations
File in the job folder with the COC

Therm. ID: L-11 Corr Factor (+ / -) ____ °C

Ice 1 Wet 1 Gel ____ Other ____

Cooler Custody Seal: 2287922

Cooler ID 2 2 3

Temp Observed: 0.7 °C Corrected: 0.7 °C

From Temp Blank ☐ Sandwich ☑ Sidewall ☐

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Frozen samples show signs of thaw?	☐	☐	☑

Initials: ____ Date: 11.1.24

Unpacking/Labeling The Samples	Yes	No	NA
Containers are not broken or leaking?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
COC is complete w/o discrepancies	☑	☐	☐
Sample custody seal?	☐	☐	☑
Sample containers have legible labels?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Is the Field Sampler's name on COC?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials ____ Date 11.1.24

Notes: ____

Trizma Lot #(s). ____

Ammonium Acetate Lot #(s): ____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☑	☐	☐
NCM Filed?	☐	☐	☑
Samples received within hold time?	☐	☐	☑
Log Release checked in TALS?	☐	☐	☑

Initials ____ Date 11.1.24

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Sacramento Sample Receiving Notes (SSRN)

Tracking # 410304802 9885

Job: _____

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSL / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations
File in the job folder with the COC

Therm ID: T11 Corr Factor: (+ / -) _____ °C

Ice 1 Wet 1 Gel _____ Other _____

Cooler Custody Seal: _____

Cooler ID 1 & 2

Temp Observed 3.5 °C Corrected: 3.5 °C

From Temp Blank ☐ Sandwich ☑ Sidewall ☐

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Frozen samples show signs of thaw?	☐	☐	☑

Initials: _____ Date 11.1.24

Unpacking/Labeling The Samples	Yes	No	NA
Containers are not broken or leaking?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
COC is complete w/o discrepancies	☑	☐	☐
Sample custody seal?	☐	☐	☑
Sample containers have legible labels?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Is the Field Sampler's name on COC?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials: _____ Date 11.1.24

Notes: _____

Trizma Lot #(s): _____

Ammonium Acetate Lot #(s): _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☑	☐	☐
NCM Filed?	☐	☐	☑
Samples received within hold time?	☐	☐	☑
Log Release checked in TALS?	☐	☐	☑

Initials: _____ Date: 11.1.24

Isotope Dilution Summary

Client: GeoEngineers Inc
Project/Site: Marshall Landfill

Job ID: 590-27797-1

Method: 8270C SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		DXE							
Lab Sample ID	Client Sample ID	(40-140)							
590-27797-4	MW-5A:102924	55							
590-27797-8	DUP:102924	55							
LCS 580-476706/2-A	Lab Control Sample	59							
LCSD 580-476706/3-A	Lab Control Sample Dup	56							
MB 580-476706/1-A	Method Blank	51							

Surrogate Legend

DXE = 1,4-Dioxane-d8

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA	PFPeA	13C5PHA	C4PFHA	C8PFOA	C9PFNA	C6PFDA	13C7PUA
Lab Sample ID	Client Sample ID	(5-130)	(40-130)	(40-130)	(40-130)	(40-130)	(40-130)	(40-130)	(30-130)
590-27797-1	MW-9A:102924	103	97.7	102	91.3	101	97.7	99.2	93.1
590-27797-2	MW-4A:102924	108	89.4	104	92.4	101	100	98.2	85.6
590-27797-3	MW-16:102924	112	93.7	102	99.9	93.8	101	105	99.5
590-27797-4	MW-5A:102924	107	104	107	96.5	94.2	103	101	88.2
590-27797-6	Equipment Blank	110	99.1	102	97.8	103	106	113	113
590-27797-7	Field Blank	114	108	117	112	109	103	106	98.9
590-27797-8	DUP:102924	114	99.9	106	94.5	105	103	98.4	91.4
LCS 320-812904/3-A	Lab Control Sample	104	93.1	98.8	96.0	99.1	93.5	102	103
LCSD 320-812904/4-A	Lab Control Sample Dup	107	99.8	98.4	95.9	103	108	101	94.5
LLCS 320-812904/2-A	Lab Control Sample	105	91.3	90.1	90.8	94.3	102	100	103
MB 320-812904/1-A	Method Blank	106	101	101	97.6	108	110	102	95.4

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFDoA	PFTDA	C3PFBS	C3PFHS	C8PFOS	PFOSA	d3NMFOS	d5NEFOS
Lab Sample ID	Client Sample ID	(10-130)	(10-130)	(40-135)	(40-130)	(40-130)	(40-130)	(40-170)	(25-135)
590-27797-1	MW-9A:102924	71.5	54.8	101	102	90.1	80.1	87.3	73.1
590-27797-2	MW-4A:102924	67.9	58.8	111	102	86.1	83.4	96.0	75.9
590-27797-3	MW-16:102924	76.9	73.2	107	97.1	93.4	86.3	81.4	71.4
590-27797-4	MW-5A:102924	80.2	73.6	107	105	101	83.0	86.7	70.5
590-27797-6	Equipment Blank	101	72.2	104	108	106	97.9	98.9	85.1
590-27797-7	Field Blank	84.1	81.5	101	109	102	84.8	94.7	83.7
590-27797-8	DUP:102924	72.8	62.6	109	100	100	89.4	83.5	75.5
LCS 320-812904/3-A	Lab Control Sample	85.2	86.2	106	99.9	95.0	82.0	87.9	85.2
LCSD 320-812904/4-A	Lab Control Sample Dup	79.9	70.3	104	104	102	86.8	98.5	87.7
LLCS 320-812904/2-A	Lab Control Sample	92.1	79.1	106	99.2	101	82.1	91.4	79.3
MB 320-812904/1-A	Method Blank	88.2	79.0	104	109	101	83.1	96.5	87.5

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		M242FTS	M282FTS	HFPODA	NMFM	NEFM	d5NPFSA	d3NMFSA	
Lab Sample ID	Client Sample ID	(40-200)	(40-300)	(40-130)	(10-130)	(10-130)	(10-130)	(10-130)	
590-27797-1	MW-9A:102924	92.7	66.9	97.8	58.8	55.9	61.3	70.4	
590-27797-2	MW-4A:102924	101	70.5	102	71.4	62.7	71.2	74.6	
590-27797-3	MW-16:102924	90.7	68.5	108	64.8	60.8	74.8	72.5	
590-27797-4	MW-5A:102924	95.9	69.2	101	67.6	65.9	77.3	77.3	
590-27797-6	Equipment Blank	89.0	82.0	101	74.1	74.8	82.2	87.1	
590-27797-7	Field Blank	97.8	69.7	114	67.3	73.3	77.8	73.9	
590-27797-8	DUP:102924	103	68.8	99.2	70.6	62.9	74.7	76.2	

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	M242FTS (40-200)	M282FTS (40-300)	HFPODA (40-130)	NMFM (10-130)	NEFM (10-130)	d5NPFSA (10-130)	d3NMFSA (10-130)
LCS 320-812904/3-A	Lab Control Sample	91.1		103	74.5	71.1	73.3	78.0
LCSD 320-812904/4-A	Lab Control Sample Dup	90.5		106	80.1	80.7	75.9	75.5
LLCS 320-812904/2-A	Lab Control Sample	98.8		97.7	73.2	70.7	70.8	75.9
MB 320-812904/1-A	Method Blank	89.7		106	77.0	81.0	71.8	73.3

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
13C5PHA = 13C5 PFHxA
C4PFHA = 13C4 PFHpA
C8PFOA = 13C8 PFOA
C9PFNA = 13C9 PFNA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
C8PFOS = 13C8 PFOS
PFOSA = 13C8 FOSA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
M242FTS = 13C2 4:2 FTS
M282FTS = 13C2 8:2 FTS
HFPODA = 13C3 HFPO-DA
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
d5NPFSA = d5-NEtPFOSA
d3NMFSA = d3-NMePFOSA

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M262FTS (40-200)							
590-27797-1 - RA	MW-9A:102924	89.5							
590-27797-2 - RA	MW-4A:102924	90.0							
590-27797-3 - RA	MW-16:102924	85.3							
590-27797-4 - RA	MW-5A:102924	86.5							
590-27797-6 - RA	Equipment Blank	88.2							
590-27797-7 - RA	Field Blank	76.3							
590-27797-8 - RA	DUP:102924	101							

Surrogate Legend

M262FTS = 13C2 6:2 FTS

Isotope Dilution Summary

Client: GeoEngineers Inc
Job ID: 590-27797-1
Project/Site: Marshall Landfill

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	M262FTS (40-200)	M282FTS (40-300)								
LCS 320-812904/3-A - RA	Lab Control Sample	85.3	69.7								
LCSD 320-812904/4-A - RA	Lab Control Sample Dup	99.1	91.3								
LLCS 320-812904/2-A - RA	Lab Control Sample	92.7	86.2								
MB 320-812904/1-A - RA	Method Blank	88.8	83.7								

Surrogate Legend

M262FTS = 13C2 6:2 FTS
M282FTS = 13C2 8:2 FTS

Appendix C
Chemical Analytical Data Review

GeoEngineers

Data Validation Report

523 East Second Avenue, Spokane, Washington 99202, Telephone: 509.363.3125 www.geoengineers.com

Project:	Marshall Landfill Site December 2023 Samples
File:	0504-104-01
Date:	March 11, 2024

This report documents the results of a United States Environmental Protection Agency (USEPA)-defined Stage 2A data validation (USEPA Document 540-R-08-005; USEPA, 2009) of analytical data from the analyses of water samples collected as part of the December 2023 sampling event, and the associated laboratory and field quality control (QC) samples. The samples were obtained from the Marshall Landfill site located in Spokane County, Washington.

Objective and Quality Control Elements

GeoEngineers, Inc. (GeoEngineers) completed the data validation consistent with the USEPA Contract Laboratory Program National Functional for Organic Superfund Methods Data Review (USEPA, 2020a) and Inorganic Superfund Methods Data Review (USEPA, 2020b) (National Functional Guidelines) to determine if the laboratory analytical results meet the project objectives and are usable for their intended purpose. Data usability was assessed by determining if:

- The samples were analyzed using well-defined and acceptable methods that provide reporting limits below applicable regulatory criteria;
- The precision and accuracy of the data are well-defined and sufficient to provide defensible data; and
- The quality assurance/quality control (QA/QC) procedures utilized by the laboratory meet acceptable industry practices and standards.

In accordance with the Quality Assurance Project Plan (QAPP), Appendix B of the Work Plan (GeoEngineers, 2023), the data validation included the review of the following QC elements:

- Data Package Completeness
- Chain-of-Custody Documentation
- Holding Times and Sample Preservation
- Surrogate Recoveries
- Method, Trip, Field, Equipment Blanks
- Matrix Spikes/Matrix Spike Duplicates
- Laboratory Control Samples/Laboratory Control Sample Duplicates
- Laboratory and Field Duplicates
- Miscellaneous
- Validated Sample Delivery Groups

This data validation included review of the sample delivery groups (SDGs) listed below in Table 1.

TABLE 1. SUMMARY OF VALIDATED SAMPLE DELIVERY GROUPS

LABORATORY SDG	SAMPLES VALIDATED
590-22504-1	MW-7B-121423, MW-11A-121423, MW-12A-121423, EB-121423, FB-121423
590-22513-1	MW-2A-121523, MW-5A-121523, DUP-121523, Trip Blank

Chemical Analysis Performed

Eurofins Spokane, Environment Testing, LLC (Eurofins), located in Spokane, Washington, performed laboratory analyses on the samples using one or more of the following methods:

- Volatile Organic Compounds (VOCs) by Method EPA8260D;
- Semi-Volatile Organic Compounds (SVOCs) by Method EPA8270E;
- Chlorinated Herbicides by Method SW8151A;
- Total and Dissolved Metals by Methods SW6010D, SW6020B or SW7470A;
- Anions by Method EPA300.0;
- Ammonia as N by Method EPA350.1;
- Total Alkalinity and Bicarbonate by Method SM2320B;
- Total Dissolved Solids (TDS) by Method SM2540C;
- Total Organic Carbon (TOC) by Method SM5310B;
- Total Cyanide by Method EPA335.4;
- Cyanide (Weak Acid Dissociable) by SM4500CN I; and
- Per- and Polyfluoroalkyl Substances (PFAS) by Method EPA1633

Data Validation Summary

The results for each of the QC elements are summarized below.

DATA PACKAGE COMPLETENESS

Eurofins provided the required deliverables for the data validation according to the National Functional Guidelines. The laboratory followed adequate corrective action processes and the identified anomalies were discussed in the relevant laboratory case narrative.

CHAIN-OF-CUSTODY DOCUMENTATION

Chain-of-custody (COC) forms were provided with the laboratory analytical reports. The COCs were accurate and complete when submitted to the laboratory.

HOLDING TIMES AND SAMPLE PRESERVATION

The sample holding time is defined as the time that elapses between sample collection and sample analysis. Maximum holding time criteria exist for each analysis to help ensure that the analyte concentrations found at the time of analysis reflect the concentration present at the time of sample collection. Established holding times were met for each analysis. The sample coolers arrived at the laboratory within the appropriate temperatures of between 2 and 6 degrees Celsius, with the exception noted below.

SDGs 590-22504-1 and 590-22513-1: (Herbicides) The sample cooler temperatures recorded at the laboratory were 11.8 and 11.9 degrees Celsius. Eurofins sent six samples to their California location for herbicide analyses. The samples were sent in coolers with ice on December 15, 2023. The coolers were received on December 18, 2023 and the ice had melted. The reporting limits for the herbicides target analytes were qualified as estimated (UJ) in Samples MW-2A-121523, MW-5A-121523, DUP-121523, MW-7B-121423, MW-11A-121423 and MW-12A-121423.

SURROGATE RECOVERIES

A surrogate compound is a compound that is chemically similar to the organic analytes of interest, but unlikely to be found in an environmental sample. Surrogates are used for organic analyses and are added to the samples, standards, and blanks to serve as an accuracy and specificity check of each analysis. The surrogates are added to the samples at a known concentration and percent recoveries are calculated following analysis. The surrogate percent recoveries for field samples were within the laboratory control limits, with the following exception:

SDG 590-22504-1: (SVOCs) The percent recovery for surrogate terphenyl-d14 was less than the control limits in Sample MW-7B-121423; however, the sample was spiked with five additional surrogates and in each case the percent recovery values were within their respective control limits. No action was required for this outlier.

METHOD, TRIP, FIELD AND EQUIPMENT BLANKS

Method Blanks

Method blanks are analyzed to ensure that laboratory procedures and reagents do not introduce measurable concentrations of the analytes of interest. A method blank was analyzed with each batch of samples, at a frequency of one per 20 samples. For each sample batch, method blanks for the applicable methods were analyzed at the required frequency. None of the analytes of interest were detected in the method blanks, with the following exceptions:

SDG 590-22504-1: (Alkalinity) There was a positive result for total and bicarbonate alkalinity detected above the method detection limit, but below the reporting limit in the method blank digested on December 27, 2023. The positive results for these target analytes were greater than 10X the concentration in the method blank in the associated field samples; therefore, no qualifications were required.

SDG 590-22513-1: (Alkalinity) There was a positive result for total and bicarbonate alkalinity detected above the method detection limit, but below the reporting limit in the method blank digested on

December 27, 2023. The positive results for these target analytes were greater than 10X the concentration in the method blank in the associated field samples; therefore, no qualifications were required.

Trip Blanks

Trip blanks are analyzed to provide an indication as to whether volatile compounds have cross contaminated other like samples within the transportation process to the laboratory. None of the analytes of interest were detected the trip blank.

Field Blanks

Field blanks are analyzed to provide an indication as to whether there has been cross-contamination from field condition during sample collection. None of the analytes of interest were detected in the field blank.

Equipment Blanks

Equipment rinsate blanks are analyzed to provide an indication as to whether field decontamination and sampling procedures effectively prevent cross-contamination in field activities. None of the analytes of interest were detected in the equipment blank.

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Since the actual analyte concentration in an environmental sample is not known, the accuracy of a particular analysis is usually inferred by performing a matrix spike (MS) analysis on one sample from the associated batch, known as the parent sample. One aliquot of the sample is analyzed in the normal manner and then a second aliquot of the sample is spiked with a known amount of analyte concentration and analyzed. From these analyses, a percent recovery is calculated. Matrix spike duplicate (MSD) analyses are generally performed for organic analyses as a precision check and analyzed in the same sequence as a matrix spike. Using the result values from the MS and MSD, the relative percent difference (RPD) is calculated. The percent recovery control limits for MS and MSD analyses are specified in the laboratory documents, as are the RPD control limits for MS/MSD sample sets.

One MS/MSD analysis should be performed for every analytical batch or every 20 field samples, whichever is more frequent. The frequency requirements were met for each analysis and the percent recovery and RPD values were within the proper control limits.

LABORATORY CONTROL SAMPLES/LABORATORY CONTROL SAMPLE DUPLICATES

A laboratory control sample (LCS) is a blank sample that is spiked with a known amount of analyte and then analyzed. An LCS is similar to an MS, but without the possibility of matrix interference. Given that matrix interference is not an issue, the LCS/LCSD control limits for accuracy and precision are usually more rigorous than for MS/MSD analyses. Additionally, data qualification based on LCS/LCSD analyses would apply to all samples in the associated batch, instead of just the parent sample. The percent recovery control limits for LCS and LCSD analyses are specified in the laboratory documents, as are the RPD control limits for LCS/LCSD sample sets.

One LCS/LCSD analysis should be performed for every analytical batch or every 20 field samples, whichever is more frequent. The frequency requirements were met for all analyses and the percent recovery and RPD values were within the proper control limits, with the following exceptions:

SDG 590-22504-1: (VOCs) The RPD for chloromethane was greater than the control limit in the LCS/LCSD sample set extracted on December 15, 2023. There were no positive results for this target analyte in the associated field samples; therefore, no qualifications were required.

Additionally, in the same LCS/LCSD sample set, the percent recovery for chloromethane was greater than the control limits in the LCS; however, the percent recovery for this target analyte was within the control limits in the corresponding LCSD. No action was required for this outlier.

(Herbicides) The RPD values for 2,4,5-T, 2,4,5-TP, 2,4-D, 2,4-DB, dalapon, dicamba, dichlorprop, dinoseb and MCPA were greater than the control limits in the LCS/LCSD sample set extracted on December 18, 2023. There were no positive results for these target analytes in the associated field samples; therefore, no qualifications were required.

(PFAS) The RPD values for ADONA and PFOS were greater than the control limits in the LCS/LCSD sample set extracted on 1/11/2024. The positive result for PFOS was qualified as estimated (J) in Sample MW-7B-121423.

SDG 590-22513-1: (VOCs) The percent recovery for chloromethane was greater than the control limits in the LCS/LCSD sample set extracted on December 18, 2023. There were no positive results for this target analyte in the associated field samples; therefore, no qualifications were required.

(SVOCs) The RPD values for 1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, hexachlorobutadiene, hexachlorocyclopentadiene, and hexachloroethane were greater than the control limits in the LCS/LCSD sample set extracted on December 21, 2023. There were no positive results for these target analytes in the associated field samples; therefore, no qualifications were required.

Additionally, in the same LCS/LCSD sample set, the percent recoveries for 1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 2-Methylnaphthalene, hexachlorobutadiene, hexachlorocyclopentadiene, hexachloroethane, and naphthalene were less than the control limits in the LCS; however, the percent recoveries for these target analytes were within the control limits in the corresponding LCSD. No action was required for these outliers.

(Herbicides) The RPD values for 2,4,5-T, 2,4,5-TP, 2,4-D, 2,4-DB, dalapon, dicamba, dichlorprop, dinoseb and MCPA were greater than the control limits in the LCS/LCSD sample set extracted on December 18, 2023. There were no positive results for these target analytes in the associated field samples; therefore, no qualifications were required.

LABORATORY DUPLICATES

Internal laboratory duplicate analyses are performed to monitor the precision of the analyses. Two separate aliquots of a sample are analyzed as distinct samples in the laboratory and the RPD between the two results is calculated. Duplicate analyses should be performed once per analytical batch. If one or more of the samples used has a concentration less than 5 times the reporting limit for that sample, the absolute difference is used instead of the RPD. The RPD control limits are specified in the laboratory documents. Laboratory duplicates were analyzed at the proper frequency and the specified acceptance criteria were met.

FIELD DUPLICATES

In order to assess precision, field duplicate samples were collected and analyzed along with the reviewed sample batches. The duplicate samples were analyzed for the same parameters as the associated parent samples. Precision is determined by calculating the RPD between each pair of samples. If one or more of the sample analytes has a concentration less than 5 times the reporting limit for that sample, then the absolute difference is used instead of the RPD. The RPD control limit for water samples is 35 percent.

SDG 590-22513-1: One field duplicate sample pair, MW-5A-121523 and DUP-121523, was submitted with this SDG. The precision criteria for the target analytes were met for this sample pair.

MISCELLANEOUS

SDG 590-22504-1: (PFAS) The laboratory reported two sets of results for Samples MW-7B-121423, MW-11A-121423, MW-12A-121423, EB-121423 and FB-121423, initial results and reanalysis results, due to low level laboratory control sample spiking error. The reanalysis results were labeled as DNR and should not be used for any purpose.

SDG 590-22513-1: (SVOCs) The laboratory reported two sets of results for Samples MW-2A-121523, MW-5A-121523, and DUP-121523, initial results and reanalysis results, due to laboratory control sample outliers. The reanalysis results were labeled as DNR and should not be used for any purpose.

Overall Assessment

As was determined by this data validation, the laboratory followed the specified analytical methods. Accuracy was acceptable, as demonstrated by the surrogate, LCS/LCSD, and MS/MSD percent recovery values, with the exceptions noted above. Precision was acceptable, as demonstrated by the LCS/LCSD, MS/MSD, and laboratory/field duplicate RPD values, with the exceptions noted above.

The data are acceptable for the intended use, with the following qualification listed below in Table 2.

TABLE 2. SUMMARY OF QUALIFIED SAMPLES

SAMPLE ID	ANALYTE	QUALIFIER	REASON
MW-2A-121523	All herbicide target analytes	UJ	Sample Preservation
MW-5A-121523	All herbicide target analytes	UJ	Sample Preservation
DUP-121523	All herbicide target analytes	UJ	Sample Preservation
MW-7B-121423	PFOS All herbicide target analytes	J UJ	LCS/LCSD Precision Sample Preservation
MW-11A-121423	All herbicide target analytes	UJ	Sample Preservation
MW-12A-121423	All herbicide target analytes	UJ	Sample Preservation

References

U.S. Environmental Protection Agency (USEPA). "Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use," EPA-540-R-08-005. January 2009.

U.S. Environmental Protection Agency (USEPA) 2020a. Contract Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review, EPA-540-R-20-005. November 2020.

U.S. Environmental Protection Agency (USEPA) 2020b. Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA-542-R-20-006. November 2020.

GeoEngineers, Inc. "Work Plan, Marshall Landfill Groundwater Monitoring," prepared for Washington State Department of Ecology. November 17, 2023.

Disclaimer: Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

GeoEngineers

Data Validation Report

523 East Second Avenue, Spokane, Washington 99202, Telephone: 509.363.3125 www.geoengineers.com

Project:	Marshall Landfill Site December 2023 Samples
File:	0504-104-01
Date:	April 28, 2024

This report documents the results of a United States Environmental Protection Agency (USEPA)-defined Stage 2A data validation (USEPA Document 540-R-08-005; USEPA, 2009) of analytical data from the analyses of water samples collected as part of the March 2024 sampling event, and the associated laboratory and field quality control (QC) samples. The samples were obtained from the Marshall Landfill site located in Spokane County, Washington.

Objective and Quality Control Elements

GeoEngineers, Inc. (GeoEngineers) completed the data validation consistent with the USEPA Contract Laboratory Program National Functional for Organic Superfund Methods Data Review (USEPA, 2020a) and Inorganic Superfund Methods Data Review (USEPA, 2020b) (National Functional Guidelines) to determine if the laboratory analytical results meet the project objectives and are usable for their intended purpose. Data usability was assessed by determining if:

- The samples were analyzed using well-defined and acceptable methods that provide reporting limits below applicable regulatory criteria;
- The precision and accuracy of the data are well-defined and sufficient to provide defensible data; and
- The quality assurance/quality control (QA/QC) procedures utilized by the laboratory meet acceptable industry practices and standards.

In accordance with the Quality Assurance Project Plan (QAPP), Appendix B of the Work Plan (GeoEngineers, 2023), the data validation included review of the following QC elements:

- Data Package Completeness
- Chain-of-Custody Documentation
- Holding Times and Sample Preservation
- Surrogate Recoveries
- Method, Trip, and Field Blanks
- Matrix Spikes/Matrix Spike Duplicates
- Laboratory Control Samples/Laboratory Control Sample Duplicates
- Laboratory and Field Duplicates

Validated Sample Delivery Groups

This data validation included review of the sample delivery group (SDG) listed below in Table 1.

TABLE 1. SUMMARY OF VALIDATED SAMPLE DELIVERY GROUPS

LABORATORY SDG	SAMPLES VALIDATED
590-23966-1	MW-2A-032624, MW-5A-032724, DUP-032724, MW-7B-032724, MW-8A-032624, MW-9A-032624, MW-12A-032524, MW-15A-032524, MW-16A-032624, FB-032524, TB-2/26

Chemical Analysis Performed

Eurofins Spokane, Environment Testing, LLC (Eurofins), located in Spokane, Washington, performed laboratory analyses on the samples using one or more of the following methods:

- Volatile Organic Compounds (VOCs) by Method EPA8260D;
- Semi-Volatile Organic Compounds (SVOCs) by Method EPA8270C-SIM;
- Total and Dissolved Metals by Methods SW6010D, SW6020B, or SW7470A;
- Anions by Method EPA300.0;
- Ammonia as N by Method EPA350.1;
- Total Alkalinity and Bicarbonate by Method SM2320B;
- Total Dissolved Solids (TDS) by Method SM2540C;
- Total Organic Carbon (TOC) by Method SM5310B; and
- Per- and Polyfluoroalkyl Substances (PFAS) by Method EPA1633

Data Validation Summary

The results for each of the QC elements are summarized below.

DATA PACKAGE COMPLETENESS

Eurofins provided the required deliverables for the data validation according to the National Functional Guidelines. The laboratory followed adequate corrective action processes and the identified anomalies were discussed in the relevant laboratory case narrative.

CHAIN-OF-CUSTODY DOCUMENTATION

Chain-of-custody (COC) forms were provided with the laboratory analytical reports. The COCs were accurate and complete when submitted to the laboratory.

HOLDING TIMES AND SAMPLE PRESERVATION

The sample holding time is defined as the time that elapses between sample collection and sample analysis. Maximum holding time criteria exist for each analysis to help ensure that the analyte concentrations found at the time of analysis reflect the concentration present at the time of sample collection. Established holding times were met for each analysis, with the exceptions noted below. The

sample coolers arrived at the laboratory within the appropriate temperatures of between 2 and 6 degrees Celsius.

SDG 590-23966-1: (Anions) The 48-hour holding time for nitrate and nitrite analyses was exceeded in Samples MW-2A-032624 and MW-12A-032524. The positive results for nitrate and the reporting limits for nitrite were qualified as estimated (J and UJ, respectively) in these samples.

SURROGATE RECOVERIES

A surrogate compound is a compound that is chemically similar to the organic analytes of interest, but unlikely to be found in an environmental sample. Surrogates are used for organic analyses and are added to the samples, standards, and blanks to serve as an accuracy and specificity check of each analysis. The surrogates are added to the samples at a known concentration and percent recoveries are calculated following analysis. The surrogate percent recoveries for field samples were within the laboratory control limits, with the following exceptions:

SDG 590-23966-1: (SVOCs) The percent recovery for surrogate 1,4-Dioxane-d8 was less than the control limits in Samples MW-5A-032724, DUP-032724, MW-7B-032724, and MW-12A-032524. The positive result for 1,4-Dioxane was qualified as estimated (J) in Sample MW-7B-032724. The reporting limits for 1,4-Dioxane were qualified as estimated (UJ) in Samples MW-5A-032724, DUP-032724 and MW-12A-032524.

METHOD, TRIP, AND FIELD BLANKS

Method Blanks

Method blanks are analyzed to ensure that laboratory procedures and reagents do not introduce measurable concentrations of the analytes of interest. A method blank was analyzed with each batch of samples, at a frequency of 1 per 20 samples. For each sample batch, method blanks for the applicable methods were analyzed at the required frequency. None of the analytes of interest were detected in the method blanks, with the following exceptions:

SDG 590-23966-1: (SVOCs) There was a positive result for 1,4-Dioxane detected above the method detection limit, but below the reporting limit in the method blank extracted on April 1, 2024. The positive result for this target analyte was qualified as non-detected (U) in Sample MW-7B-032724.

(Total and Dissolved Metals) There was a positive result for total and dissolved mercury detected above the method detection limit, but below the reporting limit in the method blank digested on April 11, 2024. The positive results for these target analytes were qualified as non-detected (U) in Samples MW-2A-032624, MW-5A-032724, DUP-032724, MW-7B-032724, and MW-12A-032524.

(Alkalinity) There was a positive result for total and bicarbonate alkalinity detected above the method detection limit, but below the reporting limit in the method blank digested on April 8, 2024. The positive results for these target analytes were greater than 10X the concentration in the method blank in the associated field samples; therefore, no qualifications were required.

Trip Blanks

Trip blanks are analyzed to provide an indication as to whether volatile compounds have cross contaminated other like samples within the transportation process to the laboratory. None of the analytes of interest were detected the trip blank.

Field Blanks

Field blanks are analyzed to provide an indication as to whether there has been cross-contamination from field condition during sample collection. None of the analytes of interest were detected in the field blank.

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Since the actual analyte concentration in an environmental sample is not known, the accuracy of a particular analysis is usually inferred by performing a matrix spike (MS) analysis on one sample from the associated batch, known as the parent sample. One aliquot of the sample is analyzed in the normal manner and then a second aliquot of the sample is spiked with a known amount of analyte concentration and analyzed. From these analyses, a percent recovery is calculated. Matrix spike duplicate (MSD) analyses are generally performed for organic analyses as a precision check and analyzed in the same sequence as a matrix spike. Using the result values from the MS and MSD, the relative percent difference (RPD) is calculated. The percent recovery control limits for MS and MSD analyses are specified in the laboratory documents, as are the RPD control limits for MS/MSD sample sets.

One MS/MSD analysis should be performed for every analytical batch or every 20 field samples, whichever is more frequent. The frequency requirements were met for each analysis and the percent recovery and RPD values were within the proper control limits.

LABORATORY CONTROL SAMPLES/LABORATORY CONTROL SAMPLE DUPLICATES

A laboratory control sample (LCS) is a blank sample that is spiked with a known amount of analyte and then analyzed. An LCS is similar to an MS, but without the possibility of matrix interference. Given that matrix interference is not an issue, the LCS/LCSD control limits for accuracy and precision are usually more rigorous than for MS/MSD analyses. Additionally, data qualification based on LCS/LCSD analyses would apply to all samples in the associated batch, instead of just the parent sample. The percent recovery control limits for LCS and LCSD analyses are specified in the laboratory documents, as are the RPD control limits for LCS/LCSD sample sets.

One LCS/LCSD analysis should be performed for every analytical batch or every 20 field samples, whichever is more frequent. The frequency requirements were met for all analyses and the percent recovery and RPD values were within the proper control limits.

LABORATORY DUPLICATES

Internal laboratory duplicate analyses are performed to monitor the precision of the analyses. Two separate aliquots of a sample are analyzed as distinct samples in the laboratory and the RPD between the two results is calculated. Duplicate analyses should be performed once per analytical batch. If one or more of the samples used has a concentration less than five times the reporting limit for that sample, the absolute difference is used instead of the RPD. The RPD control limits are specified in the laboratory documents.

Laboratory duplicates were analyzed at the proper frequency and the specified acceptance criteria were met, with the following exception:

SDG 590-23966-1: (Dissolved Metals) The laboratory performed a laboratory duplicate sample set on Sample MW-12A-032524. The RPD for dissolved magnesium was greater than the control limit in the laboratory duplicate digested on April 11, 2024. The positive result for this target analyte was qualified as estimated (J) in Sample MW-12A-032524.

FIELD DUPLICATES

In order to assess precision, field duplicate samples were collected and analyzed along with the reviewed sample batches. The duplicate samples were analyzed for the same parameters as the associated parent samples. Precision is determined by calculating the RPD between each pair of samples. If one or more of the sample analytes has a concentration less than five times the reporting limit for that sample, then the absolute difference is used instead of the RPD. The RPD control limit for water samples is 35 percent.

SDG 590-23966-1: One field duplicate sample pair, MW-5A-032724 and DUP-032724, was submitted with this SDG. The precision criteria for the target analytes were met for this sample pair, with the exception of nitrite. The positive result and reporting limit for this target analyte was qualified as estimated (J and UJ, accordingly) in this sample pair.

Overall Assessment

As was determined by this data validation, the laboratory followed the specified analytical methods. Accuracy was acceptable, as demonstrated by the surrogate, LCS/LCSD, and MS/MSD percent recovery values, with the exceptions noted above. Precision was acceptable, as demonstrated by the LCS/LCSD, MS/MSD, and laboratory/field duplicate RPD values, with the exceptions noted above.

The data are acceptable for the intended use, with the following qualification listed below in Table 2.

TABLE 2. SUMMARY OF QUALIFIED SAMPLES

SAMPLE ID	ANALYTE	QUALIFIER	REASON
MW-2A-032624	Total mercury	U	Method Blank Contamination
	Dissolved mercury	U	Method Blank Contamination
	Nitrate	J	Holding Time
	Nitrite	UJ	Holding Time
MW-5A-032724	1,4-Dioxane	UJ	Surrogate Recovery
	Total mercury	U	Method Blank Contamination
	Dissolved mercury	U	Method Blank Contamination
	Nitrite	UJ	Field Duplicate Precision
DUP-032724	1,4-Dioxane	UJ	Surrogate Recovery
	Total mercury	U	Method Blank Contamination
	Dissolved mercury	U	Method Blank Contamination
	Nitrite	J	Field Duplicate Precision

SAMPLE ID	ANALYTE	QUALIFIER	REASON
MW-7B-032724	1,4-Dioxane	UJ	Surrogate Recovery/Method Blank Contamination
	Total mercury	U	Method Blank Contamination
	Dissolved mercury	U	Method Blank Contamination
MW-12A-032524	1,4-Dioxane	UJ	Surrogate Recovery
	Dissolved magnesium	J	Laboratory Duplicate Precision
	Total mercury	U	Method Blank Contamination
	Dissolved mercury	U	Method Blank Contamination
	Nitrate	J	Holding Time
	Nitrite	UJ	Holding Time

References

U.S. Environmental Protection Agency (USEPA). "Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use," EPA-540-R-08-005. January 2009.

U.S. Environmental Protection Agency (USEPA) 2020a. Contract Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review, EPA-540-R-20-005. November 2020.

U.S. Environmental Protection Agency (USEPA) 2020b. Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA-542-R-20-006. November 2020.

GeoEngineers, Inc. "Work Plan, Marshall Landfill Groundwater Monitoring," prepared for Washington State Department of Ecology. November 17, 2023.

GeoEngineers

Data Validation Report

523 East Second Avenue, Spokane, Washington 99202, Telephone: 509.363.3125 www.geoengineers.com

Project:	Marshall Landfill Site June 2024 Samples
File:	0504-104-01
Date:	July 26, 2024

This report documents the results of a United States Environmental Protection Agency (USEPA)-defined Stage 2A data validation (USEPA Document 540-R-08-005; USEPA, 2009) of analytical data from the analyses of water samples collected as part of the June 2024 sampling event, and the associated laboratory and field quality control (QC) samples. The samples were obtained from the Marshall Landfill site located in Spokane County, Washington.

Objective and Quality Control Elements

GeoEngineers, Inc. (GeoEngineers) completed the data validation consistent with the USEPA Contract Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review (USEPA, 2020a) and Inorganic Superfund Methods Data Review (USEPA, 2020b) (National Functional Guidelines) to determine if the laboratory analytical results meet the project objectives and are usable for their intended purpose. Data usability was assessed by determining if:

- The samples were analyzed using well-defined and acceptable methods that provide reporting limits below applicable regulatory criteria;
- The precision and accuracy of the data are well-defined and sufficient to provide defensible data; and
- The quality assurance/quality control (QA/QC) procedures utilized by the laboratory meet acceptable industry practices and standards.

In accordance with the Quality Assurance Project Plan (QAPP), Appendix B of the Work Plan (GeoEngineers, 2023), the data validation included review of the following QC elements:

- Data Package Completeness
- Chain-of-Custody Documentation
- Holding Times and Sample Preservation
- Surrogate Recoveries
- Method, Trip, and Field Blanks
- Matrix Spikes/Matrix Spike Duplicates
- Laboratory Control Samples/Laboratory Control Sample Duplicates
- Laboratory and Field Duplicates

Validated Sample Delivery Groups

This data validation included review of the sample delivery groups (SDGs) listed below in Table 1.

TABLE 1. SUMMARY OF VALIDATED SAMPLE DELIVERY GROUPS

LABORATORY SDG	SAMPLES VALIDATED
590-25435-1	MW-8A-061824, MW-9A-061824
590-25447-1	MW-7B-061924, MW-12A-061924, MW-15A-061924
590-25479-1	MW-2A-062024, MW-5A-062024, DUP-062024, MW-16A-062024, FB-062024
590-25486-1	MW-3-062124, Hose Bib-062124, TB-062124

Chemical Analysis Performed

Eurofins Spokane, Environment Testing, LLC (Eurofins), located in Spokane, Washington, performed laboratory analyses on the samples using one or more of the following methods:

- Volatile Organic Compounds (VOCs) by Method EPA8260D;
- Semi-Volatile Organic Compounds (SVOCs) by Method EPA8270C-SIM;
- Total and Dissolved Metals by Methods SW6010D, SW6020B, or SW7470A;
- Anions by Method EPA300.0;
- Ammonia as N by Method EPA350.1;
- Total Alkalinity and Bicarbonate by Method SM2320B;
- Total Dissolved Solids (TDS) by Method SM2540C;
- Total Organic Carbon (TOC) by Method SM5310B;
- Per- and Polyfluoroalkyl Substances (PFAS) by Method EPA1633; and
- Pharmaceuticals and Personal Care Products (PPCP) by Method EPA1694

Data Validation Summary

The results for each of the QC elements are summarized below.

DATA PACKAGE COMPLETENESS

Eurofins provided the required deliverables for the data validation according to the National Functional Guidelines. The laboratory followed adequate corrective action processes and the identified anomalies were discussed in the relevant laboratory case narrative.

CHAIN-OF-CUSTODY DOCUMENTATION

Chain-of-custody (COC) forms were provided with the laboratory analytical reports. The COCs were accurate and complete when submitted to the laboratory.

HOLDING TIMES AND SAMPLE PRESERVATION

The sample holding time is defined as the time that elapses between sample collection and sample analysis. Maximum holding time criteria exist for each analysis to help ensure that the analyte

concentrations found at the time of analysis reflect the concentration present at the time of sample collection. Established holding times were met for each analysis, with the exception noted below. The sample cooler arrived at the laboratory within the appropriate temperatures of between 2 and 6 degrees Celsius, with the exceptions noted below.

SDG 590-25447-1: One sample cooler temperature recorded at the laboratory was 11.5 degrees Celsius. It was determined through professional judgment that since the samples were received on ice at the laboratory the same day they were collected, and the cooling process had begun, this temperature should likely not affect the sample analytical results.

SDG 590-25479-1: Two sample cooler temperatures recorded at the laboratory were 11.7 and 13.7 degrees Celsius. It was determined through professional judgment that since the samples were received on ice at the laboratory the same day they were collected, and the cooling process had begun, these temperatures should likely not affect the sample analytical results.

SDG 590-25486-1: (VOCs) The 14-day holding time for VOC analysis was exceeded in Sample TB-062124. The reporting limit for trichloroethene was qualified as estimated (UJ) in this sample.

SURROGATE RECOVERIES

A surrogate compound is a compound that is chemically similar to the organic analytes of interest, but unlikely to be found in an environmental sample. Surrogates are used for organic analyses and are added to the samples, standards, and blanks to serve as an accuracy and specificity check of each analysis. The surrogates are added to the samples at a known concentration and percent recoveries are calculated following analysis. The surrogate percent recoveries for field samples were within the laboratory control limits, with the following exception:

SDG 590-25479-1: (VOCs) The percent recovery of surrogate dibromofluoromethane was greater than the control limits in Sample DUP-062024; however, the sample was spiked with three additional surrogates and in each case the percent recovery values were within their respective control limits. No action was required for this outlier.

METHOD, TRIP, AND FIELD BLANKS

Method Blanks

Method blanks are analyzed to ensure that laboratory procedures and reagents do not introduce measurable concentrations of the analytes of interest. A method blank was analyzed with each batch of samples, at a frequency of 1 per 20 samples. For each sample batch, method blanks for the applicable methods were analyzed at the required frequency. None of the analytes of interest were detected in the method blanks, with the following exceptions:

SDG 590-25435-1: (Alkalinity) There was a positive result for total and bicarbonate alkalinity detected above the method detection limit, but below the reporting limit in the method blank digested on June 26, 2024. The positive results for these target analytes were greater than 10X the concentration in the method blank in the associated field samples; therefore, no qualifications were required.

SDG 590-25447-1: (Total Metals) There was a positive result for total lead detected above the method detection limit, but below the reporting limit in the method blank digested on June 21, 2024. There were no positive results for this target analyte in the associated field sample; therefore, no qualification was required.

(Alkalinity) There was a positive result for total and bicarbonate alkalinity detected above the method detection limit, but below the reporting limit in the method blank digested on June 26, 2024. The positive results for these target analytes were greater than 10X the concentration in the method blank in the associated field samples; therefore, no qualifications were required.

SDG 590-25479-1: (Alkalinity) There was a positive result for total and bicarbonate alkalinity detected above the method detection limit, but below the reporting limit in the method blank digested on June 26, 2024. The positive results for these target analytes were greater than 10X the concentration in the method blank in the associated field samples; therefore, no qualifications were required.

SDG 590-25486-1: (Alkalinity) There was a positive result for total and bicarbonate alkalinity detected above the method detection limit, but below the reporting limit in the method blank digested on June 26, 2024. The positive results for these target analytes were greater than 10X the concentration in the method blank in the associated field samples; therefore, no qualifications were required.

Trip Blanks

Trip blanks are analyzed to provide an indication as to whether volatile compounds have cross-contaminated other like samples within the transportation process to the laboratory. None of the analytes of interest were detected in the trip blank. Methylene chloride, a common laboratory chemical, was detected in the trip blank, but not in the monitoring well samples, indicating a laboratory contamination source.

Field Blanks

Field blanks are analyzed to provide an indication as to whether there has been cross-contamination from field conditions during sample collection. None of the analytes of interest were detected in the field blank.

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Since the actual analyte concentration in an environmental sample is not known, the accuracy of a particular analysis is usually inferred by performing a matrix spike (MS) analysis on one sample from the associated batch, known as the parent sample. One aliquot of the sample is analyzed in the normal manner and then a second aliquot of the sample is spiked with a known amount of analyte concentration and analyzed. From these analyses, a percent recovery is calculated. Matrix spike duplicate (MSD) analyses are generally performed for organic analyses as a precision check and analyzed in the same sequence as a matrix spike. Using the result values from the MS and MSD, the relative percent difference (RPD) is calculated. The percent recovery control limits for MS and MSD analyses are specified in the laboratory documents, as are the RPD control limits for MS/MSD sample sets.

One MS/MSD analysis should be performed for every analytical batch or every 20 field samples, whichever is more frequent. The frequency requirements were met for each analysis and the percent recovery and RPD values were within the proper control limits, with the following exception:

SDG 590-25435-1: (Dissolved Metals) The laboratory performed an MS/MSD sample set on Sample MW-9A-061824. The percent recovery for dissolved calcium was less than the control limits in the MS digested on July 2, 2024; however, the percent recovery for this target analyte was within the control limits in the corresponding MSD. No action was required for this outlier.

LABORATORY CONTROL SAMPLES/LABORATORY CONTROL SAMPLE DUPLICATES

A laboratory control sample (LCS) is a blank sample that is spiked with a known amount of analyte and then analyzed. An LCS is similar to an MS, but without the possibility of matrix interference. Given that matrix interference is not an issue, the LCS/LCSD control limits for accuracy and precision are usually more rigorous than for MS/MSD analyses. Additionally, data qualification based on LCS/LCSD analyses would apply to all samples in the associated batch, instead of just the parent sample. The percent recovery control limits for LCS and LCSD analyses are specified in the laboratory documents, as are the RPD control limits for LCS/LCSD sample sets.

One LCS/LCSD analysis should be performed for every analytical batch or every 20 field samples, whichever is more frequent. The frequency requirements were met for each analysis and the percent recovery and RPD values were within the proper control limits, with the following exceptions:

SDG 590-25486-1: (VOCs) The percent recoveries for 2,2-Dichloropropane was greater than the control limits in the LCS/LCSD extracted on July 3, 2024. There were no positive results for this target analyte in the associated field sample; therefore, no qualification was required.

LABORATORY DUPLICATES

Internal laboratory duplicate analyses are performed to monitor the precision of the analyses. Two separate aliquots of a sample are analyzed as distinct samples in the laboratory and the RPD between the two results is calculated. Duplicate analyses should be performed once per analytical batch. If one or more of the samples used has a concentration less than five times the reporting limit for that sample, the absolute difference is used instead of the RPD. The RPD control limits are specified in the laboratory documents. Laboratory duplicates were analyzed at the proper frequency and the specified acceptance criteria were met.

FIELD DUPLICATES

In order to assess precision, field duplicate samples were collected and analyzed along with the reviewed sample batches. The duplicate samples were analyzed for the same parameters as the associated parent samples. Precision is determined by calculating the RPD between each pair of samples. If one or more of the sample analytes has a concentration less than five times the reporting limit for that sample, then the absolute difference is used instead of the RPD. The RPD control limit for water samples is 35 percent.

SDG 590-25479-1: One field duplicate sample pair, MW-5A-062024 and DUP-062024, was submitted with this SDG. The precision criteria for the target analytes were met for this sample pair.

Overall Assessment

As was determined by this data validation, the laboratory followed the specified analytical methods. Accuracy was acceptable, as demonstrated by the surrogate, LCS/LCSD, and MS/MSD percent recovery values, with the exceptions noted above. Precision was acceptable, as demonstrated by the LCS/LCSD, MS/MSD, and laboratory/field duplicate RPD values.

The data are acceptable for the intended use, with the following qualification listed below in Table 2.

TABLE 2. SUMMARY OF QUALIFIED SAMPLES

SAMPLE ID	ANALYTE	QUALIFIER	REASON
TB-062124	Trichloroethene	UJ	Holding Time

References

U.S. Environmental Protection Agency (USEPA). "Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use," EPA-540-R-08-005. January 2009.

U.S. Environmental Protection Agency (USEPA) 2020a. Contract Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review, EPA-540-R-20-005. November 2020.

U.S. Environmental Protection Agency (USEPA) 2020b. Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA-542-R-20-006. November 2020.

GeoEngineers, Inc. "Work Plan, Marshall Landfill Groundwater Monitoring," prepared for Washington State Department of Ecology. November 17, 2023. Updated June 6, 2024.

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GeoEngineers

Data Validation Report

523 East Second Avenue, Spokane, Washington 99202, Telephone: 509.363.3125 www.geoengineers.com

Project:	Marshall Landfill Site October 2024 Samples
File:	00504-104-01
Date:	December 4, 2024

This report documents the results of a United States Environmental Protection Agency (USEPA)-defined Stage 2A data validation (USEPA Document 540-R-08-005; USEPA, 2009) of analytical data from the analyses of water samples collected as part of the October 2024 sampling event, and the associated laboratory and field quality control (QC) samples. The samples were obtained from the Marshall Landfill site located in Spokane County, Washington.

Objective and Quality Control Elements

GeoEngineers, Inc. (GeoEngineers) completed the data validation consistent with the USEPA Contract Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review (USEPA, 2020a) and Inorganic Superfund Methods Data Review (USEPA, 2020b) (National Functional Guidelines) to determine if the laboratory analytical results meet the project objectives and are usable for their intended purpose. Data usability was assessed by determining if:

- The samples were analyzed using well-defined and acceptable methods that provide reporting limits below applicable regulatory criteria;
- The precision and accuracy of the data are well-defined and sufficient to provide defensible data; and
- The quality assurance/quality control (QA/QC) procedures utilized by the laboratory meet acceptable industry practices and standards.

In accordance with the Quality Assurance Project Plan (QAPP), Appendix B of the Work Plan (GeoEngineers, 2023), the data validation included review of the following QC elements:

- Data Package Completeness
- Chain-of-Custody Documentation
- Holding Times and Sample Preservation
- Surrogate Recoveries
- Method, Trip, Equipment, and Field Blanks
- Matrix Spikes/Matrix Spike Duplicates
- Laboratory Control Samples/Laboratory Control Sample Duplicates
- Laboratory and Field Duplicates
- Miscellaneous

Validated Sample Delivery Groups

This data validation included review of the sample delivery groups (SDGs) listed below in Table 1.

TABLE 1. SUMMARY OF VALIDATED SAMPLE DELIVERY GROUPS

LABORATORY SDG	SAMPLES VALIDATED
590-27742-1	MW-3:102524, MW-2A:102524, MW-12A:102524, Trip Blank
590-27772-1	MW-7B:102824, MW-8B:102824, MW-11A:102824, MW-15:102824, MW-15A:102824, Trip Blank
590-27797-1	MW-4A:102924, MW-5A:102924, DUP:102924, MW-9A:102924, MW-16:102924, Equipment Blank, Field Blank, Trip Blank

Chemical Analysis Performed

Eurofins Spokane, Environment Testing, LLC (Eurofins), located in Spokane, Washington, performed laboratory analyses on the samples using one or more of the following methods:

- Volatile Organic Compounds (VOCs) by Method EPA8260D;
- Semi-Volatile Organic Compounds (SVOCs) by Method EPA8270C-SIM or EPA8270E-SIM;
- Total and Dissolved Metals by Methods SW6010D, SW6020B, or SW7470A;
- Anions by Method EPA300.0;
- Ammonia as N by Method EPA350.1;
- Total Alkalinity and Bicarbonate Alkalinity by Method SM2320B;
- Total Dissolved Solids (TDS) by Method SM2540C;
- Total Organic Carbon (TOC) by Method SM5310B; and
- Per- and Polyfluoroalkyl Substances (PFAS) by Method EPA1633

Data Validation Summary

The results for each of the QC elements are summarized below.

DATA PACKAGE COMPLETENESS

Eurofins provided the required deliverables for the data validation according to the National Functional Guidelines. The laboratory followed adequate corrective action processes and the identified anomalies were discussed in the relevant laboratory case narrative.

CHAIN-OF-CUSTODY DOCUMENTATION

Chain-of-custody (COC) forms were provided with the laboratory analytical reports. The COCs were accurate and complete when submitted to the laboratory.

HOLDING TIMES AND SAMPLE PRESERVATION

The sample holding time is defined as the time that elapses between sample collection and sample analysis. Maximum holding time criteria exist for each analysis to help ensure that the analyte concentrations found at the time of analysis reflect the concentration present at the time of sample collection. Established holding times were met for each analysis, with the exceptions noted below. The sample coolers arrived at the laboratory within the appropriate temperatures of between 2 and 6 degrees Celsius, with the exception noted below.

SDG 590-27742-1: (Anions) The 48-hour holding time for nitrate and nitrite analyses was exceeded in Samples MW-2A:102524, MW-3:102524, and MW-12A:102524. The positive results and reporting limits for these target analytes were qualified as estimated (J and UJ, accordingly) in these samples.

SDG 590-27772-1: One sample cooler temperature recorded at the laboratory was 6.5 degrees Celsius. It was determined through professional judgment that since the samples were received on ice at the laboratory the same day they were collected, and the cooling process had begun, this temperature should likely not affect the sample analytical results.

SURROGATE RECOVERIES

A surrogate compound is a compound that is chemically similar to the organic analytes of interest, but unlikely to be found in an environmental sample. Surrogates are used for organic analyses and are added to the samples, standards, and blanks to serve as an accuracy and specificity check of each analysis. The surrogates are added to the samples at a known concentration and percent recoveries are calculated following analysis. The surrogate percent recoveries for field samples were within the laboratory control limits, with the following exception:

SDG 590-27742-1: (SVOCs) The percent recovery of surrogate 1,4-Dioxane-d8 was less than the control limits in Sample MW-2A:102524. The reporting limit for 1,4-Dioxane was qualified as estimated (UJ) in this sample.

METHOD, TRIP AND FIELD BLANKS

Method Blanks

Method blanks are analyzed to ensure that laboratory procedures and reagents do not introduce measurable concentrations of the analytes of interest. A method blank was analyzed with each batch of samples, at a frequency of 1 per 20 samples. For each sample batch, method blanks for the applicable methods were analyzed at the required frequency. None of the analytes of interest were detected in the method blanks, with the following exceptions:

SDG 590-27742-1: (Total Metals) There was a positive result for total cadmium, total iron, and total lead detected above the method detection limit, but below the reporting limit in the method blank digested on October 29, 2024. There were no positive results for these target analytes in the associated field samples; therefore, no qualifications were required.

(Dissolved Metals) There was a positive result for dissolved cadmium, dissolved lead, dissolved manganese, and dissolved zinc detected above the method detection limit, but below the reporting limit in

the method blank digested on November 4, 2024. There were no positive results for these target analytes in the associated field samples; therefore, no qualifications were required.

(Alkalinity) There was a positive result for total and bicarbonate alkalinity detected above the method detection limit, but below the reporting limit in the method blank digested on November 8, 2024. The positive results for these target analytes were greater than 10X the concentration in the method blank in the associated field samples; therefore, no qualifications were required.

SDG 590-27772-1: (Total Metals) There was a positive result for total lead, total manganese, and total zinc detected above the method detection limit, but below the reporting limit in the method blank digested on November 1, 2024. The positive result for total manganese was qualified as non-detected (U) in Sample MW-7B:102824. There were no positive results for total lead and total zinc in this sample; therefore, no qualifications were required.

(Dissolved Metals) There was a positive result for dissolved cadmium, dissolved lead, dissolved manganese, and dissolved zinc detected above the method detection limit, but below the reporting limit in the method blank digested on November 4, 2024. There were no positive results for these target analytes in the associated field sample; therefore, no qualifications were required.

(Alkalinity) There was a positive result for total and bicarbonate alkalinity detected above the method detection limit, but below the reporting limit in the method blank digested on November 8, 2024. The positive results for these target analytes were greater than 10X the concentration in the method blank in the associated field samples; therefore, no qualifications were required.

SDG 590-27797-1: (Total Metals) There was a positive result for total iron, total lead, and total zinc detected above the method detection limit, but below the reporting limit in the method blank digested on November 1, 2024. The positive results for total lead were qualified as non-detected (U) in Samples MW-5A:102924 and DUP:102924. There were no positive results for total iron and total zinc in these samples; therefore, no qualifications were required.

(Dissolved Metals) There was a positive result for dissolved cadmium, dissolved lead, dissolved manganese, and dissolved zinc detected above the method detection limit, but below the reporting limit in the method blank digested on November 4, 2024. The positive result for dissolved lead was qualified as non-detected (U) in Sample MW-5A:102924. There were no positive results for dissolved cadmium, dissolved manganese, and dissolved zinc in Sample MW-5A:102924 and there were no positive results for dissolved cadmium, dissolved lead, dissolved manganese, and dissolved zinc in Sample DUP:102924; therefore, no qualifications were required.

(Alkalinity) There was a positive result for total and bicarbonate alkalinity detected above the method detection limit, but below the reporting limit in the method blank digested on November 8, 2024. The positive results for these target analytes were greater than 10X the concentration in the method blank in the associated field samples; therefore, no qualifications were required.

Trip Blanks

Trip blanks are analyzed to provide an indication as to whether volatile compounds have cross-contaminated other like samples within the transportation process to the laboratory. None of the analytes of interest were detected in the trip blanks.

Equipment Blanks

Equipment rinsate blanks are analyzed to provide an indication as to whether field decontamination and sampling procedures effectively prevent cross-contamination in field activities. None of the analytes of interest were detected in the equipment blank.

Field Blanks

Field blanks are analyzed to provide an indication as to whether there has been cross-contamination from field conditions during sample collection. None of the analytes of interest were detected in the field blank.

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Since the actual analyte concentration in an environmental sample is not known, the accuracy of a particular analysis is usually inferred by performing a matrix spike (MS) analysis on one sample from the associated batch, known as the parent sample. One aliquot of the sample is analyzed in the normal manner and then a second aliquot of the sample is spiked with a known amount of analyte concentration and analyzed. From these analyses, a percent recovery is calculated. Matrix spike duplicate (MSD) analyses are generally performed for organic analyses as a precision check and analyzed in the same sequence as a matrix spike. Using the result values from the MS and MSD, the relative percent difference (RPD) is calculated. The percent recovery control limits for MS and MSD analyses are specified in the laboratory documents, as are the RPD control limits for MS/MSD sample sets.

One MS/MSD analysis should be performed for every analytical batch or every 20 field samples, whichever is more frequent. The frequency requirements were met for each analysis and the percent recovery and RPD values were within the proper control limits, with the following exception:

SDG 590-27742-1: (Anions) The laboratory performed an MS/MSD sample set on Sample MW-3:102524. The percent recovery for chloride was less than the control limits in the MS/MSD extracted on October 28, 2024. The positive result for this target analyte was qualified as estimated (J) in this sample.

LABORATORY CONTROL SAMPLES/LABORATORY CONTROL SAMPLE DUPLICATES

A laboratory control sample (LCS) is a blank sample that is spiked with a known amount of analyte and then analyzed. An LCS is similar to an MS, but without the possibility of matrix interference. Given that matrix interference is not an issue, the LCS/LCSD control limits for accuracy and precision are usually more rigorous than for MS/MSD analyses. Additionally, data qualification based on LCS/LCSD analyses would apply to all samples in the associated batch, instead of just the parent sample. The percent recovery control limits for LCS and LCSD analyses are specified in the laboratory documents, as are the RPD control limits for LCS/LCSD sample sets.

One LCS/LCSD analysis should be performed for every analytical batch or every 20 field samples, whichever is more frequent. The frequency requirements were met for each analysis and the percent recovery and RPD values were within the proper control limits, with the following exceptions:

SDG 590-27772-1: (VOCs) The percent recoveries for chloroform and cis-1,2-Dichloroethene were less than the control limits in the LCSD extracted on October 29, 2024; however, the percent recoveries for these target analytes were within the control limits in the corresponding LCS. No action was required for these outliers.

LABORATORY DUPLICATES

Internal laboratory duplicate analyses are performed to monitor the precision of the analyses. Two separate aliquots of a sample are analyzed as distinct samples in the laboratory and the RPD between the two results is calculated. Duplicate analyses should be performed once per analytical batch. If one or more of the samples used has a concentration less than five times the reporting limit for that sample, the absolute difference is used instead of the RPD. The RPD control limits are specified in the laboratory documents. Laboratory duplicates were analyzed at the proper frequency and the specified acceptance criteria were met.

FIELD DUPLICATES

In order to assess precision, field duplicate samples were collected and analyzed along with the reviewed sample batches. The duplicate samples were analyzed for the same parameters as the associated parent samples. Precision is determined by calculating the RPD between each pair of samples. If one or more of the sample analytes has a concentration less than five times the reporting limit for that sample, then the absolute difference is used instead of the RPD. The RPD control limit for water samples is 35 percent.

SDG 590-27797-1: One field duplicate sample pair, MW-5A:102924 and DUP:102924, was submitted with this SDG. The precision criteria for the target analytes were met for this sample pair, with the exception of TDS. The positive results for TDS were qualified as estimated (J) in this sample pair.

MISCELLANEOUS

SDG 590-27797-1: The positive result for perfluorooctanesulfonic acid (PFOS) in Sample MW-16:102924 was noted by the laboratory to represent the Estimated Maximum Possible Concentration for this compound. This is typically due to the compound exhibiting ion abundance ratios that are outside of the allowable control limits set forth in the EPA method and the National Functional Guidelines. The positive result for this target analyte was qualified as estimated (J) in this sample.

Overall Assessment

As was determined by this data validation, the laboratory followed the specified analytical methods. Accuracy was acceptable, as demonstrated by the surrogate, LCS/LCSD, and MS/MSD percent recovery values, with the exceptions noted above. Precision was acceptable, as demonstrated by the LCS/LCSD, MS/MSD, and laboratory/field duplicate RPD values, with the exception noted above.

The data are acceptable for the intended use, with the following qualification listed below in Table 2.

TABLE 2. SUMMARY OF QUALIFIED SAMPLES

SAMPLE ID	ANALYTE	QUALIFIER	REASON
MW-2A:102524	1,4-Dioxane Nitrate Nitrite	UJ UJ UJ	Surrogate Recovery Holding Time Holding Time
MW-3:102524	Chloride Nitrate Nitrite	J J UJ	MS/MSD Recovery Holding Time Holding Time
MW-5A:102924	Total lead Dissolved lead TDS	U U J	Method Blank Contamination Method Blank Contamination Field Duplicate Precision
DUP:102924	Total lead TDS	U J	Method Blank Contamination Field Duplicate Precision
MW-7B:102824	Total manganese	U	Method Blank Contamination
MW-12A:102524	Nitrate Nitrite	J UJ	Holding Time Holding Time
MW-16:102924	PFOS	J	See Miscellaneous

References

U.S. Environmental Protection Agency (USEPA). "Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use," EPA-540-R-08-005. January 2009.

U.S. Environmental Protection Agency (USEPA) 2020a. Contract Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review, EPA-540-R-20-005. November 2020.

U.S. Environmental Protection Agency (USEPA) 2020b. Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA-542-R-20-006. November 2020.

GeoEngineers, Inc. "Work Plan, Marshall Landfill Groundwater Monitoring," prepared for Washington State Department of Ecology. November 17, 2023. Updated June 6, 2024.

Disclaimer: Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

Appendix D

Report Limitations and Guidelines for Use

Appendix D
Report Limitations and Guidelines for Use[5]

This appendix provides information to help you manage your risks with respect to the use of this report.

ENVIRONMENTAL SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES, PERSONS AND PROJECTS

This report has been prepared for the exclusive use of Herrera and Ecology, their authorized agents, and regulatory agencies. This report is not intended for use by others and the information contained herein is not applicable to other sites.

GeoEngineers structures our services to meet the specific needs of our clients. For example, an environmental site assessment study conducted for a property owner may not fulfill the needs of a prospective purchaser of the same property. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and project site. No one except Herrera and Ecology should rely on this environmental report without first conferring with GeoEngineers. This report should not be applied for any purpose or project except the one originally contemplated.

THIS ENVIRONMENTAL REPORT IS BASED ON A UNIQUE SET OF PROJECT-SPECIFIC FACTORS

This report has been prepared for Herrera and Ecology. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, do not rely on this report if it was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

If important changes are made after the date of this report, GeoEngineers should be given the opportunity to review our interpretations and recommendations and provide written modifications or confirmation, as appropriate.

RELIANCE CONDITIONS FOR THIRD PARTIES

Our report was prepared for the exclusive use of our Client. No other party may rely on the product of our services unless we agree in advance to such reliance in writing. This is to provide our firm with reasonable protection against open-ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions. Within the limitations of scope, schedule and budget, our services have been executed in accordance with our Agreement with the Client and generally accepted environmental practices in this area at the time this report was prepared.

[5] Developed based on material provided by GBA, GeoProfessional Business Association; www.geoprofessional.org.

ENVIRONMENTAL REGULATIONS ARE ALWAYS EVOLVING

Some substances may be present in the site vicinity in quantities or under conditions that may have led, or may lead, to contamination of the subject site, but are not included in current local, state or federal regulatory definitions of hazardous substances or do not otherwise present current potential liability. GeoEngineers cannot be responsible if the standards for appropriate inquiry, or regulatory definitions of hazardous substance, change or if more stringent environmental standards are developed in the future.

SUBSURFACE CONDITIONS CAN CHANGE

This environmental report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by manmade events such as construction on or adjacent to the site, by new releases of hazardous substances, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. Always contact GeoEngineers before applying this report to determine if it is still applicable.

SOIL AND GROUNDWATER END USE

The cleanup levels referenced in this report are site-and situation-specific. The cleanup levels may not be applicable for other sites or for other on-site uses of the affected media (soil and/or groundwater). Note that hazardous substances may be present in some of the site soil and/or groundwater at detectable concentrations that are less than the referenced cleanup levels. GeoEngineers should be contacted prior to the export of soil or groundwater from the subject site or reuse of the affected media on site to evaluate the potential for associated environmental liabilities. We cannot be responsible for potential environmental liability arising out of the transfer of soil and/or groundwater from the subject site to another location or its reuse on site in instances that we were not aware of or could not control.

MOST ENVIRONMENTAL FINDINGS ARE PROFESSIONAL OPINIONS

Our interpretations of subsurface conditions are based on field observations and chemical analytical data from widely spaced sampling locations at the site. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied our professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ – sometimes significantly – from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

DO NOT REDRAW THE EXPLORATION LOGS

Environmental scientists prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in an environmental report should never be redrawn for inclusion in other design drawings. Only photographic or electronic reproduction is acceptable but recognizes that separating logs from the report can elevate risk.

READ THESE PROVISIONS CLOSELY

Some clients, design professionals and contractors may not recognize that the geoscience practices (geotechnical engineering, geology and environmental science) are far less exact than other engineering and natural science disciplines. This lack of understanding can create unrealistic expectations that could lead to disappointments, claims and disputes. GeoEngineers includes these explanatory “limitations”

provisions in our reports to help reduce such risks. Please confer with GeoEngineers if you are unclear how these "Report Limitations and Guidelines for Use" apply to your project or site.

GEOTECHNICAL, GEOLOGIC AND GEOENVIRONMENTAL REPORTS SHOULD NOT BE INTERCHANGED

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually relate any environmental findings, conclusions or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding a specific project.

BIOLOGICAL POLLUTANTS

GeoEngineers' Scope of Work specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings, or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants and no conclusions or inferences should be drawn regarding Biological Pollutants, as they may relate to this project. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria and viruses, and/or any of their byproducts.

If Client desires these specialized services, they should be obtained from a consultant who offers services in this specialized field.