



2023 PFAS Characterization

Evaluation of PFAS Sampling Results from Madison Metropolitan Sewerage District's Nine Springs Wastewater Treatment Plant

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ACRONYM LIST

AFFF	aqueous film-forming foam
CSM	conceptual site model
EGLE	Michigan Department of Environment, Great Lakes, and Energy
FTSs	fluorotelomer sulfonic acids
HFPO-DA	hexafluoropropylene oxide-dimer acid
LDPE	low-density polyethylene
MMSD	Madison Metropolitan Sewerage District
NELAP	National Environmental Laboratory Accreditation Program
NEtFOSAA	n-ethylperfluorooctanesulfonamidoacetic acid
NMeFOSAA	n-methylperfluorooctanesulfonamidoacetic acid
NMeFOSE	n-methyl perfluorooctanesulfonamidoethanol
ng/L	nanograms per liter
PFAAs	perfluoroalkyl acids
PFAS	per- and polyfluoroalkyl substances
PFBA	perfluorobutanoic acid
PFBS	perfluorobutanesulfonic acid
PFCAs	perfluorocarboxylic acids
PFDS	perfluorodecanesulfonic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PFSAs	perfluorosulfonic acids
ppb	parts per billion
ppt	parts per trillion
PVC	polyvinyl chloride
SM	Standard Methods
SOP	standard operating procedure
TOP	total oxidizable precursor
TSS	total suspended solids
ug/kg	micrograms per kilogram
USEPA	United States Environmental Protection Agency
WAC	Wisconsin Administrative Code
WDNR	Wisconsin Department of Natural Resources
WPDES	Wisconsin Pollution Discharge Elimination System
WWTP	wastewater treatment plant

EXECUTIVE SUMMARY

The Madison Metropolitan Sewerage District (MMSD or District) operates the Nine Springs Wastewater Treatment Plant (WWTP), which provides wastewater collection and treatment for over 429,000 people, 25 significant industrial users, numerous commercial and other industrial operations, and several landfills in a 188-square mile service area. Significant industrial sources of per- and polyfluoroalkyl substances (PFAS) have not been identified in the District's service area based on an internal review.

TRC Environmental Corporation (TRC) and the District completed an initial phase of PFAS sampling in May and July 2021, which included sampling of influent, effluent, polymers, biosolids, and struvite. In general, the 2021 sampling results indicated that PFAS were present in the WWTP influent, effluent, and biosolids at concentrations similar to those observed in other municipal WWTPs that service urbanized areas without significant industrial sources. Results from the 2021 sampling are summarized in the Phase 1: Initial PFAS Characterization report (TRC, 2021).

Following the initial sampling in 2021, the District and TRC performed additional PFAS characterization activities in 2022, including the development of a sampling plan, training of District staff on sampling procedures, data review, and interpretation of the sample results. Ten monthly sampling events were completed in 2022 between March and December, which included monthly sampling of influent and effluent and quarterly sampling of biosolids. Results from the 2022 sampling were summarized in the Phase 2: Additional PFAS Characterization (2022) report (TRC, 2023).

PFAS monitoring activities were continued throughout 2023, including monthly sampling of composite influent and effluent, quarterly sampling of the individual influent force mains, Class B liquid biosolids, and the 2022 Class A cake biosolids pile, and two sampling events for the 2023 Class A cake biosolids pile.

Results from the 2023 sampling indicated that PFAS were detected in the WWTP influent, effluent, and biosolids at concentrations generally similar to the 2021 and 2022 results and consistent with a large municipal WWTP that does not receive highly concentrated PFAS from industrial dischargers. All effluent results for perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) were below the NR 102 surface water standards. The median values of the sums of PFOA and PFOS for the biosolids samples were below the threshold for reducing land application rates based on the Wisconsin Department of Natural Resources (WDNR) Interim Strategy for Land Application of Biosolids and Industrial Sludges Containing PFAS guidance document (WDNR, 2024), which is advisory only at this time.

1.0 Introduction

1.1 Overview of Plant Operations

The Madison Metropolitan Sewerage District (MMSD or District) operates the Nine Springs wastewater treatment plant (WWTP), which provides wastewater collection and treatment for over 429,000 people, 25 significant industrial users, numerous commercial and other (non-significant) industrial operations, and several landfills in a 188-square mile service area. Significant industrial sources of PFAS have not been identified in the District's service area based on an internal review. A majority (approximately 99%) of the influent to Nine Springs WWTP enters through five force mains, and the remainder arrives as hauled waste. Wastewater received by the District proceeds through an advanced treatment process.

Outputs from the Nine Springs WWTP include liquid effluent, biosolids, and struvite. The majority of the liquid effluent is discharged to Badfish Creek with a smaller portion discharged to Badger Mill Creek. The biosolids include Class A cake, which can be used directly by farmers as fertilizer and soil conditioner and Class B liquid biosolids (Metrogro®), also referred to as Class B sludge, which is recycled to agricultural land in the fall and spring as fertilizer and soil conditioner. Struvite is an inorganic nutrient (magnesium ammonium phosphate) that is harvested from liquid filtrates from the treatment processes and sold as a slow-release fertilizer. Refer to the PFAS Fate and Transport Report (TRC, 2020a) for a more detailed description of the Nine Springs WWTP treatment processes and a discussion of environmental cycling.

1.2 Previous PFAS Investigation and Research

The District previously retained TRC to develop a PFAS Fate and Transport report (TRC, 2020a), conceptual site model (CSM), and PFAS Sampling and Analysis Blueprint (TRC, 2020b) to support their PFAS action plan, all of which were completed in early 2020.

TRC and the District completed an initial phase of PFAS sampling in May and July 2021, which included sampling of influent, effluent, polymers, biosolids, and struvite. In general, the 2021 sampling results indicated that PFAS were present in the WWTP influent, effluent, and biosolids at concentrations similar to those observed in other municipal WWTPs that service urbanized areas without significant industrial sources. Results from the 2021 sampling are summarized in the Phase 1: Initial PFAS Characterization report (TRC, 2021). Prior to the sampling, TRC prepared a standard operating procedure (SOP) for PFAS Sampling at MMSD's Nine Springs WWTP, which was included as an appendix in the Phase 1 report (TRC, 2023).

Following the sampling in 2021, the District and TRC performed additional PFAS characterization activities in 2022, including the development of a sampling plan, training of District staff on sampling procedures, data review, and interpretation of the sample results. Ten monthly sampling events were completed in 2022 between March and December, which included monthly sampling of influent and effluent and quarterly sampling of biosolids. Results from the 2022 sampling were summarized in the Phase 2: Additional PFAS Characterization (2022) report (TRC, 2023).

1.3 Scope and Purpose

PFAS monitoring activities were continued throughout 2023, including monthly sampling of composite influent and effluent, quarterly sampling of the individual influent force mains, Class B liquid biosolids, and the 2022 Class A cake biosolids pile, and two sampling events for the 2023 Class A cake biosolids pile. The purpose of this report is to summarize the results of the 2023 sampling in the context of the current regulatory landscape, the CSM, and the previous PFAS sampling results from 2021 and 2022.

2.0 Sampling and Analysis Program

2.1 Sampling Scope, Schedule, Methods, and Rationale

Monthly sampling events were completed between January and December 2023, with sampling performed by the District.¹ The sampling included monthly sampling of composite influent and effluent; quarterly sampling of the individual influent force mains, Class B liquid biosolids, and the 2022 Class A cake biosolids pile; and two sampling events for the 2023 Class A cake biosolids pile. A general overview of the 2023 PFAS sampling schedule is provided in Table 1. Sample collection methods and sampling rationale for each type of media are summarized in Table 2.

Influent samples were collected separately from the five pumping stations on a quarterly basis. The influent sample location codes used for the sample IDs were assigned based on their corresponding pump station number (i.e., the sample of influent routed from Pump Station 11 is named Influent11). Flow-weighted composite influent samples were collected on a monthly basis. The influent composite samples were prepared by District staff according to their SOP, a copy of which was included in the Phase 2: Additional PFAS Characterization (2022) report (TRC, 2023). Influent flow rates were recorded by the District for each of the five pumping stations on each day that influent samples were collected, as summarized in Table 3.

2.2 Laboratory Analysis

Samples were shipped under chain-of-custody to the analytical laboratory. The samples collected in January and February 2023, were analyzed by Pace Analytical Services, LLC in Minneapolis, Minnesota (Pace – Minneapolis). The samples collected from March through December 2023, were analyzed by Eurofins. The analyses of samples for Wisconsin's 33 PFAS and total oxidizable precursor (TOP) assay were performed by Eurofins in West Sacramento, California. The analyses of samples for total suspended solids (TSS) were performed by Eurofins in Denver, Colorado in March and in Chicago, Illinois from April through December.

Samples were analyzed using the following analytical methods:

- Influent, effluent, and biosolids samples were analyzed for the 33 PFAS compounds included in the Wisconsin Method Criteria established by the WDNR (EA-19-0001). Pace and Eurofins used their respective NR 149 certified SOPs to analyze the samples.
- Influent and effluent samples were analyzed for TSS using Standard Methods (SM) 2540D.
- Biosolids samples were analyzed for total solids using ASTM Method D2216. Biosolids PFAS results are reported on a dry weight basis, meaning that the results represent a concentration that has been corrected for percent solids. The laboratory does not hold National Environmental Laboratory Accreditation Program (NELAP) accreditation for total solids.
- Select samples were analyzed for PFAS TOP assay using the laboratory's proprietary SOP and included reporting of the 33 PFAS compounds in the Wisconsin Method Criteria.

¹ Note, in August, samples were collected but their analysis was cancelled due to shipping delays and misrouting causing the samples to arrive at the laboratory above the required temperature range.

The WDNR 33 PFAS list includes the following groupings of PFAS; the full list of compounds is detailed in the table below:

- 19 perfluoroalkyl acids (PFAAs), including 11 perfluorocarboxylic acids (PFCAs) and 8 perfluorosulfonic acids (PFSAs), which are terminal PFAS, meaning they do not further transform or degrade under typical environmental conditions.
- 3 fluorotelomer sulfonic acids (FTSs), which have the potential to undergo transformation and/or degradation to form other PFAS including PFCAs.
- 7 perfluorooctane sulfonamido moieties (sulfonamides, sulfonamidoacetic acids, and sulfonamidoethanols), which have the potential to transform to other PFAS such as PFOS; and
- 4 modern replacement chemicals such as hexafluoropropylene oxide-dimer acid (HFPO-DA or GenX).

WDNR 33 PFAS List

CAS RN	Analyte	Analyte Acronym
Carboxylic Acids		
375-22-4	Perfluorobutanoic acid	PFBA
2706-90-3	Perfluoropentanoic acid	PFPeA
307-24-4	Perfluorohexanoic acid	PFHxA
375-85-9	Perfluoroheptanoic acid	PFHpA
335-67-1	Perfluorooctanoic acid	PFOA
375-95-1	Perfluorononanoic acid	PFNA
335-76-2	Perfluorodecanoic acid	PFDA
2058-94-8	Perfluoroundecanoic acid	PFUnA
307-55-1	Perfluorododecanoic acid	PFDoA
72629-94-8	Perfluorotridecanoic acid	PFTTrDA
376-06-7	Perfluorotetradecanoic acid	PFTA (PFTeA)
Sulfonic Acids		
375-73-5	Perfluorobutane sulfonic acid	PFBS
2706-91-4	Perfluoropentane sulfonic acid	PFPeS
355-46-4	Perfluorohexane sulfonic acid	PFHxS
375-92-8	Perfluoroheptane sulfonic acid	PFHpS
1763-23-1	Perfluorooctane sulfonic acid	PFOS
68259-12-1	Perfluorononane sulfonic acid	PFNS
335-77-3	Perfluorodecane sulfonic acid	PFDS
79780-39-5	Perfluorododecane sulfonic acid	PFDoS
757124-72-4	4:2 Fluorotelomer sulfonic acid	4:2 FTS
27619-97-2	6:2 Fluorotelomer sulfonic acid	6:2 FTS
39108-34-4	8:2 Fluorotelomer sulfonic acid	8:2 FTS

WDNR 33 PFAS List

CAS RN	Analyte	Analyte Acronym
Sulfonamides, Sulfonamidoacetic acids, Sulfonamidoethanols		
754-91-6	Perfluorooctanesulfonamide	PFOSA
31506-32-8	N-Methylperfluorooctanesulfonamide	NMeFOSA
4151-50-2	N-Ethylperfluorooctanesulfonamide	NEtFOSA
2355-31-9	N-Methylperfluorooctanesulfonamidoacetic acid	NMeFOSAA
2991-50-6	N-Ethylperfluorooctanesulfonamidoacetic acid	NEtFOSAA
24448-09-7	N-Methylperfluorooctanesulfonamidoethanol	NMeFOSE
1691-99-2	N-Ethylperfluorooctanesulfonamidoethanol	NEtFOSE
Replacement Chemicals		
13252-13-6	Hexafluoropropylene oxide-dimer acid	HFPO-DA (GenX)
919005-14-4	4,8-Dioxa-3H-perfluorononanoic acid	DONA
756426-58-1	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	9Cl-PF3ONS
763051-92-9	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS

2.3 Deviations from Sampling SOP

A copy of the SOP for PFAS Sampling at MMSD Wastewater Treatment Facility was included as an appendix in the Phase 1 report (TRC, 2021). Notable deviations from the SOP included:

- July and October 2023 (Equipment Blanks): The equipment blanks collected in July and October did not include rinsate of all equipment used for the Class A cake sampling. The July 2023 equipment blank was a rinsate of only the stainless steel shovel, and did not include the stainless steel soil auger, mixing bowl, or spoon. The 2023 October equipment blank did not include the probe used for the deeper samples.

As previously included in the Phase 1 report (TRC, 2021) and the Phase 2 (2022) report (TRC, 2023), the following deviations from the Sampling SOP also pertain to the 2023 PFAS sampling:

- The SOP states that the sample containers in the dedicated composite samplers should be evaluated to ensure that they are PFAS-free and should be replaced with PFAS-free containers if they are not. It also states certain materials including low-density polyethylene (LDPE) should not be in contact with samples unless known to be PFAS-free. The composite sampler carboys are made of LDPE. An equipment blank was collected as a rinsate sample of one of the carboys during the 2021 sampling to assess the potential for contamination of the sample from the LDPE carboy. PFAS were not detected in the equipment blank.
- The SOP states that specific components of the dedicated composite samplers should be decontaminated or replaced prior to sampling in order to prevent potential contamination from the dedicated samplers, as follows: the strainer should be decontaminated or replaced between each sampling event and the suction line, distribution nozzle and sample bottle should be replaced between each sampling event. The composite sampler suction line tubing, strainers, and distribution nozzles were not decontaminated or replaced prior to PFAS sample collection. The suction line tubing used within the composite samplers was confirmed to be polyvinyl chloride (PVC) and silicone, which are approved materials for PFAS sampling.

2.4 Modifications to Sampling Plan

Modifications to the sampling plan included the following, as reflected in Table 1:

- June 2023: TOP assay was cancelled because the samples were received out of temperature requirements.
- August 2023: Laboratory analysis was cancelled due to shipping delays and misrouting causing the samples to arrive at the laboratory above the required temperature range.
- December 2023: TOP assay was cancelled because laboratory delays prevented the analysis from being performed within the holding time.

3.0 Regulatory Landscape

3.1 WDNR Surface Water Standards and Effluent Discharge Limits

Revisions to several chapters in Wisconsin Administrative Code (WAC) related to the regulation of PFOA and PFOS in surface water and effluent were made effective August 1, 2022. These revisions included the addition of surface water quality criteria for PFOA and PFOS and the revision of the Wisconsin Pollution Discharge Elimination System (WPDES) permitting program to include PFOA and PFOS monitoring, reporting, and pollutant minimization plan requirements, as described below.

The surface water criteria for PFOA and PFOS per WAC ch. NR 102.04(8)(d) are summarized as follows:

- PFOS: 8 nanograms per liter (ng/L) for all waters except those that cannot naturally support fish and do not have downstream waters that support fish.
- PFOA: 20 ng/L in waters classified as public water supplies under WAC ch. NR 104, and 95 ng/L for other surface waters.

Permit requirements for PFOS and PFOA wastewater effluent discharges to surface water are outlined under NR 106 Subchapter VIII, which include “procedures for determining when a permitted discharge has the reasonable potential to cause or contribute to an exceedance of the PFOS or PFOA” surface water standards and determination of the need for a PFOS and PFOA minimization plan.

Permit requirements for monitoring and reporting PFOS and PFOA will be included upon first reissuance of a WPDES permit after August 1, 2022 for up to 2 years, as specified in WAC ch. NR 106.98(2), except if a waiver has been granted or reduced frequency is approved. The District’s WPDES permit (WI-0024597-09-2) was renewed May 1, 2020, and expires March 31, 2025. As such, the District’s WPDES permit does not include monitoring requirements for PFOS or PFOA at this time. For the purpose of this report, effluent results are compared directly to the surface water standards. The effluent from MMSD is discharged into waters that are not classified as a public water supply; therefore, the relevant PFOA surface water criterion is 95 ng/L. The relevant criteria for PFOS is 8 ng/L.

Protocols for determination of a need for a PFOS and PFOA minimization plan are specified in WAC ch. NR 106.98(4), which states that if “at least 11 daily discharge concentrations of the substance are greater than the limit of detection, a PFOS and PFOA minimization plan is required for a permitted facility if the upper 99th percentile of the 30-day average discharge concentrations for PFOS and PFOA exceeds the applicable water quality based effluent limitation calculated under this subsection.” The upper 99th percentile of the 30-day average discharge concentrations were not calculated for this report because the PFOS and PFOA monitoring requirements are not currently included in the District’s WPDES permit.

3.2 WDNR Interim Biosolids Strategy

The WDNR published an Interim Strategy for Land Application of Biosolids and Industrial Sludges Containing PFAS (WDNR, revised March 1, 2024), referred to here as the WDNR Interim Biosolids Strategy. This document is intended to provide guidance to permitted land spreaders to

“limit land application of municipal biosolids and industrial sludges that are significantly impacted by PFAS compounds” as the WDNR awaits finalization of United States Environmental Protection Agency’s (USEPA’s) risk assessment for PFOS and PFOA in biosolids. USEPA is anticipated to publish the risk assessment by the end of 2024.

The WDNR guidance was developed using a similar approach as the Michigan Department of Environment, Great Lakes, and Energy (EGLE’s) Interim Strategy for Land Application of Biosolids Containing PFAS, which was finalized in March 2021 and updated most recently on January 1, 2024 (EGLE, 2024). The current EGLE guidance establishes recommendations for actions based on non-risk-based tiers of PFOS and PFOA concentrations in biosolids. The WDNR Interim Biosolids Strategy adopted a similar tiered approach; however, the criteria for the tiers and other details vary between the WDNR and EGLE guidance. The tiered approach from the WDNR Interim Strategy is summarized below:

- Generally ≥ 150 micrograms per kilogram (ug/kg) PFOS + PFOA: Considered to be at levels of “significant concern” and should not be approved for new or transfer land application sites. Notify WDNR staff immediately. Sample effluent and investigate potential PFAS sources to develop a source reduction program if not done already. Arrange alternative treatment or disposal of biosolids besides land application.
- Generally > 50 ug/kg but < 150 ug/kg PFOS + PFOA: Reduce land application rates to no more than 1.5 dry tons per acre (or get WDNR approval of an alternative strategy). Notify WDNR staff immediately. Sample effluent and investigate potential PFAS sources to develop a source reduction program, if not done already. Notify landowner/farmer of PFAS results prior to initial land application and track application rates for each site.
- Generally < 50 ug/kg PFOS + PFOA and median concentration > 20 ug/kg PFOS + PFOA: Implement PFAS source investigation and reduction efforts as well as effluent sampling. Notify landowner/farmer of PFAS results prior to initial land application and track application rates for each site. If proposed application rate is greater than or equal to 8 tons per acre, consult with the WDNR to detail concentrations and recommended tonnages per acre.
- Generally < 20 ug/kg PFOS + PFOA: Land apply per normal approach consistent with WAC ch. NR 204.

The WDNR Interim Biosolids Strategy outlines the next steps identified by the WDNR, which include requiring biosolids and/or industrial sludge sampling in WPDES permit applications and including PFAS monitoring for biosolids and industrial sludges in WPDES permits if needed to supplement the permit application sampling.

For the purpose of this report, biosolids results were compared to the tiered approach outlined in the WDNR Interim Biosolids Strategy, although it is advisory only at this time. First, the sum of PFOA and PFOS was calculated for each biosolids sample result. Then, the median of the sums of PFOA and PFOS was calculated separately for each biosolids sample location (Class B sludge, 2022 pile of Class A cake, and 2023 pile of Class A cake) for comparison to the tiers outlined in the WDNR Interim Biosolids Strategy, using only the 2023 results. The median concentrations were used for the evaluation due to the reference to median concentration in the guidance for the > 20 ug/kg tier.

4.0 Results and Discussion

Sample results are summarized in Tables 4 through 12. Laboratory reports from the 2023 sampling are included in Appendix A. Graphs for select results are included as Figures 1 through 9. The results tables and graphs include data collected from the previous sampling in 2021 and 2022 along with the data collected in 2023 for the purpose of comparison. Laboratory reports for the sampling performed in 2021 and 2022 can be found in the reports summarizing the 2021 sampling (TRC, 2021) and 2022 sampling (TRC, 2023), respectively.

Results for influent and effluent are reported in ng/L, which are equivalent to parts per trillion (ppt). Results for biosolids are reported in ug/kg, which are equivalent to parts per billion (ppb). Biosolids PFAS results are reported on a dry weight basis, meaning that the results represent a concentration that has been corrected for percent solids. Graphs include column charts and time series graphs of concentration vs. time data. On the column charts, sample results are labeled using shortened IDs based on the sample type (e.g., INF = influent, INF-CALC = calculated influent, INF-COMP = composite influent, EFF = effluent, BIO-A-22 = Class A cake [2022 pile], BIO-A-23 = Class A cake [2023 pile], BIO-B = Class B sludge, etc.) and the sampling event date (formatted as YYYY-MM). Results associated with influent force mains are labeled as INF- followed by the number corresponding to the appropriate pump station/force main. Graphs show only detected concentrations of PFAS; nondetect results are not included. The color coding for the column charts uses blue for PFCAs and orange for PFSA, where increasing chain lengths are depicted using increasingly darker shades; red to black for the FTSs; blues, greens, pinks, and purples for the sulfonamides, sulfonamidoacetic acids, and sulfonamidoethanols; and grays for the replacement chemicals; as shown in the graph legends.

4.1 Data Review

The analytical data were reviewed using the USEPA Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537 (EPA 910-R-18-001), November 2018, USEPA National Functional Guidelines for High Resolution Superfund Methods Data Review (EPA 542-R-20-007), November 2020, and Wisconsin PFAS Aqueous (Non-Potable Water) and Non-Aqueous Matrices Method Expectations, Document #EA 19 0001, WDNR, December 2019 as guidance for data review. EPA 910-R-18-001 applies to method 537 and drinking water matrices only but the guidance can be applied in part or in whole to evaluate data in non-drinking water matrices. Data quality and usability review summaries and Qualified Form 1s for each monthly sampling event are provided in Appendix B.

4.2 Influent

Influent sampling included monthly collection of flow-weighted composite influent samples and quarterly collection of influent samples from the five individual pumping stations.

At this time, there are no regulatory criteria for PFAS that apply to the district influent.

4.2.1 Calculated and Composite Influent Results

Flow-weighted composite influent samples were collected monthly and are referred to here as “Composite Influent” or “Influent Comp.” Influent samples were also collected from the five individual force mains on a quarterly basis. The results from the individual force main samples were used to calculate flow-weighted averages for the purpose of comparing to the Composite

Influent samples. The flow-weighted averages are referred to as “Calculated Influent” and are calculated as an average of the results from the five influent force main samples weighted by their respective flow rates, with nondetect results represented by concentrations of zero for the purpose of the calculation.

Results for the Composite Influent and Calculated Influent are provided in Table 4 and shown as column charts on Figure 1 and Figure 5. The 2023 Composite Influent and Calculated Influent results were generally similar to the results from 2021 and 2022 sampling (Figure 1). The individual PFAS compounds that consistently had the highest concentrations in the Composite Influent included several PFCAs (PFBA, PFPeA, PFHxA, and PFOA) and PFSA (PFBS, PFHxS, and PFOS), which were typically detected at concentrations below 10 ng/L (Figure 5).

Atypical or notable results for the Composite Influent included:

- In February 2023, the Composite Influent result for 6:2 FTS was higher than typical, at an estimated 19.1 ng/L, and the corresponding effluent sample also had higher than typical 6:2 FTS at 28 ng/L. Possible sources of 6:2 FTS include aqueous film forming foam (AFFF) and metal plating mist suppressants; however, a specific possible source (or sources) of the 6:2 FTS detected in February 2023 has not been identified. The February 2023 sampling did not include sampling of the individual influent force mains, so it is unknown which one or more of the individual force mains also had a higher than typical 6:2 FTS concentration.
- In July 2023, neither PFHxS nor PFOS were detected, despite typically being detected. It should be noted that PFHxS and PFOS were detected at typical concentrations in the associated effluent sample.
- In December 2023, PFDS was detected at a higher than typical estimated concentration of 12 ng/L; however, PFDS was not detected in any of the samples from the individual force mains during the same sampling event and also was not detected in the associated effluent sample. The PFDS detection in the Composite Influent may be a potential false positive as this result was flagged by the laboratory as exhibiting an ion ratio outside criteria. Given that the Composite Influent sample is a composite of the individual force main influent samples, PFDS would not be expected to be present in the Composite Influent if it is not also present in at least one of the individual force main samples.

Results for the Calculated Influent were generally similar to the Composite Influent, with one exception being the anomalously high PFDS detected in the Composite Influent in December 2023.

Based on results from 2023, the Composite Influent concentrations for PFOS ranged from not detected (<0.47 ng/L) to 7.9 ng/L (qualified as an estimated concentration) and concentrations for PFOA ranged from 3.7 to 8.8 ng/L (Table 4).

4.2.2 Individual Force Mains

Influent results from the individual force mains are included in Table 5. In general, higher concentrations of PFAS are detected in Influent-07 and Influent-18 relative to the other force mains, as observed in previous sampling; however, the individual PFAS detected regularly are generally similar between force mains.

Time series graphs of PFOS and PFOA for influent from individual force mains are shown on Figures 2a and 2b. Individual force main results from 2023 indicate PFOS concentrations ranging from not detected to 9.9 ng/L and PFOA concentrations ranging from not detected to 11 ng/L. In general, PFOS and PFOA concentrations were higher in Influent-07 and Influent-18 relative to the other force mains, as observed in 2022.

4.3 Effluent

Effluent samples were collected monthly from January through December 2023. Effluent sample results are provided in Table 6. Results for detected PFAS are shown as column charts in Figure 3 and Figure 5. Time series graphs for PFOA and PFOS are shown on Figures 4a/b.

The effluent PFAS results indicated generally consistent individual PFAS concentrations over time, except 6:2 FTS in February 2023, as discussed below. The individual PFAS regularly detected at the highest concentrations in the effluent samples were generally similar to those in the influent samples (Figure 5), which included several PFCAs (PFBA, PFPeA, PFHxA, and PFOA) and PFASs (PFBS, PFHxS, and PFOS). As noted in the Influent results section, the February 2023 effluent sample also had a higher than typical concentration of 6:2 FTS detected. The PFOA and PFOS results for 2023 were generally similar to results from 2021 and 2022, although the January 2023 PFOA concentration of 16.8 ng/L was higher than previous detections (Figures 4a and 4b).

4.3.1 Comparison to WDNR Surface Water Standards

Effluent results from 2023 indicate PFOS concentrations ranging from 3.2 ng/L to 5.6 ng/L and PFOA concentrations ranging from 7.2 ng/L to 16.8 ng/L (Figures 4a and 4b). These concentrations are less than the WDNR's applicable surface water criteria for PFOS (8 ng/L) and PFOA (95 ng/L).

4.4 Class B Sludge

Class B sludge was sampled quarterly during the March, June, September, and December 2023 sampling events. Class B sludge sample results are included in Table 7. Class B sludge PFAS results are shown in column chart form on Figure 6, and time series graphs of PFOA and PFOS detected in Class B sludge samples are shown on Figure 7a.

The Class B sludge sample PFAS results from 2023 were generally similar to the samples from 2021 and 2022 in terms of the types of PFAS detected and the magnitude of the concentrations detected. The PFAS detected in the 2023 Class B sludge samples included PFCAs, PFASs, FTSs, sulfonamides, sulfonamidoacetic acids, and sulfonamidoethanols. Replacement PFAS included on the WDNR target PFAS list were not detected. The individual PFAS compounds regularly detected at the highest concentrations include PFOS, NMeFOSAA, NEtFOSAA, and NMeFOSE.

Atypical or notable results for the Class B sludge included:

- In June 2023, PFDS was detected at a higher than typical (estimated) concentration, and PFOS was not detected even though it typically is. PFDA in this sample may be a potential false positive as this result was flagged by the laboratory as exhibiting an ion ratio outside criteria.

- The December 2023 Class B sludge sample had elevated detection limits. Several PFAS that are typically detected were not detected in the December sample, likely due to the elevated detection limits.

The Class B sludge PFOS results from 2023 ranged from nondetect (<0.7 ug/kg) to 10 J ug/kg (where J indicates that the result is an estimated concentration) and PFOA detections ranged from 0.92 J ug/kg to 1.5 J ug/kg (Figure 7a).

4.4.1 Comparison to WDNR Interim Biosolids Strategy

The 2023 Class B sludge results for the sum of PFOS and PFOA ranged from 1.5 ug/kg to 11 ug/kg, as shown in Table 7, with a median of 9.91 ug/kg. The median was calculated based on the four sums of PFOA and PFOS from the four quarterly samples collected during 2023. According to the WDNR Interim Biosolids strategy, results generally below 20 ug/kg PFOS + PFOA qualify for land application following the normal approach consistent with WAC ch. NR 204 and do not require PFAS source investigation or reduction efforts or effluent sampling.

4.5 Class A Cake

Class A cake was generated in 2022 and 2023 and set aside in separate piles each year for the purposes of the PFAS characterization sampling. Sample results from the pile generated in 2022 and the pile generated in 2023 are discussed separately below.

4.5.1 Class A Cake (2022 Pile)

Class A cake from the 2022 pile was sampled quarterly, during the March, June, September, and December 2023 sampling events. Class A cake sample results for the 2022 pile are included in Table 8, including results from samples collected in 2022 and 2023. Table 8 also includes results from a single sample of Class A cake that was collected in 2021. Class A cake PFAS results are shown in column chart form on Figure 8, and time series graphs of PFOA and PFOS are shown on Figure 7b.

PFAS detected in the 2022 Class A cake samples included PFCAs, PFSAAs, FTSSs, sulfonamides, sulfonamidoacetic acids, and sulfonamidoethanols. One replacement PFAS, 11CI-PF3OUdS, was detected at a low, estimated concentration in the June 2023 sample.

Atypical or notable results for the 2022 Class A cake pile included:

- In June 2023, PFDS was detected at a higher than typical concentration and PFOS was not detected even though it typically is.

Variation in PFAS results over time in the samples collected from the 2022 Class A cake pile are discussed in Section 5.4.3.

During 2023, the Class A cake sample PFOS results ranged from not detected (<0.95 ug/kg) to 13 J ug/kg and PFOA results ranged from 6.0 J+ ug/kg to 16 ug/kg (where J+ indicates a result that is qualified as estimated with potential high bias), as shown on Figure 7b.

4.5.2 Class A Cake (2023 Pile)

The 2023 pile of Class A cake was sampled twice in 2023, in July and in October. During each event, a total of seven samples were collected for laboratory analysis, including four shallow grab samples, two deeper grab samples, and a composite of the four shallow samples. One objective of this sampling approach was to assess potential variation in PFAS concentrations within the pile to inform future sampling methods.

The 2023 Class A cake pile sample results are included in Table 9. Detected PFAS from the July and October 2023 samples are shown in column chart form on Figures 9a and 9b, respectively, and time series graphs of PFOA and PFOS results from the shallow composite samples are shown on Figure 7c.

The types of PFAS detected in the 2023 Class A cake pile were generally similar to the PFAS detected in the samples from the 2022 Class A cake pile. The individual PFAS compounds detected at the highest concentrations in the 2023 Class A cake pile were primarily longer-chain PFAS such as PFDA, PFOS, NMeFOSAA, NEtFOSAA, and NMeFOSE. The sample results were generally similar between July and October; however, PFOS was not detected in July but was in October and PFDS was detected in July but not in October. When comparing samples from different parts of the 2023 Class A cake pile that were collected during the same sampling event, the most variation appears to be between the shallow samples, specifically for the concentrations of PFCAs including PFBA, PFPeA, PFHxA, and PFOA. The results for the deep grab samples were generally similar to the shallow composite samples for most PFAS analyzed except some PFCAs.

4.5.3 Comparison to WDNR Interim Biosolids Strategy

The sum of PFOS and PFOA detected in the 2022 Class A cake pile samples collected in 2023 ranged from 6 ug/kg to approximately 29 ug/kg, as shown in Table 8, with a median of 18.1 ug/kg. The median was calculated based on the four sums of PFOA and PFOS from the four quarterly samples collected during 2023.

The sum of PFOS and PFOA detected in the Class A cake samples from the 2023 pile ranged from 2.7 ug/kg to 23 ug/kg, as shown in Table 9, with a median of 15.1 ug/kg. The median was calculated as the median of the 14 sums of PFOA and PFOS for all 14 samples collected during 2023.

According to the WDNR Interim Biosolids strategy, results generally below 20 ug/kg PFOS + PFOA qualify for land application following the normal approach consistent with WAC ch. NR 204 and do not require PFAS source investigation or reduction efforts or effluent sampling.

4.6 TOP Assay

TOP assay subjects a sample to artificially (non-environmentally occurring) forced oxidation using heat and strong oxidants, which can result in the transformation of precursor PFAS compounds to terminal PFAAs and possibly other PFAS. As such, the TOP assay can be used to (1) identify the potential presence of precursor PFAS that are and are not part of the target analyte list and (2) determine if these precursors will transform during the TOP assay to PFAS included in the target analyte list of 33 PFAS compounds. The extent of transformation and specific transformation products indicated by the post-oxidation TOP assay results are not necessarily

indicative of the transformation that would be expected for the same sampled material in the natural environment or in WWTP influent, effluent, or biosolids. Rather, the TOP assay represents a characterization technique and the individual concentrations of PFAS detected in the post-oxidation TOP assay results are also not intended to be compared to environmental standards or screening criteria.

The post-oxidation TOP assay results are expected to have higher concentrations of PFCAs due to the transformation of precursors.

TOP assay results for influent and effluent samples are included in Table 10, and TOP assay results for biosolids are included in Table 11.

4.6.1 TOP Assay Data Quality and Usability

In 2023, samples were collected for TOP assay during the March, June, September, and December sampling events. However, the June TOP assay was cancelled because the samples were received out of temperature requirements, and the December TOP assay was cancelled because laboratory delays prevented the analysis from being performed within the holding time.

4.6.2 Influent TOP Assay

Influent TOP assay results are provided in Table 10. In general, concentrations of most PFCAs increased post-oxidation, which is assumed to result from the transformation of precursors.

4.6.3 Effluent TOP Assay

Effluent TOP assay results are provided in Table 10. Concentrations of some PFCAs increased post oxidation in the 2023 samples, specifically for PFBA and PFPeA in the March 2023 results, but concentrations of individual PFAS were generally similar pre- and post-oxidation, suggesting that there may not be a large mass of unidentified precursors present in the effluent samples.

4.6.4 Class B Sludge TOP Assay

Biosolids TOP assay results for the Class B sludge are provided in Table 11. The Class B sludge TOP assay results show increases in PFCA concentrations post-oxidation along with decreased concentrations of target precursors. These results are consistent with expected oxidation of target and non-target precursors to PFCAs.

4.6.5 Class A Cake TOP Assay

Biosolids TOP assay results for the 2022 and 2023 Class A cake piles are provided in Table 11. Following the sampling plan for the 2023 Class A cake pile, only the shallow composite samples were analyzed using the TOP assay as the composite samples were expected to be more representative of the pile than the individual grab samples.

The Class A cake TOP assay results from the 2022 and 2023 piles both show increases in PFCA concentrations post-oxidation along with decreases in target analyte precursor concentrations (FTSs and perfluorooctanesulfonamido moieties), as expected for TOP assay. Overall, these results are consistent with the presence of precursors in the Class A Cake samples. One

replacement compound, HFPO-DA, was detected in Class A Cake TOP assay: HFPO-DA in the post-oxidation July 2023 shallow composite sample.

4.7 Blank Samples

The blank samples collected in 2023 included equipment blanks, which were collected as rinsate samples of the equipment used for the Class A cake sampling during each event when Class A cake was sampled. Results for these equipment blanks are provided in Table 12.

Equipment blank results were evaluated as part of the data quality and usability reviews (Appendix B). PFAS were detected in one equipment blank sample during 2023, in September 2023; however, no validation actions were required on this basis. PFAS were not detected in the other equipment blanks from 2023.

5.0 Discussion

5.1 Possible Sources of PFAS

Results from the 2023 sampling indicated that PFAS were detected in the WWTP influent, effluent, and biosolids at concentrations generally similar to the 2021 and 2022 results and consistent with a large municipal WWTP that does not receive highly concentrated PFAS from industrial dischargers. Indicator compounds of highly concentrated PFAS sources, such as PFOS and FTSS associated with different generations of AFFF and chrome-plating mist suppressants, are not detected at concentrations that would suggest that these sources are being discharged to the Nine Springs WWTP on a continuous basis. For example, the District's 2023 effluent PFOS concentrations ranged from 3.2 ng/L to 5.6 ng/L, consistent with the PFOS concentrations of 2 ng/L to 7 ng/L reported in Michigan WWTP effluent without significant sources of PFOS (EGLE, 2020). Many of the PFAS compounds detected in the influent received by the District are likely the result of the use and prevalence of PFAS in society's use and commercial products that enter the municipal waste stream.

As discussed in the Influent results section, higher concentrations of PFAS were generally observed in the Influent-07 and Influent-18 samples, as has been observed in previous sampling rounds.

5.2 Temporal Trends for Influent and Effluent

PFAS concentrations in influent and effluent varied somewhat month-to-month during 2023, but no overall trends or months with notably higher than usual results for most or all PFAS were observed (Figures 2a/b and Figures 4a/b). Concentrations of PFOA and PFOS in 2023 were generally similar to concentrations detected in 2021 and 2022, with the exception of the PFOA detection in the January 2023 effluent sample, as mentioned previously.

5.3 Sampling Methodology

5.3.1 Class A Cake (2023 Pile)

The purpose of collecting multiple samples from the 2023 pile of Class A cake, including four shallow grab samples, two deep grab samples, and a shallow composite sample, was to assess potential variation in concentrations within the pile to inform future sampling methods. As discussed, the sample results from July and October showed noticeable variation between samples, particularly for PFCA concentrations between the shallow samples. Based on these results and the anticipated permit guidelines for biosolids sampling, it is recommended that future sampling of the pile be conducted as a composite sample from multiple grab samples from various areas and depths within the pile.

5.4 Transformation and Partitioning

5.4.1 Influent vs. Effluent

Influent and effluent sample results may be compared to assess potential transformation and/or partitioning of PFAS within the WWTP (Figure 5). Relative to the results for Calculated Influent and Composite Influent, the effluent results tend to have higher concentrations of several PFCAs

(PFBA, PFPeA, PFHxA, and PFOA), and lower concentrations or no detections of most precursors analyzed. These differences could be due to transformation from precursors within the WWTP process or partitioning preferentially to the solid phase of the biosolids from the liquid phase of the influent/effluent. In general, short-chain PFAS generally prefer the aqueous phase and long-chain PFAS and PFSA generally adsorb and partition to organic carbon in the solid phase.

5.4.2 Biosolids vs. Effluent

When comparing the biosolids sample results to the effluent samples, the biosolids results generally contain higher proportions of longer chain PFAS, such as the perfluorooctane sulfonamido moieties, as observed with the 2021 and 2022 sample results. The higher proportion of long chain PFAS in biosolids is consistent with the expected partitioning of longer chain PFAS to solids based on greater sorption potential for these compounds.

5.4.3 Class A Cake (2022 Pile)

Sample results from the 2022 pile of Class A Cake show variation in PFAS concentrations between sampling events, as shown on Figure 8. Between March and September 2022, results showed increased concentrations of several PFCAs and NMeFOSAA, along with decreased concentrations of NMeFOSE, followed by little change in December. The March 2023 results indicated lower concentrations of PFCAs in general, followed by increasing PFCA concentrations over the subsequent quarterly events through December 2023. Some of these changes in composition may result from transformation of precursors: NMeFOSE can transform to NMeFOSAA, and numerous PFAS can transform to PFCAs. However, decreasing concentrations of PFCAs are not necessarily expected to occur because PFCAs are terminal PFAS and are not expected to transform in ambient conditions. It is possible that at least some of the variation in PFAS concentrations between sampling events may be due to heterogeneity within the pile, even though the samples were collected as composites from multiple shallow grab samples. It is also possible that variation could result from homogenization procedures in the field and/or in the lab, or from variation in the amount of sample analyzed by the lab (as lower masses may not be as representative).

6.0 Conclusions

The following conclusions are made based on the 2023 PFAS sampling at the Nine Springs WWTP:

- Effluent results for PFOS and PFOA were below the NR 102 surface water criteria.
- Biosolids sample results for the sums of PFOS and PFOA had median concentrations below the threshold for reducing land application rates based on the WDNR Interim Strategy for Land Application of Biosolids and Industrial Sludges Containing PFAS guidance document (WDNR, 2024), which is advisory only at this time.
- Class A cake sample results from the pile of material generated in 2023 showed variability in PFAS concentrations between samples, particularly for PFCA concentrations in the shallow grab samples; this variability provides justification for collecting composite samples in the future.
- Class A cake samples from the pile of material generated in 2022 indicate variation in PFAS concentrations over time. These changes in PFAS concentrations may be due to transformation occurring within the pile of Class A cake, heterogeneity, homogenization procedures, or variability in the mass of sample analyzed by the lab.

7.0 References

- Michigan Department of Environment, Great Lakes, and Energy (EGLE). 2020. Michigan Industrial Pretreatment Program (IPP) PFAS Initiative. August.
- EGLE. 2024 (revised). Interim Strategy for Land Application of Biosolids Containing PFAS (2024). March 2021, updated April 2022 and January 1, 2024. <https://www.michigan.gov/egle/about/organization/water-resources/biosolids/pfas-related>.
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Table 1: PFAS Sampling Overview (2023)
Madison Metropolitan Sewerage District
Madison, Dane County, Wisconsin
TRC Project #390131.0006

Sampling Event (Month-Year)	Influent (Five Individual Pump Stations)	Influent (Composite)	Effluent	Biosolids B	Class A Cake (2022 Pile)	Class A Cake (2023 Pile)	Equipment Blank
Jan-2023	--	PFAS	PFAS	--	--	--	--
Feb-2023	--	PFAS	PFAS	--	--	--	--
Mar-2023	PFAS, TOP	PFAS	PFAS, TOP	PFAS, TOP	PFAS, TOP	--	PFAS
Apr-2023	--	PFAS	PFAS	--	--	--	--
May-2023	--	PFAS	PFAS	--	--	--	--
Jun-2023	PFAS, TOP	PFAS	PFAS, TOP	PFAS, TOP	PFAS, TOP	--	PFAS
Jul-2023	--	PFAS	PFAS	--	--	PFAS (7), TOP (1)**	PFAS
Aug-2023	--	PFAS	PFAS	--	--	--	--
Sep-2023	PFAS, TOP	PFAS	PFAS, TOP	PFAS, TOP	PFAS, TOP	--	PFAS
Oct-2023	--	PFAS	PFAS	--	--	PFAS (7), TOP (1)**	PFAS
Nov-2023	--	PFAS	PFAS	--	--	--	--
Dec-2023	PFAS, TOP	PFAS	PFAS, TOP	PFAS, TOP	PFAS, TOP	--	PFAS

Notes:

Samples collected by MMSD and submitted for laboratory analysis.

PFAS = PFAS analysis following Wisconsin Method Criteria established by the WDNR (EA-19-0001) for 33 PFAS

TOP = Total oxidizable precursor assay

~~Strikethrough~~ = Analysis was planned but cancelled

Total suspended solids (TSS) analysis included for all influent and effluent samples.

** = 2023 Class A Cake sampling included 6 grab samples (4 shallow and 2 deep) and 1 composite sample (composited from the shallow samples only). All 7 samples analyzed for PFAS. Only the composite sample was analyzed using the TOP assay.

-- = Not sampled

Updated by: L. Auner, 5/30/2024

Checked by: M. Ursin 6/4/2024

Table 2: Sampling Methods and Rationale (2023)
Madison Metropolitan Sewerage District
Madison, Dane County, Wisconsin
TRC Project #390131.0006

Sample Category	Schedule	Sample Collection Notes	Lab Analysis	Goal/Rationale
Influent and Effluent				
Influent - 5 Individual Force Mains	Quarterly	Pour-offs from composite sampler carboys	WI-33 PFAS, TSS, TOP Assay	Assess variation of influent concentrations over time and variation between the five pump stations (could be used to guide potential future efforts for source identification).
Influent - Composite sampling	Monthly	Sample composited from five force mains. Composite sample weighted based on flow rates for force mains.	WI-33 PFAS, TSS	
Effluent	Monthly	Pour-off from composite sampler carboy. Collected day after influent sample collection to reflect 24-hour residence time for treatment.	WI-33 PFAS, TSS (monthly) TOP Assay (semiannually, although planned quarterly)	Assess variation of PFAS concentrations in effluent over time, use data for future permitting evaluation.
Biosolids - Class A Cake				
Class A Cake (2022 pile)	Quarterly	Samples were composited from approximately 6 to 7 shallow grab samples, which were taken from beneath the crust of the pile (~1 foot deep) and homogenized.	WI-33 PFAS, % Solids, TOP Assay	Assess variation in concentrations in the same pile over time.
Class A Cake (2023 pile)	First sampling event after pile passed bacteria test Second sampling event approximately one quarter later	Both sampling events included: (1) collecting 4 grab samples from different locations beneath the crust of the pile (~6" to 1 ft below surface), submitting a portion of each grab as an individual sample, (2) creating a composite sample from the 4 shallow grab samples and submitting that for analysis, (3) collecting at least 2 deeper grab samples (from ~2.5 to 3 feet into pile), to be submitted individually for lab analysis.	WI-33 PFAS, % Solids (all samples) TOP Assay (composite sample only)	Assess sampling methods to determine if and how samples should be composited by (1) comparing results from individual grab samples to a composite sample and (2) by comparing results from grab samples collected just beneath the surface of the pile to samples collected from deeper in the pile. Assess variation in concentrations in the same pile over time.
Equipment Blank	Concurrent with Class A Cake sampling	Collected as rinsate either prior to equipment use.	WI-33 PFAS	QC - evaluate potential cross-contamination from equipment.
Biosolids - Class B Sludge				
Class B Sludge	Quarterly	Collected grab sample from end of gravity belt thickener.	WI-33 PFAS, % Solids, TOP Assay	Assess variation in concentrations over time.

Updated by: L. Auner, 6/19/2024
Checked by: M. Ursin, 6/20/2024

**Table 3: Influent Flow Rates
Madison Metropolitan Sewerage District
Madison, Dane County, Wisconsin
TRC Project #390131.0003.0000**

Influent Sample Date	Flow Rate (MGD)					
	INFLUENT-02	INFLUENT-07	INFLUENT-08	INFLUENT-11	INFLUENT-18	Total Flow
5/6/2021	5.82	4.18	6.68	8.87	11.81	37.36
3/28/2022	6.21	4.45	6.33	8	11	35.99
4/25/2022	7.23	5.91	6.64	8.55	10.48	38.81
5/23/2022	5.54	9.18	6.19	7.92	5.24	34.07
6/20/2022	6.43	9.25	6.47	8.54	6.84	37.53
7/19/2022	6.36	8.80	6.55	8.51	6.11	36.33
8/15/2022	6.15	9.66	6.38	8.18	5.82	36.19
9/12/2022	11.78	14.04	8.13	12.31	9.15	55.41
10/10/2022	6.96	9.4	6.32	7.96	5.63	36.27
11/14/2022	7.03	8.76	6.39	7.93	6.63	36.74
12/12/2022	6.86	9.05	6.41	7.68	6.52	36.52
1/16/2023	6.06	10.56	6.17	8.37	6.12	37.28
2/13/2023	7.17	10.29	6.72	8.07	6.47	38.72
3/20/2023	7.47	10.47	6.79	8.32	7.53	40.58
4/17/2023	8.00	10.89	7.35	8.73	8.05	43.02
5/15/2023	6.42	6.21	6.69	8.39	10.72	38.43
6/19/2023	5.71	8.43	6.68	8.27	6.76	35.85
7/17/2023	8.91	5.60	6.34	8.38	10.46	39.69
8/14/2023	7.49	7.43	7.57	9.74	10.76	42.99
9/11/2023	6.69	9.00	6.44	8.20	6.25	36.58
10/9/2023	6.47	8.73	6.22	8.04	5.89	35.35
11/13/2023	6.00	8.89	6.2	7.95	5.26	34.30
12/11/2023	6.20	9.21	6.28	8.03	5.26	34.98

Notes:

MGD = millions of gallons per day

Total influent flow includes only the influent from the pumping stations (not hauled waste).

Updated by: L. Auner, 4/23/2024

Checked by: T. Jackson-Strong, 5/16/2024

Table 4: Influent Results (Calculated/Composite)
Madison Metropolitan Sewerage District
Madison, Dane County, Wisconsin
TRC Project #390131.0003.0000

Location ID			Calculated Influent	Calculated Influent	Calculated Influent	Calculated Influent	Calculated Influent	Calculated Influent	Calculated Influent	Calculated Influent	Calculated Influent	Calculated Influent	Calculated Influent	Influent Comp
Sample Name			Combined Influent-20210506	Combined Influent--20220328	Combined Influent-20220425	Combined Influent-20220523	Combined Influent-20220620	Combined Influent-20220718	Combined Influent-20220815	Combined Influent-20220912	Combined Influent-20221010	Combined Influent-20221114	Combined Influent-20221112	Influent Comp-20221212
Sample Date			05/06/2021	03/28/2022	04/25/2022	05/24/2022	06/20/2022	07/18/2022	08/15/2022	09/12/2022	10/10/2022	11/14/2022	12/12/2022	12/12/2022
CAS RN	Analyte	Unit												
Carboxylic Acids														
375-22-4	PFBA	ng/L	8.05	6.3	7.9	6.8	11	7.1	8.8	11	7.4	7.3	8.9	9.7
2706-90-3	PFPeA	ng/L	32.6	4.2	4.7	4	4.8	4.1	4.4	12	5.4	5.4	120	128
307-24-4	PFHxA	ng/L	8.54	5.6	6.5	5.6	6.4	6.6	6.5	14	6.8	9.3	8.5	8.6
375-85-9	PFHpA	ng/L	1.86	2.2	1.8	1.5	2.2	1.7	1.8	3.6	1.6	2	1.1	1.3 J
335-67-1	PFOA	ng/L	5.13	4.3	4.8	3.9	5.2	4.3	4.6	8.4	4.2	4.8	3.7	3.5
375-95-1	PFNA	ng/L	0.81	1.7	ND	ND	0.44	ND	ND	0.46	ND	ND	ND	< 0.81
335-76-2	PFDA	ng/L	0.72	0.078	0.12	0.25	0.21	ND	0.14	0.94	ND	ND	ND	< 0.62
2058-94-8	PFUnA	ng/L	ND	0.21	ND	ND	ND	ND	ND	ND	ND	ND	ND	< 0.50
307-55-1	PFDoA	ng/L	ND	ND	ND	ND	0.16	ND	ND	ND	ND	ND	ND	< 0.49
72629-94-8	PFTDA	ng/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	< 0.63
376-06-7	PFTA	ng/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	< 0.61
Sulfonic Acids														
375-73-5	PFBS	ng/L	2.76	2.2	4.3	2.9	5	3.5	4.7	6	3.3	5.4	ND	< 2.1 U
2706-91-4	PFPeS	ng/L	0.51	0.46	0.63	0.47	1.5	0.52	0.85	0.84	0.76	0.61	0.42	< 0.61
355-46-4	PFHxS	ng/L	7.59	7.9	7.7	6.9	15	7.1	8.1	8.8	7.8	8	7.5	6.6
375-92-8	PFHpS	ng/L	0.11	ND	0.11	0.06	ND	ND	ND	ND	ND	ND	ND	< 0.68 UJ
1763-23-1	PFOS	ng/L	6.86	4.4	5.3	5.2	9.5	4.5	5.7	12	7.2	5.6	2.9	1.2 J
68259-12-1	PFNS	ng/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	< 0.60 UJ
335-77-3	PFDS	ng/L	ND	ND	ND	1.2	1.1	ND	0.29	ND	ND	ND	ND	< 0.65 UJ
79780-39-5	PFDoS	ng/L	ND	ND	ND	ND	0.3	ND	2.6	ND	ND	ND	ND	< 0.60 UJ
757124-72-4	4:2 FTS	ng/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	< 0.47
27619-97-2	6:2 FTS	ng/L	1.2	1	ND	2	2.5	2.6	1.3	2.5	1.2	1.2	0.73	< 0.69
39108-34-4	8:2 FTS	ng/L	0.15	0.13	ND	ND	0.15	0.73	0.74	0.26	ND	ND	ND	< 0.51
Sulfonamides, Sulfonamidoacetic acids, Sulfonamidoethanols														
754-91-6	PFOSA	ng/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	R
31506-32-8	NMeFOSA	ng/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	R
4151-50-2	NEtFOSA	ng/L	0.18	ND	ND	ND	ND	ND	0.3	ND	ND	ND	ND	R
2355-31-9	NMeFOSAA	ng/L	0.51	0.48	0.57	0.5	1.1	1.1	0.73	1.7	0.47	0.49	ND	< 0.71 UJ
2991-50-6	NEtFOSAA	ng/L	0.67	1.9	0.69	0.5	1.6	1.6	0.81	1.6	1.4	0.45	0.37	< 0.83 UJ
24448-09-7	NMeFOSE	ng/L	3.12	1.4	1.2	2.7	9.5	17	1.6	1.2	2.2	1.7	ND	R
1691-99-2	NEtFOSE	ng/L	1.28	0.073	0.88	ND	0.91	0.37	0.24	ND	1.2	ND	ND	R
Replacement Chemicals														
13252-13-6	HFPO-DA	ng/L	ND	ND	ND	ND	0.98	ND	ND	ND	ND	ND	ND	< 0.50
919005-14-4	DONA	ng/L	1.2	ND	ND	ND	0.13	ND	ND	ND	ND	ND	1.5	2.1
756426-58-1	9CI-PF3ONS	ng/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	< 0.48 UJ
763051-92-9	11CI-PF3OUdS	ng/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	< 0.57 UJ
Solids														
-	TSS	mg/L	--	--	--	--	--	--	--	--	--	--	--	107

Notes:
CAS RN = Chemical Abstracts Service Registry Number
Calculated Influent = Calculated as an average of the results from five influent pumping station samples weighted by their respective flow rates, with nondetect results represented by zero for the purpose of the calculation.
Composite Influent = Sample composited as flow-weighted average of five influent pumping station samples.
ND = Calculated influent result considered to be nondetect due to analyte not being detected in any of the five influent pumping station samples.
-- = Not analyzed or not applicable
TSS = Total suspended solids

Data Qualifiers:
U = nondetect
J = estimated
R = rejected
UJ = estimated nondetect
J+ = estimated with potential high bias
I = ion transition ratio did not meet acceptance limits

Updated by: L. Auner, 6/18/2024
Checked by: A. Olson 6/19/2024

Table 4: Influent Results (Calculated/Composite)
Madison Metropolitan Sewerage District
Madison, Dane County, Wisconsin
TRC Project #390131.0003.0000

Location ID			Influent Comp	Influent Comp	Influent Comp	Calculated Influent	Influent Comp	Influent Comp	Calculated Influent	Influent Comp	Influent Comp	Calculated Influent	Influent Comp	Influent Comp	Calculated Influent	Influent Comp	
Sample Name			Influent 20230116	Influent 20230213	Inf-Comp-20230320	Combined Influent-20230320	Inf Comp 20230417	Inf Comp 20230515	Combined Influent-20230619	Inf Comp 20230619	Inf Comp 20230717	Combined Influent 20230911	Inf Comp 20230911	Inf Comp 20231009	Inf Comp 20231113	Combined Influent 20231211	Inf-Comp 20231211
Sample Date			01/16/2023	02/13/2023	03/20/2023	03/20/2023	04/17/2023	05/15/2023	06/19/2023	06/19/2023	07/17/2023	09/11/2023	09/11/2023	10/09/2023	11/13/2023	12/11/2023	12/11/2023
CAS RN	Analyte	Unit															
Carboxylic Acids																	
375-22-4	PFBA	ng/L	7.9 J	9.0 J	8.8	8.9	10	6.8	6.8	6.9 J+	9.7	5.1	5.6	4.3	7.0	6.5	6.3
2706-90-3	PFPeA	ng/L	4.9 J	7.3 J	6.7	7	< 5.5	5.3	3.4	3.3 J+	7.7	4.1	4.9	4.3	5.3	4.2	3.8
307-24-4	PFHxA	ng/L	6.7 J	10.2 J	8.4	8.3	< 35	7.6	9.5	6.5 J+	15	10	9.6	6.0	11 IJ	4.7	< 0.55
375-85-9	PFHpA	ng/L	1.7 J	2.7 J	2.2	2.3	2.4	1.7 J	1.3	1.3 J	3.2	1.6	1.8	1.2 J	1.5 J	1.2	1.4 J
335-67-1	PFOA	ng/L	4.2 J	6.3 J	6.0	6.1	6.0	4.5	4.2	4.1 J+	8.8	4.7	5.0	3.7	5.1	3.7	3.9
375-95-1	PFNA	ng/L	< 0.81 UJ	< 0.79 UJ	0.47 J	0.43	0.51 J	0.50 J	0.32	0.39 IJ	< 0.24	0.47	0.53 J	0.51 J	< 0.26	0.2	0.45 J
335-76-2	PFDA	ng/L	< 0.62 UJ	< 0.61 UJ	0.70 IJ	0.5	0.61 J	0.38 J	0.33	< 0.27	0.65 IJ	0.45	0.52 J	0.44 J	< 0.29	0.052	< 0.29
2058-94-8	PFUnA	ng/L	< 0.50 UJ	< 0.48 UJ	< 0.98	ND	< 1.1	< 1.0	ND	< 0.95	< 0.96	ND	< 0.97	< 0.96	< 1.0	ND	< 1.0
307-55-1	PFDoA	ng/L	< 0.49 UJ	< 0.48 UJ	< 0.49	ND	< 0.53	< 0.52	ND	< 0.48	< 0.48	0.11	< 0.48	< 0.48	< 0.52	ND	< 0.52
72629-94-8	PFTDA	ng/L	< 0.63 UJ	< 0.62 UJ	< 1.2	ND	< 1.2	< 1.2	ND	< 1.1	< 1.1	ND	< 1.1	< 1.1	< 1.2	ND	< 1.2
376-06-7	PFTA	ng/L	< 0.61 UJ	< 0.60 UJ	< 0.65	ND	< 0.70	< 0.69 UJ	ND	< 0.63 UJ	< 0.64	0.49	< 0.64	< 0.64	< 0.69 UJ	ND	< 0.69
Sulfonic Acids																	
375-73-5	PFBS	ng/L	< 5.9 UJ	6.5 J	4.3	4.2	4.4	2.9	2.5	2.0	4.9	2.7	3.8 IJ	1.8	3.6	2.5	2.2
2706-91-4	PFPeS	ng/L	0.66 J	1.3 J	0.64 J	0.74	< 0.29	0.39 J	0.38	0.40 J	< 0.26	0.91	0.83 J	< 0.26	0.48 J	0.4	< 0.28
355-46-4	PFHxS	ng/L	8.2 J	9.4 J	9.6	10	11	7.6	7	7.1	< 0.50	7.2	7.9	5.3	7.5	4.9	5.6
375-92-8	PFHpS	ng/L	< 0.68 UJ	< 0.67 UJ	< 0.17	0.11	< 0.18	< 0.18	0.094	< 0.16	< 0.17	ND	< 0.17	< 0.17	< 0.18	ND	< 0.18
1763-23-1	PFOS	ng/L	6.5 J	7.9 J	6.3	5.7	6.9	5.0	3.7	4.3	< 0.47	4.9	5.0	2.6	4.0	0.87	4.0
68259-12-1	PFNS	ng/L	< 0.60 UJ	< 0.58 UJ	< 0.33	ND	< 0.35	< 0.35	ND	< 0.32	< 0.32	ND	< 0.33	< 0.32	< 0.35	ND	< 0.35
335-77-3	PFDS	ng/L	< 0.65 UJ	1.9 J	< 0.29	ND	< 0.31	< 0.30	ND	< 0.28	< 0.28	ND	< 0.28	< 0.28	< 0.30	ND	12 IJ
79780-39-5	PFDoS	ng/L	< 0.60 UJ	< 0.59 UJ	< 0.87	ND	< 0.93	< 0.91	ND	< 0.84	< 0.85	ND	< 0.85	< 0.84	< 0.92	ND	< 0.92
757124-72-4	4:2 FTS	ng/L	< 0.48 UJ	< 0.46 UJ	< 0.21	ND	< 0.23	< 0.23	ND	< 0.21 UJ	< 0.21	ND	< 0.21	< 0.21	< 0.23	ND	< 0.23
27619-97-2	6:2 FTS	ng/L	1.6 J	19.1 J	< 2.2	0.61	< 2.4	< 2.4	0.47	< 2.2 UJ	< 2.2	1.2	< 2.2	< 2.2	< 2.4	ND	< 2.4
39108-34-4	8:2 FTS	ng/L	< 0.51 UJ	< 0.50 UJ	< 0.41	ND	< 0.44	< 0.43	ND	< 0.40 UJ	0.69 IJ	0.21	0.43 J	< 0.40	< 0.44	ND	0.52 J
Sulfonamides, Sulfonamidoacetic acids, Sulfonamidoethanols																	
754-91-6	PFOSA	ng/L	< 0.73 UJ	< 0.71 UJ	< 0.88	ND	< 0.94	< 0.92	ND	< 0.85 UJ	< 0.86	ND	< 0.86	< 0.85	< 0.93	ND	< 0.93
31506-32-8	NMeFOSA	ng/L	< 0.56 UJ	< 0.55 UJ	< 0.39	ND	< 0.41	< 0.40	ND	< 0.37 UJ	< 0.38	ND	< 0.38	< 0.37	< 0.41	ND	< 0.41
4151-50-2	NEtFOSA	ng/L	< 0.59 UJ	< 0.57 UJ	< 0.78	ND	< 0.83	< 0.82	ND	< 0.75 UJ	< 0.76	ND	< 0.77	< 0.76	< 0.82	ND	< 0.82
2355-31-9	NMeFOSAA	ng/L	0.74 J	1.3 J	< 1.1	0.39	< 1.2	< 1.1	ND	< 1.0 UJ	< 1.0	ND	< 1.1	< 1.0	< 1.1 UJ	ND	< 1.1
2991-50-6	NEtFOSAA	ng/L	0.86 J	2.1 J	< 1.2	ND	< 1.2	< 1.2	ND	< 1.1 UJ	< 1.1 UJ	ND	< 1.1	< 1.1	< 1.2	ND	< 1.2
24448-09-7	NMeFOSE	ng/L	11.0 J	18.9 J	< 1.3	1.2	< 1.3	1.5 J	ND	< 1.2 UJ	< 1.2	0.78	1.4 J	< 1.2	< 1.3	1.3	1.4 J
1691-99-2	NEtFOSE	ng/L	< 0.91 UJ	< 0.89 UJ	< 0.76	ND	< 0.82	< 0.80	ND	< 0.74 UJ	< 0.74	ND	< 0.75	< 0.74	< 0.80	ND	< 0.80
Replacement Chemicals																	
13252-13-6	HFPO-DA	ng/L	< 0.50 UJ	< 0.49 UJ	< 1.3	ND	< 1.4	< 1.4	ND	< 1.3	< 1.3	ND	< 1.3	< 1.3	< 1.4	ND	< 1.4
919005-14-4	DONA	ng/L	< 0.94 UJ	< 0.91 UJ	< 0.36	ND	< 0.38	< 0.38	0.083	< 0.35 UJ	< 0.35	ND	< 0.35	< 0.35	< 0.38	ND	< 0.38
756426-58-1	9CI-PF3ONS	ng/L	< 0.48 UJ	< 0.47 UJ	< 0.21	ND	< 0.23	< 0.23	ND	< 0.21 UJ	< 0.21	ND	< 0.21	< 0.21	< 0.23	ND	< 0.23
763051-92-9	11CI-PF3OUdS	ng/L	< 0.57 UJ	< 0.55 UJ	< 0.29	ND	< 0.31	< 0.30	ND	< 0.28 UJ	< 0.28	ND	< 0.28	< 0.28	< 0.30	ND	< 0.30
Solids																	
-	TSS	mg/L	202	236	230	--	290	220	--	320	420	--	230	280	220	--	250

Notes:
CAS RN = Chemical Abstracts Service Registry Number
Calculated Influent = Calculated as an average of the results from five influent pumping station samples weighted by their respective flow rates, with nondetect results represented by zero for the purpose of the calculation.
Composite Influent = Sample composited as flow-weighted average of five influent pumping station samples.
ND = Calculated influent result considered to be nondetect due to analyte not being detected in any of the five influent pumping station samples.
-- = Not analyzed or not applicable
TSS = Total suspended solids

Data Qualifiers:
U = nondetect
J = estimated
R = rejected
UJ = estimated nondetect
J+ = estimated with potential high bias
I = ion transition ratio did not meet acceptance limits

Updated by: L. Auner, 6/18/2024
Checked by: A. Olson 6/19/2024

Table 5: Influent Results (Individual Force Mains)
Madison Metropolitan Sewerage District
Madison, Dane County, Wisconsin
TRC Project #390131.0003.0000

Location ID			Influent-02	Influent-02	Influent-02	Influent-02	Influent-02	Influent-02	Influent-02	Influent-02	Influent-02	Influent-02	Influent-02	Influent-02	Influent-02	Influent-02	Influent-02
Sample Name			Influent-02-20210506	Influent-02-20220328	Influent-02-20220425	Influent-02-20220523	Influent-02-20220620	Influent-02-20220718	Influent-02-20220815	Influent-02-20220912	Influent 02-20221010	Influent 02-20221114	Influent 02-20221212	Inf-02-20230320	Inf-0220230619	Inf-0220230911	Inf 02-20231211
Sample Date			05/06/2021	03/28/2022	04/25/2022	05/24/2022	06/20/2022	07/18/2022	08/15/2022	09/12/2022	10/10/2022	11/14/2022	12/12/2022	03/20/2023	06/19/2023	09/11/2023	12/11/2023
CAS RN	Analyte	Unit															
Carboxylic Acids																	
375-22-4	PFBA	ng/L	4.6	4.5	5.2	5.2	7.5 J	3.1	6.6	7.1	4.4	4.9	9.7	5.1	3.8 J	3.3 J	2.6 J
2706-90-3	PFPeA	ng/L	3.7	3.4	3.2	3.4	4.2 J	3.9	4.1	7.3	4.1	5.7	126	4.0	3.6 J+	3.4	2.3
307-24-4	PFHxA	ng/L	4.6	3.8	3.2	4.2	6.3 J	4.2	4.3	6.6	3.8 IJ	11	9.0	4.8	23 J+	6.4 IJ	< 0.53
375-85-9	PFHpA	ng/L	1.3 J	1.7 J	1.0 J	1.4 J	3.5 J	1.5 J	1.5 J	2.4	1.3 J	2.4	1.0 J	1.7 J	1.1 J	1.4 J	0.80 J
335-67-1	PFOA	ng/L	3.3	2.7	2.3	3.2	7.3 J	3.3	3.3	5.1	3.0	4.3	2.2	3.6	3.0 J+	3.0	2.0
375-95-1	PFNA	ng/L	0.66 J	< 0.77	< 0.79	< 0.71	R	< 0.71	< 0.85	< 0.80	< 0.78	< 0.78	< 0.80	0.43 J	0.40 IJ	0.64 J	0.32 J
335-76-2	PFDA	ng/L	< 0.25	< 0.59	< 0.60	< 0.54	1.2 J	< 0.54	< 0.65	0.67 J	< 0.60	< 0.59	< 0.61	0.43 J	0.45 J	0.69 J	< 0.28
2058-94-8	PFUnA	ng/L	< 0.89	< 0.56	< 0.58	< 0.52	R	< 0.52	< 0.52	< 0.49	< 0.48	< 0.47	< 0.49	< 1.0	< 0.97	< 1.1	< 1.0
307-55-1	PFDoA	ng/L	< 0.45 UJ	< 0.50	< 0.52	< 0.46	R	< 0.46	< 0.51	< 0.48	< 0.47	< 0.47	< 0.49	< 0.50	< 0.48	< 0.54	< 0.50
72629-94-8	PFTDA	ng/L	< 1.1	< 0.65	< 0.66	< 0.59	R	< 0.60	< 0.67	< 0.62	< 0.61	< 0.61	< 0.63	< 1.2	< 1.1	< 1.3	< 1.2
376-06-7	PFTA	ng/L	< 0.59	< 0.49	< 0.51	< 0.45	< 0.46 UJ	< 0.46	< 0.64	< 0.60	< 0.59	< 0.59	< 0.61	< 0.67	< 0.64 UJ	< 0.71	< 0.67
Sulfonic Acids																	
375-73-5	PFBS	ng/L	1.8 I	1.9	4.6	1.9	4.3 J	2.7	2.5	4.6	2.5	4.9	< 2.2 U	3.9	1.2 IJ	1.7 IJ	1.2 J
2706-91-4	PFPeS	ng/L	< 0.24	< 0.49	< 0.51	< 0.45	1.3 J	< 0.46	0.77 IJ	0.68 IJ	0.61 IJ	< 0.59	< 0.61	0.34 J	< 0.26	< 0.29	< 0.27
355-46-4	PFHxS	ng/L	4.9 I	5.0	3.8	5.0	17 J	4.1 IJ	5.2 IJ	5.4	4.6 IJ	4.5	4.2	5.0 IJ	4.0 IJ	3.5	< 0.52
375-92-8	PFHpS	ng/L	< 0.15	< 0.43	< 0.44	< 0.39	R	< 0.39	< 0.71	< 0.67	< 0.66	< 0.65	< 0.67	< 0.17	< 0.17	< 0.19	< 0.17
1763-23-1	PFOS	ng/L	6.9 I	4.9	4.1	4.2	16 J	5.4	5.8	12	7.0 IJ	4.8	2.4	5.5	5.0 IJ	< 0.53	< 0.49
68259-12-1	PFNS	ng/L	< 0.30	< 0.46	< 0.48	< 0.43	R	< 0.43	< 0.63	< 0.59	< 0.58	< 0.57	< 0.59	< 0.34	< 0.33	< 0.36	< 0.34
335-77-3	PFDS	ng/L	< 0.26	< 0.47	< 0.48	7.3	1.3 J	< 0.43	< 0.69	< 0.64	< 0.63	< 0.63	< 0.65	< 0.29	< 0.28	< 0.31	< 0.29
79780-39-5	PFDoS	ng/L	< 0.79	< 0.48	< 0.49	< 0.44	R	< 0.44	2.5 IJ	< 0.59	< 0.58	< 0.58	< 0.60	< 0.88	< 0.85	< 0.95	< 0.89
757124-72-4	4:2 FTS	ng/L	< 0.19	< 0.58	< 0.60	< 0.53	< 0.53 UJ	< 0.53	< 0.50	< 0.47	< 0.46	< 0.46	< 0.47	< 0.22	< 0.21 UJ	< 0.23	< 0.22
27619-97-2	6:2 FTS	ng/L	< 2.0	< 0.67	< 0.69	1.5 J	1.9 J	0.85 J	1.1 J	2.2 J	1.6 J	1.7 J	< 0.68	< 2.3	< 2.2 UJ	< 2.4	< 46
39108-34-4	8:2 FTS	ng/L	< 0.37	< 0.68	< 0.70	< 0.62	< 0.62 UJ	< 0.63	< 0.54	< 0.51	< 0.49	< 0.49	< 0.51	< 0.42	< 0.40 UJ	< 0.45	< 0.42
Sulfonamides, Sulfonamidoacetic acids, Sulfonamidoethanols																	
754-91-6	PFOSA	ng/L	< 0.79	< 0.85	< 0.87	< 0.78	R	< 0.78	< 0.77	< 0.72	< 0.70	< 0.70	R	< 0.89	< 0.86 UJ	< 0.96	< 0.90
31506-32-8	NMeFOSA	ng/L	< 0.35	< 0.53	< 0.55	< 0.49	R	< 0.49	< 0.59	< 0.55	< 0.54	< 0.54	R	< 0.39	< 0.38 UJ	< 0.42	< 0.39
4151-50-2	NEtFOSA	ng/L	< 0.71	< 0.63	< 0.65	< 0.58	R	< 0.58	< 0.61	< 0.58	< 0.56	< 0.56	R	< 0.79	< 0.77 UJ	< 0.85	< 0.79
2355-31-9	NMeFOSAA	ng/L	< 0.97	< 0.45	< 0.46	0.42 J	0.73 J	0.52 J	< 0.74	< 0.70	< 0.68	< 0.68	< 0.70 UJ	< 1.1	< 1.1 UJ	< 1.2	< 1.1
2991-50-6	NEtFOSAA	ng/L	< 1.1 UJ	< 0.58	< 0.59	0.71 J	1.7 J	0.73 J	< 0.87	< 0.82	4.3	< 0.79	< 0.82 UJ	< 1.2	< 1.1 UJ	< 1.3	< 1.2
24448-09-7	NMeFOSE	ng/L	1.3 J	0.84 J	0.90 J	1.5 J	12 J	29 J	1.3 J	< 0.52	1.2 J	1.0 J	R	< 1.3	< 1.2 UJ	< 1.4	< 1.3
1691-99-2	NEtFOSE	ng/L	< 0.69	< 0.52	< 0.53	< 0.48	R	< 0.48	1.4 J	< 0.89	1.3 J	< 0.87	R	< 0.77	< 0.75 UJ	< 0.83	< 0.78
Replacement Chemicals																	
13252-13-6	HFPO-DA	ng/L	< 1.2	< 0.55	< 0.56	< 0.51	1.2 IJ	< 0.51	< 0.53	< 0.49	< 0.48	< 0.48	< 0.50	< 1.4	< 1.3	< 1.5	< 1.4
919005-14-4	DONA	ng/L	1.2 JI	< 0.53	< 0.55	< 0.49	R	< 0.49	< 0.98	< 0.92	< 0.90	< 0.90	< 0.93	< 0.36	< 0.35 UJ	< 0.39	< 0.37
756426-58-1	9CI-PF3ONS	ng/L	< 0.19	< 0.32	< 0.33	< 0.29	R	< 0.29	< 0.50	< 0.47	< 0.46	< 0.46	< 0.47	< 0.22	< 0.21 UJ	< 0.23	< 0.22
763051-92-9	11CI-PF3OUdS	ng/L	< 0.26	< 0.45	< 0.47	< 0.42	R	< 0.42	< 0.59	< 0.56	< 0.55	< 0.54	< 0.56	< 0.29	< 0.28 UJ	< 0.31	< 0.29
Solids																	
-	Total Solids	mg/L	1200	--	--	--	--	--	--	--	--	--	--	--	--	--	--
-	TSS	mg/L	190	224	184	208	215 J-	270 J-	260	152	247	239	282	220	300	220	250

Notes:
CAS RN = Chemical Abstracts Service Registry Number
-- = Not analyzed
TSS = Total suspended solids

Data Qualifiers:
U = nondetect
J = estimated
J+ = estimated with potential high bias
J- = estimated with potential low bias
I = ion transition ratio did not meet acceptance limits
R = rejected
UJ = estimated nondetect

Updated by: L. Auner, 6/18/2024
Checked by: A. Olson 6/19/2024

Table 5: Influent Results (Individual Force Mains)
Madison Metropolitan Sewerage District
Madison, Dane County, Wisconsin
TRC Project #390131.0003.0000

Location ID	Influent-07	Influent-07	Influent-07	Influent-07	Influent-07	Influent-07	Influent-07	Influent-07	Influent-07	Influent-07	Influent-07	Influent-07	Influent-07	Influent-07	Influent-07	Influent-07	Influent-07
Sample Name	Influent-07-20210506	Influent-07-20220328	Influent-07-20220425	Influent-07-20220523	Influent-07-20220620	Influent-07-20220718	Influent-07-20220815	Influent-07-20220912	Influent-07-20221010	Influent-07-20221114	Influent-07-20221212	Inf-07-20230320	Inf-0720230619	Inf07-20230911	Inf 07-20231211		
Sample Date	05/06/2021	03/28/2022	04/25/2022	05/24/2022	06/20/2022	07/18/2022	08/15/2022	09/12/2022	10/10/2022	11/14/2022	12/12/2022	03/20/2023	06/19/2023	09/11/2023	12/11/2023		
CAS RN	Analyte	Unit															
Carboxylic Acids																	
375-22-4	PFBA	ng/L	21	12	14	11	20 J	12	12	20	14	13	17.2	17	10 J+	9.8	15
2706-90-3	PFPeA	ng/L	15	5.9	7.5	5.5	7.0 J	5.4	5.9	17	7.7	7.8	98.9	9.9	5.3 J+	7.0	7.5
307-24-4	PFHxA	ng/L	30	11	12	8.6	9.6 J	11	10	28	13	15	11.8	15	10 J+	16	< 0.53
375-85-9	PFHpA	ng/L	4.8	3.0	2.9	2.2	2.8 J	2.7	2.8	6.7	2.5	3.0	1.8 J	3.8	1.8 J+	3.0	2.3
335-67-1	PFOA	ng/L	11	5.2	7.3	6.2	9.1 J	6.3	6.9	16	6.6	7.1	5.9	11	6.7 J+	9.2	6.6
375-95-1	PFNA	ng/L	1.3 J	14	< 0.71	< 0.75	1.0 J	< 0.74	< 0.89	1.8 J	< 0.79	< 0.79	< 0.79	0.69 J	0.48 J	0.78 J	0.56 IJ
335-76-2	PFDA	ng/L	1.1 J	0.63 J	< 0.54	0.63 J	R	< 0.56	< 0.68	2.2	< 0.60	< 0.60	< 0.61	0.61 J	0.41 J	0.63 J	< 0.28
2058-94-8	PFUnA	ng/L	< 0.93	1.7 J	< 0.52	< 0.55	R	< 0.54	< 0.54	< 0.50	< 0.48	< 0.48	< 0.48	< 0.99	< 0.95	< 1.1	< 1.0
307-55-1	PFDoA	ng/L	< 0.46 UJ	< 0.46	< 0.47	< 0.49	R	< 0.48	< 0.54	< 0.49	< 0.48	< 0.48	< 0.48	< 0.50	< 0.47	< 0.54	< 0.50
72629-94-8	PFTDA	ng/L	< 1.1 UJ	< 0.60	< 0.60	< 0.63	R	< 0.62	< 0.70	< 0.64	< 0.62	< 0.62	< 0.62	< 1.2	< 1.1	< 1.3	< 1.2
376-06-7	PFTA	ng/L	< 0.61 UJ	< 0.46	< 0.46	< 0.48	R	< 0.47	< 0.67	< 0.61	< 0.59	< 0.60	< 0.60	< 0.66	< 0.63 UJ	< 0.71	< 0.66
Sulfonic Acids																	
375-73-5	PFBS	ng/L	5.8	3.6	5.9	4.8	9.6 J	5.3	7.7	9.0	5.2	8.3	< 4.6 U	6.6	5.3	5.8	5.4
2706-91-4	PFPeS	ng/L	< 0.25	< 0.46	0.80 J	1.0 J	4.0 IJ	1.1 J	1.5 IJ	1.3 IJ	1.4 J	1.1 J	0.84 J	1.1 J	0.81 J	1.4 J	0.85 J
355-46-4	PFHxS	ng/L	7.6	4.5	10	11	28 IJ	11	11	14	12	12	11.2	15	12	12	11
375-92-8	PFHpS	ng/L	< 0.16	< 0.39	< 0.40	< 0.42	R	< 0.41	< 0.75	< 0.68	< 0.66	< 0.66	< 0.67	< 0.17	0.19 J	< 0.19	< 0.17
1763-23-1	PFOS	ng/L	6.2 I	2.8	6.8	8.9	12 J	5.6	6.7	16	7.5	8.6	3.4	8.7	5.7	6.8	< 0.49
68259-12-1	PFNS	ng/L	< 0.31	< 0.43	< 0.43	< 0.45	R	< 0.44	< 0.66	< 0.60	< 0.58	< 0.58	< 0.58	< 0.33	< 0.32	< 0.36	< 0.34
335-77-3	PFDS	ng/L	< 0.27	< 0.43	< 0.43	< 0.46	R	< 0.45	1.1 IJ	< 0.66	< 0.64	< 0.64	< 0.64	< 0.29	< 0.28	< 0.31	< 0.29
79780-39-5	PFDoS	ng/L	< 0.82	< 0.44	< 0.44	< 0.47	R	< 0.46	3.0 IJ	< 0.61	< 0.59	< 0.59	< 0.59	< 0.88	< 0.84	< 0.95	< 0.88
757124-72-4	4:2 FTS	ng/L	< 0.20	< 0.53	< 0.54	< 0.57	< 0.53 UJ	< 0.56	< 0.52	< 0.48	< 0.46	< 0.46	< 0.46	< 0.22	< 0.21 UJ	< 0.23	< 0.22
27619-97-2	6:2 FTS	ng/L	< 2.1	0.88 J	< 0.62 UJ	3.5 J	4.5 J	1.8 J	2.1 J	3.8 J	1.7 J	1.9 J	1.5 J	< 2.3	< 2.2 UJ	3.1 J	< 45
39108-34-4	8:2 FTS	ng/L	< 0.39	< 0.63	< 0.63	< 0.66	R	0.91 J	0.57 J	0.65 J	< 0.50	< 0.50	< 0.50	< 0.42	< 0.40 UJ	0.49 J	< 0.42
Sulfonamides, Sulfonamidoacetic acids, Sulfonamidoethanols																	
754-91-6	PFOSA	ng/L	< 0.82	< 0.78	< 0.79	< 0.83	R	< 0.81	< 0.81	< 0.73	< 0.71	< 0.71	R	< 0.88	< 0.84 UJ	< 0.96	< 0.89
31506-32-8	NMeFOSA	ng/L	< 0.36	< 0.49	< 0.49	< 0.52	R	< 0.51	R	< 0.57	< 0.55	< 0.55	R	< 0.39	< 0.37 UJ	< 0.42	< 0.39
4151-50-2	NEtFOSA	ng/L	1.6 J	< 0.58	< 0.59	< 0.62	R	< 0.61	< 0.64	1.2 J	< 0.57	< 0.57	R	< 0.79	< 0.75 UJ	< 0.85	< 0.79
2355-31-9	NMeFOSAA	ng/L	4.6	1.4 J	1.3 J	0.74 J	1.8 J	2.0 J	1.5 J	4.4	1.2 J	1.4 J	< 0.69 UJ	1.5 J	< 1.0 UJ	< 1.2	< 1.1
2991-50-6	NEtFOSAA	ng/L	2.3 J	12	1.1 J	0.95 J	2.6 J	1.5 J	1.5 J	3.4	1.2 J	0.98 J	0.82 J	< 1.2	< 1.1 UJ	< 1.3	< 1.2
24448-09-7	NMeFOSE	ng/L	4.7	2.1	2.2	1.9 J	9.0 J	27	2.1 J	2.1	2.6	1.8 J	R	< 1.3	< 1.2 UJ	1.9 J	2.3 J
1691-99-2	NEtFOSE	ng/L	1.0 J	0.59 J	0.80 J	< 0.50	1.3 J	0.59 J	< 1.00	< 0.91	2.0 J	< 0.88	R	< 0.77	< 0.73 UJ	< 0.83	< 0.77
Replacement Chemicals																	
13252-13-6	HFPO-DA	ng/L	< 1.3	< 0.51	< 0.51	< 0.54	1.8 J	< 0.53	< 0.55	< 0.51	< 0.49	< 0.49	< 0.49	< 1.4	< 1.3	< 1.5	< 1.4
919005-14-4	DONA	ng/L	< 0.34	< 0.49	< 0.50	< 0.52	0.54 J	< 0.51	< 1.0	< 0.94	< 0.91	< 0.91	1.8 J	< 0.36	< 0.34 UJ	< 0.39	< 0.36
756426-58-1	9CI-PF3ONS	ng/L	< 0.20	< 0.29	< 0.29	< 0.31	R	< 0.30	< 0.53	< 0.48	< 0.47	< 0.47	< 0.47	< 0.22	< 0.21 UJ	< 0.23	< 0.22
763051-92-9	11CI-PF3OUdS	ng/L	< 0.27	< 0.42	< 0.42	< 0.44	R	< 0.43	< 0.62	< 0.57	< 0.55	< 0.55	< 0.55	< 0.29	< 0.28 UJ	< 0.31	< 0.29
Solids																	
-	Total Solids	mg/L	1400	--	--	--	--	--	--	--	--	--	--	--	--	--	--
-	TSS	mg/L	220	157	151	214	216 J-	250 J-	208	178	175	234	149	190	290	230	230

Notes:
CAS RN = Chemical Abstracts Service Registry Number
-- = Not analyzed
TSS = Total suspended solids

Data Qualifiers:
U = nondetect
J = estimated
J+ = estimated with potential high bias
J- = estimated with potential low bias
I = ion transition ratio did not meet acceptance limits
R = rejected
UJ = estimated nondetect

Updated by: L. Auner, 6/18/2024
Checked by: A. Olson 6/19/2024

Table 5: Influent Results (Individual Force Mains)
Madison Metropolitan Sewerage District
Madison, Dane County, Wisconsin
TRC Project #390131.0003.0000

Location ID	Influent-08-20210506	Influent-08-DUP01-20210506	Influent-08-20220328	Influent-08-20220425	Influent-08-20220523	Influent-08-20220620	Influent-08-20220718	Influent-08-20220815	Influent-08-20220912	Influent-08-20221010	Influent-08-20221114	Influent-08-20221212	Infl-08-20230320	Influent-08-0820230619	Influent-08-0820230911	Influent-08-20231211		
Sample Name	05/06/2021	05/06/2021	03/28/2022	04/25/2022	05/24/2022	06/20/2022	07/18/2022	08/15/2022	09/12/2022	10/10/2022	11/14/2022	12/12/2022	03/20/2023	06/19/2023	09/11/2023	12/11/2023		
CAS RN	Analyte	Unit																
Carboxylic Acids																		
375-22-4	PFBA	ng/L	5.8	5.1	4.4	5.0	5.5	9.0 J	8.0	10.0	6.6	2.1	5.0	7.5	4.0 J	7.3 J+	4.3 J	3.5 J
2706-90-3	PFPeA	ng/L	160	170 J	3.0	3.7	3.9	3.1 J	3.4	3.8	18	3.2	4.2	124	11	3.0 J+	4.5	4.1
307-24-4	PFHxA	ng/L	5.2	4.9 I	3.7	5.3	4.1	4.5 J	4.6	4.7 IJ	7.0	3.5 IJ	6.4	6.8	6.3	5.4 J+	9.3	6.3
375-85-9	PFHpA	ng/L	1.1 J	1.1 J	1.6 J	1.2 J	0.92 J	1.4 J	1.1 J	1.00 J	1.8 J	0.76 J	1.2 J	0.86 J	0.98 J	1.0 J	1.2 J	0.57 J
335-67-1	PFOA	ng/L	2.2	2.5	2.0 J	2.6	1.9	3.2 J	2.5	2.4	3.4	2.2	2.6	2.0	1.9	1.9 J+	2.4	1.4 J
375-95-1	PFNA	ng/L	0.52 J	< 0.23	< 0.74	< 0.77	< 0.71	< 0.74 UJ	< 0.72	< 0.81	< 0.75	< 0.79	< 0.80	< 0.77	< 0.24	0.27 J	0.44 J	< 0.26
335-76-2	PFDA	ng/L	0.48 J	< 0.26	< 0.57	0.71 J	< 0.54	< 0.56 UJ	< 0.55	< 0.62	0.58 J	< 0.60	< 0.61	< 0.59	0.50 IJ	0.46 J	0.58 J	0.29 IJ
2058-94-8	PFUnA	ng/L	< 0.93	< 0.92	< 0.54	< 0.56	< 0.52	< 0.54 UJ	< 0.53	< 0.50	< 0.46	< 0.48	< 0.49	< 0.47	< 1.0	< 1.0	< 1.1	< 1.0
307-55-1	PFDoA	ng/L	< 0.47 UJ	< 0.46 UJ	< 0.49	< 0.50	< 0.46	R	< 0.47	< 0.49	< 0.45	< 0.48	< 0.48	< 0.46	< 0.50	< 0.52	0.62 J	< 0.52
72629-94-8	PFTTrDA	ng/L	< 1.1	< 1.1 UJ	< 0.62	< 0.64	< 0.59	R	< 0.61	< 0.64	< 0.59	< 0.62	< 0.62	< 0.60	< 1.2	< 1.2	< 1.3	< 1.2
376-06-7	PFTA	ng/L	< 0.62	< 0.61 UJ	< 0.48	< 0.49	< 0.46	< 0.47 UJ	< 0.46	< 0.62	< 0.57	< 0.59	< 0.60	< 0.58	< 0.66	< 0.68 UJ	2.8	< 0.69
Sulfonic Acids																		
375-73-5	PFBS	ng/L	1.6 J	< 0.17	1.7 J	2.5	1.7	3.1 J	2.1	3.1	3.3	1.4 J	4.1	< 1.2 UJ	1.6 J	1.3 J	1.8 J	1.0 J
2706-91-4	PFPeS	ng/L	< 0.25	0.28 J	< 0.48	< 0.49	< 0.45	R	< 0.46	< 0.62	< 0.57	< 0.60	< 0.60	< 0.58	0.27 J	< 0.28	< 0.29	< 0.28
355-46-4	PFHxS	ng/L	3.3 I	2.1 I	3.5	3.8	4.2	4.9 J	3.2	4.7 IJ	3.7	3.3 IJ	4.3	4.8	4.6 IJ	3.0 IJ	4.1	< 0.54
375-92-8	PFHpS	ng/L	< 0.16	< 0.16	< 0.41	< 0.43	< 0.39	R	< 0.40	< 0.69	< 0.63	< 0.66	< 0.67	< 0.64	< 0.17	< 0.18	< 0.18	< 0.18
1763-23-1	PFOS	ng/L	2.6 I	2.3	5.0 IJ	2.7	2.9	4.3 IJ	2.5 IJ	3.4 IJ	8.6 IJ	8.6 IJ	3.8	2.2	3.5	< 0.51	3.1	< 0.51
68259-12-1	PFNS	ng/L	0.58 JI	< 0.31	< 0.45	< 0.46	< 0.43	R	< 0.44	< 0.60	< 0.55	< 0.58	< 0.59	< 0.57	< 0.34	< 0.35	< 0.36	< 0.35
335-77-3	PFDS	ng/L	< 0.27	< 0.27	< 0.45	< 0.47	< 0.43	R	< 0.44	< 0.66	< 0.61	< 0.64	< 0.64	< 0.62	< 0.29	< 0.30	< 0.31	< 0.30
79780-39-5	PFDoS	ng/L	< 0.82	< 0.81	< 0.46	< 0.48	< 0.44	R	< 0.45	2.4 IJ	< 0.56	< 0.59	< 0.59	< 0.57	< 0.88	< 0.91	< 0.94	< 0.92
757124-72-4	4:2 FTS	ng/L	< 0.20	< 0.20	< 0.56	< 0.58	< 0.53	< 0.56 UJ	< 0.54	< 0.48	< 0.44	< 0.46	< 0.47	< 0.45	< 0.22	< 0.23 UJ	< 0.23	< 0.23
27619-97-2	6:2 FTS	ng/L	< 2.1	2.8 J	1.5 J	< 0.67 UJ	1.4 J	1.2 J	2.3 J	< 0.69	0.73 J	0.83 J	< 0.68	< 0.65	< 2.3	< 2.3 UJ	< 2.4	< 47
39108-34-4	8:2 FTS	ng/L	< 0.39	< 0.39	0.73 J	< 0.68	< 0.62	< 0.65 UJ	0.74 J	0.65 IJ	< 0.48	< 0.50	< 0.50	< 0.49	< 0.42	< 0.43 UJ	0.52 J	< 0.44
Sulfonamides, Sulfonamidoacetic acids, Sulfonamidoethanols																		
754-91-6	PFOSA	ng/L	< 0.83	< 0.82	< 0.82	< 0.85	< 0.78	R	< 0.80	< 0.74	< 0.68	< 0.71 UJ	< 0.72	R	< 0.89	< 0.92 UJ	< 0.95	< 0.93
31506-32-8	NMeFOSA	ng/L	< 0.36	< 0.36	< 0.51	< 0.53	< 0.49	R	< 0.50	< 0.57	< 0.52	< 0.55	< 0.55	R	< 0.39	< 0.40 UJ	< 0.42	< 0.41
4151-50-2	NEtFOSA	ng/L	< 0.74	< 0.73	< 0.61	< 0.63	< 0.58	R	< 0.59	< 0.59	< 0.54	< 0.57	< 0.57	R	< 0.79	< 0.82 UJ	< 0.84	< 0.82
2355-31-9	NMeFOSAA	ng/L	< 1.0	< 1.0 UJ	< 0.44	< 0.45	< 0.42	0.53 IJ	0.68 J	0.75 J	< 0.66	< 0.69	< 0.70	< 0.67 UJ	< 1.1	< 1.1 UJ	< 1.2	< 1.1
2991-50-6	NEtFOSAA	ng/L	< 1.1 UJ	< 1.1 UJ	< 0.56	0.85 J	< 0.53	< 0.55 UJ	3.9	0.86 J	1.3 J	< 0.81	< 0.82	< 0.79 UJ	< 1.2	< 1.2 UJ	< 1.3	< 1.2
24448-09-7	NMeFOSE	ng/L	2.4 J	< 1.2	1.3 J	1.4 J	1.8 J	5.6 J	1.8 J	1.5 J	1.0 J	2.6	1.3 J	R	2.3 J	< 1.3 UJ	< 1.4	< 1.3
1691-99-2	NEtFOSE	ng/L	< 0.72	< 0.71	< 0.50	0.91 J	< 0.48	0.79 J	0.59 J	< 0.91	< 0.84	1.5 J	< 0.89	R	< 0.77	< 0.80 UJ	< 0.82	< 0.81
Replacement Chemicals																		
13252-13-6	HFPO-DA	ng/L	< 1.3	< 1.3	< 0.53	< 0.55	< 0.51	0.69 J	< 0.52	< 0.51	< 0.47	< 0.49	< 0.49	< 0.48	< 1.4	< 1.4	< 1.5	< 1.4
919005-14-4	DONA	ng/L	< 0.34	< 0.33	< 0.52	< 0.53	< 0.49	R	< 0.50	< 0.94	< 0.87	< 0.91	< 0.92	0.89 J	< 0.36	< 0.38 UJ	< 0.39	< 0.38
756426-58-1	9CI-PF3ONS	ng/L	< 0.20	< 0.20	< 0.31	< 0.32	< 0.29	R	< 0.30	< 0.48	< 0.44	< 0.47	< 0.47	< 0.45	< 0.22	< 0.23 UJ	< 0.23	< 0.23
763051-92-9	11CI-PF3OUdS	ng/L	< 0.27	< 0.27	< 0.44	< 0.45	< 0.42	R	< 0.43	< 0.57	< 0.53	< 0.55	< 0.56	< 0.54	< 0.29	< 0.30 UJ	< 0.31	< 0.30
Solids																		
-	Total Solids	mg/L	1400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
-	TSS	mg/L	170	--	177	226	221	210 J-	251 J-	206	185	243	211	367	190	280	200	210

Notes:
CAS RN = Chemical Abstracts Service Registry Number
-- = Not analyzed
TSS = Total suspended solids

Data Qualifiers:
U = nondetect
J = estimated
J+ = estimated with potential high bias
J- = estimated with potential low bias
I = ion transition ratio did not meet acceptance limits
R = rejected
UJ = estimated nondetect

Updated by: L. Auner, 6/18/2024
Checked by: A. Olson 6/19/2024

Table 5: Influent Results (Individual Force Mains)
Madison Metropolitan Sewerage District
Madison, Dane County, Wisconsin
TRC Project #390131.0003.0000

Location ID	Influent-11	Influent-11	Influent-11	Influent-11	Influent-11	Influent-11	Influent-11	Influent-11	Influent-11	Influent-11	Influent-11	Influent-11	Influent-11	Influent-11	Influent-11	Influent-11	
Sample Name	Influent-11-20210506	Influent-11-20220328	Influent-11-20220425	Influent-11-20220523	Influent-11-20220620	Influent-11-20220718	Influent-11-20220815	Influent-11-20220912	Influent-11-20221010	Influent-11-20221114	Influent-11-20221212	Inf-11-20230320	Inf-1120230619	Inf11-20230911	Inf 11-20231211		
Sample Date	05/06/2021	03/28/2022	04/25/2022	05/24/2022	06/20/2022	07/18/2022	08/15/2022	09/12/2022	10/10/2022	11/14/2022	12/12/2022	03/20/2023	06/19/2023	09/11/2023	12/11/2023		
CAS RN	Analyte	Unit															
Carboxylic Acids																	
375-22-4	PFBA	ng/L	3.3 J	2.8	3.4	2.7	4.7 J	1.0 J	4.0	3.3	3.7	2.6	< 0.48	2.2 J	2.8 J	< 24	< 2.3
2706-90-3	PFPeA	ng/L	< 0.42	2.1	2.6	2.2	3.7 J	2.3	2.4	6.7	4.4	2.9	164	2.1	0.59 J	< 4.8	1.9
307-24-4	PFHxA	ng/L	4.1	3.0	4.3	3.5	4.4 J	4.0	3.9 IJ	6.4	4.3 IJ	4.5 IJ	5.4	3.7 IJ	4.5 J+	7.8 IJ	5.2 IJ
375-85-9	PFHpA	ng/L	0.82 J	1.4 IJ	0.88 J	0.82 J	1.3 J	0.78 J	0.99 J	1.4 J	0.96 J	0.92 J	< 0.67	0.90 J	0.63 J	< 2.5	0.42 J
335-67-1	PFOA	ng/L	2.2	1.8 J	2.6	1.9	R	2.2	2.4	3.4	2.0	2.2	1.8 J	2.1	1.7 J+	< 8.4	1.4 J
375-95-1	PFNA	ng/L	0.72 J	< 0.75	< 0.71	< 0.71	0.83 J	< 0.69	< 0.80	< 0.81	< 0.77	< 0.78	< 0.77	0.33 J	< 0.24	< 2.7	< 0.25
335-76-2	PFDA	ng/L	0.54 J	< 0.57	< 0.54	< 0.54	R	< 0.53	0.64 J	0.68 J	< 0.59	< 0.60	< 0.59	0.34 J	0.35 IJ	< 3.1	< 0.29
2058-94-8	PFUnA	ng/L	< 0.95	< 0.55	< 0.52	< 0.52	R	< 0.51	< 0.49	< 0.49	< 0.47	< 0.48	< 0.47 UJ	< 1.0	< 0.96	< 1.1	< 1.0
307-55-1	PFDoA	ng/L	< 0.48 UJ	< 0.49	< 0.46	< 0.46	0.72 J	< 0.45	< 0.48	< 0.49	< 0.46	< 0.47	< 0.47 UJ	< 0.50	< 0.48 UJ	< 5.4	< 0.52
72629-94-8	PFTDA	ng/L	< 1.1 UJ	< 0.63	< 0.59	< 0.60	R	< 0.58	< 0.63	< 0.63	< 0.60	< 0.61	< 0.60 UJ	< 1.2	< 1.1 UJ	< 13	< 1.2
376-06-7	PFTA	ng/L	< 0.63 UJ	< 0.48	< 0.45	< 0.46	< 0.45 UJ	< 0.45	< 0.60	< 0.61	< 0.58	< 0.59	< 0.58	< 0.66 UJ	< 0.64 UJ	< 7.2	< 0.69
Sulfonic Acids																	
375-73-5	PFBS	ng/L	1.2 J	0.85 J	2.7	1.5 J	2.1 J	1.8	2.4	2.9	2.4	2.6	< 0.92 UJ	1.5 J	0.83 J	< 2.0	0.97 J
2706-91-4	PFPeS	ng/L	< 0.26	< 0.48	< 0.45	< 0.46	R	< 0.45	< 0.61	< 0.61	< 0.58	< 0.59	< 0.58	< 0.27	< 0.26	< 3.0	< 0.28
355-46-4	PFHxS	ng/L	2.7 I	2.8 IJ	2.2 IJ	1.5 IJ	6.4 IJ	2.5	3.0 IJ	2.5 IJ	4.0 IJ	2.9	2.7	3.7 IJ	2.5 IJ	< 5.6	< 0.53
375-92-8	PFHpS	ng/L	< 0.16	< 0.42	< 0.39	< 0.40	R	< 0.39	< 0.67	< 0.68	< 0.65	< 0.66	< 0.65	< 0.17	< 0.17	< 1.9	< 0.18
1763-23-1	PFOS	ng/L	3.5 I	1.4 J	1.9	2.1	6.2 J	1.9	3.2 IJ	7.3 IJ	4.3 IJ	2.2	1.6 J	< 0.49	< 0.47	6.5 J	< 0.51
68259-12-1	PFNS	ng/L	< 0.32	< 0.45	< 0.43	< 0.43	R	< 0.42	< 0.59	< 0.60	< 0.57	< 0.58	< 0.57	< 0.34	< 0.32	< 3.7	< 0.35
335-77-3	PFDS	ng/L	< 0.28	< 0.46	< 0.43	< 0.43	3.8 J	< 0.42	< 0.65	< 0.65	< 0.62	< 0.63	< 0.62	< 0.29	< 0.28	< 3.2	< 0.30
79780-39-5	PFDoS	ng/L	< 0.84	< 0.47 UJ	< 0.44	< 0.44	1.3 J	< 0.43	1.8 IJ	< 0.60	< 0.57	< 0.58	< 0.57	< 0.88	< 0.85	< 9.6	< 0.91
757124-72-4	4:2 FTS	ng/L	< 0.21	< 0.57	< 0.53	< 0.54	< 0.53 UJ	< 0.52	< 0.47	< 0.48	< 0.45	< 0.46	< 0.45	< 0.22	< 0.21 UJ	< 2.4	< 0.23
27619-97-2	6:2 FTS	ng/L	< 2.2	< 0.65	< 0.62 UJ	1.1 J	1.7 J	5.1 J	0.71 J	0.84 J	< 0.65	< 0.67	< 0.66	< 2.3	< 2.2 UJ	< 25	< 47
39108-34-4	8:2 FTS	ng/L	< 0.40	< 0.66	< 0.62	< 0.63	0.67 J	0.89 J	1.7 J	< 0.51	< 0.49	< 0.50	< 0.49	< 0.42	< 0.40 UJ	< 4.5	< 0.43
Sulfonamides, Sulfonamidoacetic acids, Sulfonamidoethanols																	
754-91-6	PFOSA	ng/L	< 0.85	< 0.83	< 0.78	< 0.79	R	< 0.77	< 0.72	< 0.73	< 0.69	< 0.71	R	< 0.89	< 0.85 UJ	< 9.7	< 0.92
31506-32-8	NMeFOSA	ng/L	< 0.37	< 0.52	< 0.49	< 0.49	R	< 0.48	< 0.56	< 0.56	< 0.53	< 0.55	R	< 0.39	< 0.37 UJ	< 4.2	< 0.40
4151-50-2	NEtFOSA	ng/L	< 0.75	< 0.62	< 0.58	< 0.58	R	< 0.57	< 0.58	< 0.59	< 0.56	< 0.57	R	< 0.79	< 0.76 UJ	< 8.6	< 0.82
2355-31-9	NMeFOSAA	ng/L	< 1.0 UJ	0.45 J	0.45 J	0.60 J	1.1 J	0.80 J	< 0.70	0.81 J	< 0.67	< 0.69	R	< 1.1	< 1.0 UJ	< 12	< 1.1
2991-50-6	NEtFOSAA	ng/L	< 1.1 UJ	< 0.56	< 0.53	< 0.53	1.5 J	0.54 J	< 0.82	< 0.83	< 0.79	< 0.80	R	< 1.2	< 1.1 UJ	< 13	< 1.2
24448-09-7	NMeFOSE	ng/L	4.4	1.3 J	1.0 J	4.6	14 J	2.5	1.3 J	1.3 J	2.0	2.6	R	2.4 J	< 1.2 UJ	< 14	2.1 J
1691-99-2	NEtFOSE	ng/L	< 0.74	< 0.50	0.64 J	< 0.48	1.6 J	0.50 J	< 0.90	< 0.91	1.0 J	< 0.88	R	< 0.77	< 0.74 UJ	< 8.4	< 0.80
Replacement Chemicals																	
13252-13-6	HFPO-DA	ng/L	< 1.3	< 0.54	< 0.51	< 0.51	0.92 J	< 0.50	< 0.50	< 0.50	< 0.48	< 0.49	< 0.48	< 1.4	< 1.3	< 15	< 1.4
919005-14-4	DONA	ng/L	< 0.35	< 0.52	< 0.49	< 0.49	R	< 0.48	< 0.93	< 0.94	< 0.89	< 0.91	2.2	< 0.36	0.36 IJ	< 3.9	< 0.38
756426-58-1	9CI-PF3ONS	ng/L	< 0.21	< 0.31	< 0.29	< 0.29	R	< 0.29	< 0.47	< 0.48	< 0.45	< 0.46	< 0.46	< 0.22	< 0.21 UJ	< 2.4	< 0.23
763051-92-9	11CI-PF3OUdS	ng/L	< 0.28	< 0.44	< 0.42	< 0.42	R	< 0.41	< 0.56	< 0.57	< 0.54	< 0.55	< 0.54	< 0.29	< 0.28 UJ	< 3.2	< 0.30
Solids																	
-	Total Solids	mg/L	1300	--	--	--	--	--	--	--	--	--	--	--	--	--	--
-	TSS	mg/L	230	251	200	248	271 J-	314 J-	251	212	224	239	291	200	320	260	280

Notes:
CAS RN = Chemical Abstracts Service Registry Number
-- = Not analyzed
TSS = Total suspended solids

Data Qualifiers:
U = nondetect
J = estimated
J+ = estimated with potential high bias
J- = estimated with potential low bias
I = ion transition ratio did not meet acceptance limits
R = rejected
UJ = estimated nondetect

Updated by: L. Auner, 6/18/2024
Checked by: A. Olson 6/19/2024

Table 5: Influent Results (Individual Force Mains)
Madison Metropolitan Sewerage District
Madison, Dane County, Wisconsin
TRC Project #390131.0003.0000

Location ID	Influent-18	Influent-18	Influent-18	Influent-18	Influent-18	Influent-18	Influent-18	Influent-18	Influent-18	Influent-18	Influent-18	Influent-18	Influent-18	Influent-18	Influent-18	Influent-18	Influent-18
Sample Name	Influent-18-20210506	Influent-18-20220328	Influent-18-20220425	Influent-18-20220523	Influent-18-20220620	Influent-18-20220718	Influent-18-20220815	Influent-18-20220912	Influent-18-20221010	Influent-18-20221114	Influent-18-20221212	Infl-18-20230320	Inf-1820230619	Inf18-20230911	Inf 18-20231211		
Sample Date	05/06/2021	03/28/2022	04/25/2022	05/24/2022	06/20/2022	07/18/2022	08/15/2022	09/12/2022	10/10/2022	11/14/2022	12/12/2022	03/20/2023	06/19/2023	09/11/2023	12/11/2023		
CAS RN	Analyte	Unit															
Carboxylic Acids																	
375-22-4	PFBA	ng/L	10	8.6	12	8.7	9.8 J	12	11	15	11	10	8.5 J	13	9.5 J+	7.8	9.9
2706-90-3	PFPeA	ng/L	5.6	6.3	6.5	5.1	5.5 J	5.8	5.8	13	6.8	5.9	109	7.6	4.7 J+	5.9	4.5
307-24-4	PFHxA	ng/L	8.1	7.3	8.4	6.5	6.7	8.6	8.4	16	7.5	8.7	8.5	9.2	7.8 J+	10	16 IJ
375-85-9	PFHpA	ng/L	2.3	3.0	2.7	1.9	2.2	2.4	2.4	5.0	2.2	2.4	1.7 J	3.4	1.9 J+	2.2	1.7 J
335-67-1	PFOA	ng/L	7.8	7.9	8.3	5.9	6.5	7.6	7.7	12	6.8	7.4	6.3	10	7.2 J+	8.3	7.1
375-95-1	PFNA	ng/L	0.93 JI	< 0.76	< 0.74	< 0.70	< 0.70	< 0.70	< 0.80	< 0.82	< 0.78	< 0.75	< 0.80	0.59 J	0.48 J	0.50 J	< 0.24
335-76-2	PFDA	ng/L	1.2 J	< 0.58	< 0.57	0.54 J	< 0.53	< 0.54	< 0.61	< 0.63	< 0.59	< 0.57	< 0.61	0.61 J	< 0.27	0.37 J	< 0.28
2058-94-8	PFUnA	ng/L	< 0.90	< 0.55	< 0.54	< 0.51	< 0.51	< 0.51	< 0.49	< 0.50	< 0.47	< 0.46	< 0.49	< 0.98	< 0.95	< 1.1	< 0.98
307-55-1	PFDoA	ng/L	< 0.45 UJ	< 0.49	< 0.49	< 0.45	< 0.46 UJ	< 0.46	< 0.48	< 0.50	< 0.47	< 0.45	< 0.48 UJ	< 0.49	< 0.47	< 0.53	< 0.49
72629-94-8	PFTDA	ng/L	< 1.1	< 0.64	< 0.63	< 0.58	< 0.59 UJ	< 0.59	< 0.62	< 0.64	< 0.61	< 0.59	< 0.63 UJ	< 1.2	< 1.1	< 1.3	< 1.2
376-06-7	PFTA	ng/L	< 0.60	< 0.49	< 0.48	< 0.45	< 0.45 UJ	< 0.45	< 0.60	< 0.62	< 0.59	< 0.57	< 0.60	< 0.65	< 0.63 UJ	< 0.71	< 0.65
Sulfonic Acids																	
375-73-5	PFBS	ng/L	4.0	3.1	5.8	3.9	5.1	5.6	7.3	10	4.6	6.8	< 3.2 U	6.6	3.3	4.0	3.3
2706-91-4	PFPeS	ng/L	1.6	1.5 J	1.9	1.3 J	1.8 J	1.5 J	2.0	2.2 IJ	1.8 IJ	1.9	1.2 J	1.9	1.0 J	3.3	1.2 J
355-46-4	PFHxS	ng/L	15	17	16	13	14 J	15	17	18	15	16	13.9	21	13	17	13
375-92-8	PFHpS	ng/L	0.35 J	< 0.42	0.41 J	0.39 J	< 0.39	< 0.39	< 0.67	< 0.69	< 0.65	< 0.63	< 0.67	0.61 J	0.26 J	< 0.18	< 0.17
1763-23-1	PFOS	ng/L	12	6.7	9.8	7.1	9.2	7.6	9.9	14	9.6	8.4	5.1	9.9	8.4	7.1	5.8
68259-12-1	PFNS	ng/L	< 0.30	< 0.46	< 0.45	< 0.42	< 0.42	< 0.42	< 0.59	< 0.61	< 0.57	< 0.55	< 0.59	< 0.33	< 0.32	< 0.36	< 0.33
335-77-3	PFDS	ng/L	< 0.26	< 0.46	< 0.45	< 0.42	< 0.43	< 0.43	< 0.64	< 0.66	< 0.63	< 0.61	< 0.64 UJ	< 0.28	< 0.28	< 0.31	< 0.28
79780-39-5	PFDoS	ng/L	< 0.80	< 0.47	< 0.46	< 0.43	< 0.44	< 0.44	3.4 IJ	< 0.61	< 0.58	< 0.56	< 0.59	< 0.86	< 0.84	< 0.94	< 0.86
757124-72-4	4:2 FTS	ng/L	< 0.20	< 0.57	< 0.56	< 0.52	< 0.53	< 0.53	< 0.47	< 0.48	< 0.46	< 0.44	< 0.47	< 0.21	< 0.21 UJ	< 0.23	< 0.21
27619-97-2	6:2 FTS	ng/L	3.8 J	2.2 J	< 0.65 U	2.2 J	2.4	2.7 J	2.5 J	4.8 J	2.3 J	2.1 J	2.0 J	3.3 J	2.5 J	2.6 J	< 2.2
39108-34-4	8:2 FTS	ng/L	0.46 JI	< 0.67	< 0.66	< 0.61	< 0.62	1.0 J	0.56 J	0.55 J	< 0.49	< 0.48	< 0.51	< 0.41	< 0.40 UJ	< 0.45	< 0.41
Sulfonamides, Sulfonamidoacetic acids, Sulfonamidoethanols																	
754-91-6	PFOSA	ng/L	< 0.81	< 0.84	< 0.82	< 0.77	< 0.78 UJ	< 0.78	< 0.72	< 0.74	< 0.70	< 0.68	R	< 0.87	< 0.84 UJ	< 0.95	< 0.87
31506-32-8	NMeFOSA	ng/L	< 0.35	< 0.52	< 0.51	< 0.48	< 0.48	< 0.49	R	< 0.57	< 0.54	< 0.52	R	< 0.38	< 0.37 UJ	< 0.42	< 0.38
4151-50-2	NEtFOSA	ng/L	< 0.71	< 0.62	< 0.61	< 0.57	R	< 0.58	< 0.58	< 0.59	< 0.56	< 0.54	R	< 0.77	< 0.75 UJ	< 0.84	< 0.77
2355-31-9	NMeFOSAA	ng/L	< 0.99	0.67 J	1.0 J	0.58 J	0.94 J	1.0 J	1.2 J	2.3	1.0 J	0.84 J	< 0.70 UJ	< 1.1	< 1.0 UJ	< 1.2	< 1.1
2991-50-6	NEtFOSAA	ng/L	1.3 J	1.3 J	1.4 J	0.83 J	1.9 J	1.7 J	1.6 J	3.4	1.4 J	1.2 J	0.91 J	< 1.2	< 1.1 UJ	< 1.3	< 1.2
24448-09-7	NMeFOSE	ng/L	2.9 J	1.5 J	0.73 J	3.7	5.7	24	1.4 J	1.4 J	2.4	1.5 J	R	1.7 J	< 1.2 UJ	1.8 J	1.4 J
1691-99-2	NEtFOSE	ng/L	3.7	< 0.51	1.7 J	< 0.47	0.49 J	< 0.47	< 0.89	< 0.92	R	< 0.84	R	< 0.75	< 0.73 UJ	< 0.82	< 0.76
Replacement Chemicals																	
13252-13-6	HFPO-DA	ng/L	< 1.2	< 0.54	< 0.53	< 0.50	< 0.50	< 0.50	< 0.50	< 0.51	< 0.48	< 0.47	< 0.50	< 1.3	< 1.3	< 1.5	< 1.3
919005-14-4	DONA	ng/L	3.2 I	< 0.53	< 0.52	< 0.48	< 0.49	< 0.49	< 0.92	< 0.95	< 0.90	< 0.87	2.3	< 0.36	< 0.34 UJ	< 0.39	< 0.36
756426-58-1	9CI-PF3ONS	ng/L	< 0.20	< 0.31	< 0.31	< 0.29	< 0.29	< 0.29	< 0.47	< 0.49	< 0.46	< 0.44	< 0.47	< 0.21	< 0.21 UJ	< 0.23	< 0.21
763051-92-9	11CI-PF3OUdS	ng/L	< 0.26	< 0.45	< 0.44	< 0.41	< 0.41	< 0.41	< 0.56	< 0.58	< 0.54	< 0.53	< 0.56	< 0.28	< 0.28 UJ	< 0.31	< 0.28
Solids																	
-	Total Solids	mg/L	1500	--	--	--	--	--	--	--	--	--	--	--	--	--	--
-	TSS	mg/L	250	186	264	230	285 J-	269 J-	238	175	193	264	220	200	400	200	190

Notes:
CAS RN = Chemical Abstracts Service Registry Number
-- = Not analyzed
TSS = Total suspended solids

Data Qualifiers:
U = nondetect
J = estimated
J+ = estimated with potential high bias
J- = estimated with potential low bias
I = ion transition ratio did not meet acceptance limits
R = rejected
UJ = estimated nondetect

Updated by: L. Auner, 6/18/2024
Checked by: A. Olson 6/19/2024

Table 6: Effluent Results
Madison Metropolitan Sewerage District
Madison, Dane County, Wisconsin
TRC Project #390131.0003.0000

Location ID			NR 102 Surface Water Criteria	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent
Sample Name				Effluent-Perm- 20210506	DUP02- 20210506	Effluent- 20220329	Effluent- 20220426	Effluent 20220525	Effluent- 20220621	Effluent 20220719	Effluent 20220816	Effluent 20220913	Effluent 20221011	Effluent 20221115	Effluent 20221213
Sample Date				05/06/2021	05/06/2021	03/29/2022	04/26/2022	05/25/2022	06/21/2022	07/19/2022	08/16/2022	09/13/2022	10/11/2022	11/15/2022	12/13/2022
CAS RN	Analyte	Unit													
Carboxylic Acids															
375-22-4	PFBA	ng/L	-	10	11	7.7	9.9	9.7	6.5 J	9.9	8.8	13	9.6	10	6.1
2706-90-3	PFPeA	ng/L	-	15	17	12	11	16	14 J	20	18	31	20	16	12.9
307-24-4	PFHxA	ng/L	-	24	22	17	21	22	16 J	17	16	26	17	18	16.7
375-85-9	PFHpA	ng/L	-	3.5	3.8	2.4	2.5 J	1.8 J	1.6 J	1.8 J	1.8 J	3.9	2.1	2.0	1.5 J
335-67-1	PFOA	ng/L	95 ⁽¹⁾	9.7	11	9.0	7.8	6.8	7.2 J	8.2	7.8	11	8.5	7.8	6.5
375-95-1	PFNA	ng/L	-	0.81 J	0.71 J	1.3 J	< 1.0	< 0.71	0.78 J	< 0.72	< 0.89	0.97 J	1.3 J	< 0.78	< 0.81
335-76-2	PFDA	ng/L	-	1.4 J	1.5 J	0.90 J	0.98 J	1.4 J	1.3 IJ	1.7 J	1.3 J	1.4 J	1.3 J	1.1 J	0.85 J
2058-94-8	PFUnA	ng/L	-	< 0.96	< 1.0	< 0.51	< 0.76	< 0.52	< 0.52 UJ	< 0.53	< 0.54	< 0.47	< 0.46	< 0.48	< 0.49
307-55-1	PFDoA	ng/L	-	< 0.48	< 0.51	< 0.45	< 0.68	< 0.46	< 0.46 UJ	< 0.47	< 0.54	< 0.46	< 0.46	< 0.47	< 0.49
72629-94-8	PFTTrDA	ng/L	-	< 1.1	< 1.2	< 0.58	< 0.88	< 0.60	< 0.60 UJ	< 0.61	< 0.69	< 0.60	< 0.60	< 0.61	< 0.63
376-06-7	PFTA	ng/L	-	< 0.64	< 0.67	< 0.45	< 0.67	< 0.46	< 0.46 UJ	< 0.46	< 0.67	< 0.58	< 0.57	< 0.59	< 0.61
Sulfonic Acids															
375-73-5	PFBS	ng/L	-	3.9 J	< 0.18 UJ	2.7	3.5	2.2	3.0 J	3.0	2.4	6.4	2.3	2.9	< 3.3 U
2706-91-4	PFPeS	ng/L	-	0.54 J	0.91 J	0.73 J	< 0.67	0.54 J	0.64 J	0.55 J	< 0.67	0.79 IJ	< 0.58	0.63 J	< 0.61
355-46-4	PFHxS	ng/L	-	7.5	7.0	7.5	7.0	6.2	6.5 J	7.0	5.8	9.6	7.1	7.1	7.0
375-92-8	PFHpS	ng/L	-	< 0.17	< 0.18	< 0.39	< 0.58	< 0.39	< 0.39 UJ	< 0.40	< 0.74	< 0.64	< 0.64	< 0.65	< 0.68
1763-23-1	PFOS	ng/L	g ⁽²⁾	3.7	3.7	3.8	3.0	3.1	4.3 J	4.5	3.3	5.9	5.2	4.4	3.6
68259-12-1	PFNS	ng/L	-	< 0.32	< 0.34	< 0.42	< 0.63	< 0.43	< 0.43 UJ	< 0.43	< 0.65	< 0.57	< 0.56	< 0.57	< 0.60
335-77-3	PFDS	ng/L	-	< 0.28	< 0.29	< 0.42	< 0.63	< 0.43	< 0.43 UJ	< 0.44	< 0.71	< 0.62	< 0.61	< 0.63	< 0.65
79780-39-5	PFDoS	ng/L	-	< 0.85	< 0.89	< 0.43 UJ	< 0.65	< 0.44	< 0.44 UJ	< 0.45	< 0.66	< 0.57	< 0.57	< 0.58	< 0.60
757124-72-4	4:2 FTS	ng/L	-	< 0.21	< 0.22	< 0.52	< 0.79	< 0.54	< 0.53 J	< 0.54	< 0.52	< 0.45	< 0.45	< 0.46	< 0.47
27619-97-2	6:2 FTS	ng/L	-	< 2.2	< 2.3	2.1 J	< 0.91 UJ	1.3 J	1.0 IJ	1.5 J	0.83 J	2.6 J	0.88 J	0.79 J	0.76 J
39108-34-4	8:2 FTS	ng/L	-	< 0.40	< 0.42	< 0.61	< 0.92	< 0.63	< 0.63 UJ	< 0.64	< 0.56	< 0.49	< 0.48	< 0.49	< 0.51
Sulfonamides, Sulfonamidoacetic acids, Sulfonamidoethanols															
754-91-6	PFOSA	ng/L	-	< 0.86	2.1	< 0.77	< 1.2	< 0.79	< 0.78 UJ	< 0.80	< 0.80	< 0.69	< 0.69	< 0.70	< 0.73
31506-32-8	NMeFOSA	ng/L	-	< 0.38	< 0.40	R	R	< 0.49	R	R	< 0.62	< 0.53	< 0.53	< 0.54	< 0.56
4151-50-2	NEtFOSA	ng/L	-	< 0.76	< 0.80	R	R	< 0.58	R	R	< 0.64	< 0.55	< 0.55	< 0.56	< 0.58
2355-31-9	NMeFOSAA	ng/L	-	1.4 J	1.3 J	0.84 J	1.1 J	0.92 J	0.94 IJ	1.4 J	1.2 J	1.2 J	1.2 J	1.3 J	0.82 J
2991-50-6	NEtFOSAA	ng/L	-	< 1.1	< 1.2	0.53 J	< 0.78	< 0.53	0.71 J	0.72 J	< 0.91	< 0.79	< 0.78	< 0.80	< 0.83
24448-09-7	NMeFOSE	ng/L	-	< 1.2	< 1.3	< 0.31	< 0.46	< 0.32	0.67 J	< 0.32	< 0.58	< 0.50	< 0.50	< 0.51	< 0.53
1691-99-2	NEtFOSE	ng/L	-	< 0.75	< 0.78	< 0.47	< 0.70	< 0.48	< 0.48	< 0.48	< 0.99	< 0.86	< 0.85	< 0.87	< 0.90
Replacement Chemicals															
13252-13-6	HFPO-DA	ng/L	-	< 1.3	< 1.4	< 0.50	< 0.74	< 0.51	R	< 0.52	< 0.55	< 0.48	< 0.47	< 0.48	< 0.50
919005-14-4	DONA	ng/L	-	< 0.35	< 0.37	< 0.48	< 0.72	< 0.49	< 0.49 UJ	< 0.50	< 1.0	< 0.89	< 0.88	< 0.90	< 0.93
756426-58-1	9CI-PF3ONS	ng/L	-	< 0.21	< 0.22	< 0.29	< 0.43	< 0.29	< 0.29 UJ	< 0.30	< 0.52	< 0.45	< 0.45	< 0.46	< 0.48
763051-92-9	11CI-PF3OUdS	ng/L	-	< 0.28	< 0.29	< 0.41	< 0.61	< 0.42	< 0.42 UJ	< 0.43	< 0.62	< 0.54	< 0.53	< 0.54	< 0.57
Solids															
-	Total Solids	mg/L	-	1200	--	--	--	--	--	--	--	--	--	--	--
-	TSS	mg/L	-	6.5	--	<5.0	<5.0	<5.0	10.6 J-	< 5.0	< 5.0	<5.0	< 5.0	< 5.0	9.3 J

Notes:
CAS RN = Chemical Abstracts Service Registry Number
- = Standard not established
-- = Not analyzed
TSS = Total suspended solids
NR 102 = Wisconsin Administrative Code chapter NR 102

Data Qualifiers:
U = nondetect
J = estimated
J+ = estimated with potential high bias
J- = estimated with potential low bias
I = ion transition ratio did not meet acceptance limits
R = rejected
UJ = estimated nondetect

Footnotes:
⁽¹⁾ Standard is for surface waters not classified as public water supplies.
⁽²⁾ Standard is for all waters except those that cannot naturally support fish and do not have downstream waters that support fish.

Updated by: L. Auner, 6/18/2024
Checked by: A. Olson 6/19/2024

Table 6: Effluent Results
Madison Metropolitan Sewerage District
Madison, Dane County, Wisconsin
TRC Project #390131.0003.0000

Location ID			NR 102 Surface Water Criteria	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent	
Sample Name				Effluent	Effluent	Eff-	Eff	Eff	Eff	Eff	Eff	Eff	Eff	Eff	Eff
Sample Date				20230117	20230214	20230321	20230418	20230516	20230620	20230718	20230912	20231010	20231114	20231212	
CAS RN	Analyte	Unit		01/17/2023	02/14/2023	03/21/2023	04/18/2023	05/16/2023	06/20/2023	07/18/2023	09/12/2023	10/10/2023	11/14/2023	12/12/2023	
Carboxylic Acids															
375-22-4	PFBA	ng/L	-	8.4	10.9 J+	9.4	12	13	10 J+	12	6.6	7.2	9.0	8.3	
2706-90-3	PFPeA	ng/L	-	17.1	27.1	12	14	13	17 J+	21	21	30	18	13	
307-24-4	PFHxA	ng/L	-	15.0	30.7	21	23	18	22 J+	27	22	17	18	25	
375-85-9	PFHpA	ng/L	-	2.1	2.8 J+	3.0	3.9	2.6	2.3 J+	3.8	2.1	2.0	1.8 J	2.0	
335-67-1	PFOA	ng/L	95 ⁽¹⁾	16.8	8.6 J+	9.3	12	11	7.4 J+	12	7.8	7.2	8.0	8.6	
375-95-1	PFNA	ng/L	-	< 0.82	< 0.74	0.75 J	0.76 J	1.3 J	0.52 J	0.77 J	0.63 J	0.60 J	0.62 J	0.57 J	
335-76-2	PFDA	ng/L	-	0.86 J	0.81 J	0.99 J	1.2 J	0.81 J	1.3 J	1.5 J	1.4 J	1.1 J	1.0 J	0.94 J	
2058-94-8	PFUnA	ng/L	-	< 0.50	< 0.45	< 1.0	< 1.0	< 1.1	< 0.99	< 1.0	< 1.1	< 0.99	< 1.1	< 1.1	
307-55-1	PFDaA	ng/L	-	< 0.50	< 0.45	< 0.50	< 0.52	< 0.53	< 0.49	< 0.52	< 0.53	< 0.49	< 0.53	< 0.53	
72629-94-8	PFTDA	ng/L	-	< 0.65	< 0.58	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.3	< 1.2	< 1.2	< 1.2	
376-06-7	PFTA	ng/L	-	< 0.62	< 0.56	< 0.67	< 0.68	< 0.70	< 0.65	< 0.70	< 0.71	< 0.65	< 0.70	< 0.70	
Sulfonic Acids															
375-73-5	PFBS	ng/L	-	3.0	< 4.5 UJ	4.3	4.6	2.9	3.2	7.1	6.8 IJ	6.4 IJ	6.1 IJ	7.7 IJ	
2706-91-4	PFPeS	ng/L	-	0.63 J	0.71 J	0.71 J	1.0 J	0.72 J	0.65 IJ	0.66 J	0.83 J	0.49 J	0.95 J	0.67 IJ	
355-46-4	PFHxS	ng/L	-	7.2	7.7 J+	9.6	10	8.9	8.0	8.5	7.3	6.3	7.1	7.7	
375-92-8	PFHpS	ng/L	-	< 0.69	< 0.62	0.22 J	< 0.18	< 0.18	< 0.17	< 0.18	< 0.18	< 0.17	< 0.18	< 0.18	
1763-23-1	PFOS	ng/L	8 ⁽²⁾	4.1	5.6 J+	5.5	5.4	5.6	3.8	4.9	5.2	3.2	4.0	4.3	
68259-12-1	PFNS	ng/L	-	< 0.61	< 0.55	< 0.34	< 0.35	< 0.35	< 0.33	< 0.35	< 0.36	< 0.33	< 0.35	< 0.35	
335-77-3	PFDS	ng/L	-	< 0.67	< 0.60	< 0.29	< 0.30	< 0.31	< 0.29	< 0.30	< 0.31	< 0.29	< 0.31	< 0.31	
79780-39-5	PFDoS	ng/L	-	< 0.61	< 0.55	< 0.89	< 0.91	< 0.93	< 0.87	< 0.92	< 0.94	< 0.87	< 0.93	< 0.93	
757124-72-4	4:2 FTS	ng/L	-	< 0.48	< 0.44	< 0.22	< 0.22	< 0.23	< 0.22 UJ	< 0.23	< 0.23	< 0.21	< 0.23	< 0.23	
27619-97-2	6:2 FTS	ng/L	-	28.0	3.1 J	< 2.3	< 2.3	< 2.4	< 2.2 UJ	< 2.4	< 2.4	< 2.2	< 2.4	< 2.4	
39108-34-4	8:2 FTS	ng/L	-	< 0.52	< 0.47	< 0.42	< 0.43	< 0.44	< 0.41 UJ	< 0.44	< 0.45	< 0.41	< 0.44	< 0.44	
Sulfonamides, Sulfonamidoacetic acids, Sulfonamidoethanols															
754-91-6	PFOSA	ng/L	-	< 0.74	2.6	< 0.90	0.94 J	< 0.94	< 0.88 UJ	< 0.93	< 0.95	< 0.88	< 0.94	1.0 J	
31506-32-8	NMeFOSA	ng/L	-	--	< 0.52	< 0.39	< 0.40	< 0.41	< 0.39 UJ	< 0.41	< 0.42	< 0.39	< 0.41	< 0.41	
4151-50-2	NEtFOSA	ng/L	-	--	< 0.54	< 0.80	< 0.81	< 0.83	< 0.78 UJ	< 0.83	< 0.84	< 0.78	< 0.83	< 0.83	
2355-31-9	NMeFOSAA	ng/L	-	0.91 J	2.1 J+	1.7 J	1.4 J	< 1.1	< 1.1 UJ	1.5 J	1.2 J	1.4 J	1.3 J	1.3 J	
2991-50-6	NEtFOSAA	ng/L	-	< 0.85	1.2 J	< 1.2	< 1.2	< 1.2	< 1.2 UJ	< 1.2	< 1.3	< 1.2	< 1.2	< 1.2	
24448-09-7	NMeFOSE	ng/L	-	< 0.54	< 0.49	< 1.3	< 1.3	< 1.3	< 1.3 UJ	< 1.3	< 1.4	< 1.3	< 1.3	< 1.3	
1691-99-2	NEtFOSE	ng/L	-	< 0.92	< 0.83	< 0.78	< 0.80	< 0.81	< 0.76 UJ	< 0.81	< 0.82	< 0.76	< 0.82	< 0.81	
Replacement Chemicals															
13252-13-6	HFPO-DA	ng/L	-	< 0.51	< 0.46	< 1.4	< 1.4	< 1.4	< 1.3	< 1.4	< 1.5	< 1.3	< 1.4	< 1.4	
919005-14-4	DONA	ng/L	-	< 0.95	< 0.86	< 0.37	< 0.37	< 0.38	0.53 J	< 0.38	< 0.39	< 0.36	< 0.38	< 0.38	
756426-58-1	9CI-PF3ONS	ng/L	-	< 0.49	< 0.44	< 0.22	< 0.22	< 0.23	< 0.22 UJ	< 0.23	< 0.23	< 0.21	< 0.23	< 0.23	
763051-92-9	11CI-PF3OUdS	ng/L	-	< 0.58	< 0.52	< 0.29	< 0.30	< 0.31	< 0.29 UJ	< 0.30	< 0.31	< 0.29	< 0.31	< 0.31	
Solids															
-	Total Solids	mg/L	-	--	--	--	--	--	--	--	--	--	--	--	
-	TSS	mg/L	-	< 5.0	< 5.0	2.0 J	--	2.6 J	8.9	4.7 J	5.8	6.0	7.0	5.2	

Notes:
CAS RN = Chemical Abstracts Service Registry Number
- = Standard not established
-- = Not analyzed
TSS = Total suspended solids
NR 102 = Wisconsin Administrative Code chapter NR 102

Data Qualifiers:
U = nondetect
J = estimated
J+ = estimated with potential high bias
J- = estimated with potential low bias
I = ion transition ratio did not meet acceptance limits
R = rejected
UJ = estimated nondetect

Footnotes:
⁽¹⁾ Standard is for surface waters not classified as public water supplies.
⁽²⁾ Standard is for all waters except those that cannot naturally support fish and do not have downstream waters that support fish.

Updated by: L. Auner, 6/18/2024
Checked by: A. Olson 6/19/2024

Table 7: Class B Biosolids Results
Madison Metropolitan Sewerage District
Madison, Dane County, Wisconsin
TRC Project #390131.0003.0000

Location ID	Biosolids-B	Biosolids-B	Biosolids-B	Biosolids-B	Biosolids-B	Biosolids-B	Biosolids-B	Biosolids-B	Biosolids-B	Biosolids-B	Biosolids-B	Biosolids-B	Biosolids-B	Biosolids-B	
Sample Name	Biosolids-B-20210506	DUP03-20210506	Class B Biosolids	Class B Biosolids Dup	Biosolids-B-20220329	DUP01-20220329	Biosolids B-20220622	Biosolids B-20220914	Biosolids B20221214	Bio B-20230321	Bio B-20230621	Bio B-20230912	Bio B-20231212		
Sample Date	05/06/2021	05/06/2021	07/19/2021	07/19/2021	03/29/2022	03/29/2022	06/22/2022	09/14/2022	12/14/2022	03/21/2023	06/21/2023	09/12/2023	12/12/2023		
CAS RN	Analyte	Unit													
Carboxylic Acids															
375-22-4	PFBA	ug/kg	< 4.7	< 4.5	< 0.74	< 0.88	< 0.42	< 0.43	< 0.53	< 0.49	< 0.44	< 0.75 UJ	< 0.75	< 0.70	< 6.8 UJ
2706-90-3	PFPeA	ug/kg	< 13	< 12	< 0.66	< 0.79	< 0.46	< 0.48	0.73 J	0.69 J	< 0.44	< 0.67	< 0.67	< 0.63	< 6.1
307-24-4	PFHxA	ug/kg	< 7.0	< 6.8	3.2	3.8 I	2.6 IJ	2.4	2.1	2.4	1.3 J	4.5 IJ	< 0.51	1.2 J	< 8.2 UJ
375-85-9	PFHpA	ug/kg	< 4.8	< 4.7	< 0.61	< 0.73	< 0.40	< 0.41	< 0.64	< 0.60	< 0.54	< 0.62	< 0.62	< 0.58	< 5.6
335-67-1	PFOA	ug/kg	< 14	< 14	1.2 J	1.6 J	1.4 J	1.3 J	1.3 J	1.4 J	1.2 J	1.3 J	1.5 J	0.92 J	< 7.8
375-95-1	PFNA	ug/kg	< 6.0	< 5.8	0.60 J	0.65 J	< 0.50	0.56 J	< 0.58	0.56 J	< 0.48	0.44 J	< 0.36	0.58 J	< 3.2
335-76-2	PFDA	ug/kg	< 3.7	< 3.5	4.9	5.7	2.9 J	3.4	3.9	4.6	2.8	3.1 J	5.0 J+	4.3	< 7.1
2058-94-8	PFUnA	ug/kg	< 6.0	< 5.8	1.2 J	1.2 J	1.1 J	0.88 J	0.68 J	1.0 J	0.81 J	1.0 J	1.2 J	0.95 J	< 6.2
307-55-1	PFDoA	ug/kg	< 11	< 11	2.6 J	3.0 J	1.6 J	1.6 J	1.9	3.6	1.8	1.4 J	2.4 J	2.8 J	< 4.4
72629-94-8	PFTTrDA	ug/kg	< 8.5	< 8.2	< 0.34 UJ	< 0.40	< 0.38	< 0.39	< 0.59	0.57 J	< 0.49	< 0.34	0.50 J	< 0.32	< 3.1
376-06-7	PFTA	ug/kg	< 9.0	< 8.7	1.0 J	0.85 J	< 0.56	< 0.58	< 0.64	0.82 J	0.56 J	< 0.60	0.62 J	0.67 J	< 5.5
Sulfonic Acids															
375-73-5	PFBS	ug/kg	< 4.2	< 4.0	< 0.61	< 0.73	2.2 IJ	< 0.40	1.9 IJ	1.2 IJ	1.2 J	< 0.62	< 0.62	< 0.58	< 5.6
2706-91-4	PFPeS	ug/kg	< 3.3	< 3.2	< 0.60	< 0.71	< 0.33	< 0.34	< 0.45	< 0.42	< 0.37	< 0.60	< 0.60	< 0.57	< 5.5
355-46-4	PFHxS	ug/kg	< 5.2	< 5.0	2.0 J	2.4 J	1.3 J	0.82 J	0.82 J	2.0	0.52 J	< 0.47	< 0.47	0.95 J	4.4 IJ
375-92-8	PFHpS	ug/kg	< 5.9	< 5.6	< 0.79	< 0.94	< 0.44	< 0.45	0.73 IJ	< 0.48	< 0.43	< 0.80	< 0.80	< 0.75	< 7.2
1763-23-1	PFOS	ug/kg	< 33	< 32	8.0 I	10 I	6.5	6.3	7.5	8.7	8.5	9.7 IJ	< 0.70	8.9 IJ	10 IJ
68259-12-1	PFNS	ug/kg	< 3.3	< 3.2	< 0.47	< 0.56	< 0.31	< 0.33	< 0.64	< 0.60	< 0.54	< 0.47	< 0.47	< 0.44	< 4.3
335-77-3	PFDS	ug/kg	< 6.5	< 6.3	2.4 J	2.0 J	0.56 J	0.73 J	1.5 J	1.8	0.70 J	0.87 J	11 IJ	1.3 J	< 7.7
79780-39-5	PFDoS	ug/kg	< 10	< 9.6	< 0.76 UJ	< 0.90	< 0.53 UJ	< 0.54	< 0.48	0.89 IJ	< 0.40	< 0.77	< 0.77	< 0.72	< 6.9
757124-72-4	4:2 FTS	ug/kg	< 62	< 59	< 0.82	< 0.98	< 0.56	< 0.58	< 0.43	< 0.40	< 0.36	< 0.83	< 0.83 UJ	< 0.78	< 7.5
27619-97-2	6:2 FTS	ug/kg	< 25	< 24	< 0.43	< 0.52	< 0.56	< 0.58	< 0.77	< 0.72	< 0.64	1.3 J	< 0.44 UJ	< 0.41	< 4.0
39108-34-4	8:2 FTS	ug/kg	< 42	< 40	0.60 J	0.67 J	0.77 J	0.72 IJ	0.89 IJ	< 0.76	< 0.68	0.83 J	< 0.57 UJ	< 0.54	< 5.2
Sulfonamides, Sulfonamidoacetic acids, Sulfonamidoethanols															
754-91-6	PFOSA	ug/kg	< 14	< 13	1.0 J	1.2 J	0.98 J	0.94 J	0.81 J	0.52 J	< 0.45	0.84 J	0.62 J	0.52 J	< 4.9
31506-32-8	NMeFOSA	ug/kg	< 6.9	< 6.6	< 0.79	< 0.94	< 0.44	R	R	R	R	< 0.80	< 0.80 UJ	< 0.75	< 7.2
4151-50-2	NEtFOSA	ug/kg	< 4.0	< 3.9	< 0.76	< 0.90	< 0.42	R	R	R	R	< 0.77	< 0.77 UJ	< 0.72	< 6.9
2355-31-9	NMeFOSAA	ug/kg	< 65	< 63	13	16	9.9	9.7	8.8	13	8.6	11	11 J-	11	17 J
2991-50-6	NEtFOSAA	ug/kg	< 62	< 59	7.9	9.1	3.5	3.5	5.7	6.7	4.9	4.8	4.3 J-	6.7	< 7.1
24448-09-7	NMeFOSE	ug/kg	< 12	< 11	11	12	7.9	8.5	5.4 J+	6.9	4.5	6.2	6.7 J-	7.1	13 J
1691-99-2	NEtFOSE	ug/kg	< 6.0	< 5.8	3.1 J	5.7	2.2	1.8 J	1.5 J	2.1	1.3 J	1.8 J	< 0.46 UJ	1.4 J	4.5 J
Replacement Chemicals															
13252-13-6	HFPO-DA	ug/kg	< 18	< 18	< 0.66	< 0.79	< 0.52	< 0.54	< 0.52	< 0.48	< 0.43	< 0.67	< 0.67	< 0.63	< 6.1
919005-14-4	DONA	ug/kg	< 3.0	< 2.9	< 0.63	< 0.75	< 0.68	< 0.70	< 0.67	< 0.63	< 0.56	< 0.63	< 0.64 UJ	< 0.60	< 5.8
756426-58-1	9CI-PF3ONS	ug/kg	< 4.5	< 4.3	< 0.56 UJ	< 0.67	< 0.26	< 0.26	< 0.47	< 0.43	< 0.39	< 0.57	< 0.57 UJ	< 0.54	< 5.2
763051-92-9	11CI-PF3OUdS	ug/kg	< 3.7	< 3.5	< 0.50	< 0.59	< 0.28	< 0.29	< 0.47	< 0.44	< 0.39	< 0.50	< 0.51 UJ	< 0.47	< 4.6
Sum of PFOA + PFOS															
-	PFOA+PFOS	ug/kg	--	--	9.2	11.6	7.9	7.6	8.8	10.1	9.7	11	1.5	9.82	10

Notes:
CAS RN = Chemical Abstracts Service Registry Number
-- = Not analyzed or not applicable
Sum of PFOA and PFOS is based on the sum of detected concentrations.

Data Qualifiers:
U = nondetect
J = estimated
J+ = estimated with potential high bias
J- = estimated with potential low bias
I = ion transition ratio did not meet acceptance limits
R = rejected
UJ = estimated nondetect

Updated by: L. Auner, 6/18/2024
Checked by: A. Olson 6/19/2024

Table 8: Class A Biosolids Results (2021 Sample and 2022 Pile)
Madison Metropolitan Sewerage District
Madison, Dane County, Wisconsin
TRC Project #390131.0003.0000

Location ID	Biosolids-A	Biosolids-A-22	Biosolids-A-22	Biosolids-A-22	Biosolids-A-22	Biosolids-A-22	Biosolids-A-22	Biosolids-A-22	Biosolids-A-22	Biosolids-A-22	Biosolids-A-22	
Sample Name	Biosolids-A-20210506	Biosolids-A-20220330	DUP 02-20220330	Biosolids A-20220622	Biosolids A-20220914	Biosolids A20221214	Bio A-22-20230321	Bio A-20230621	Bio A-22-20230912	Bio A-22-20231212		
Sample Date	05/06/2021	03/30/2022	03/30/2022	06/22/2022	09/14/2022	12/14/2022	03/21/2023	06/21/2023	09/12/2023	12/12/2023		
CAS RN	Analyte	Unit										
Carboxylic Acids												
375-22-4	PFBA	ug/kg	3.4 J	< 0.11	0.11 J	< 0.11 U	11	9.8	1.9	2.8 J	3.0	8.0 J
2706-90-3	PFPeA	ug/kg	11 J	0.18 J	0.14 J	8.7	17	15.0	3.9	7.8 J+	7.6	12
307-24-4	PFHxA	ug/kg	29 J	1.7	1.6	23	42	37.1	10	15 J+	15	23
375-85-9	PFHpA	ug/kg	< 0.96	< 0.10	< 0.10	1.3	4.9	2.9	0.54 J	< 0.84	1.2 J	1.8 J
335-67-1	PFOA	ug/kg	16 J	1.7	1.7	21	24	25.8	6.1	6.0 J+	9.2	16
375-95-1	PFNA	ug/kg	1.3 JI	0.74	0.73	1.2	1.4	1.4	0.83 J	< 0.48	0.90 J	1.5 J
335-76-2	PFDA	ug/kg	15 J	5.7	5.6	9.2	12	11.8	9.8	8.9 J+	7.4	11
2058-94-8	PFUnA	ug/kg	< 1.2	1.4	1.4	1.1	1.3	1.5	1.8	1.7 J	1.0 J	1.5 J
307-55-1	PFDoA	ug/kg	5.4 J	3.1 J	3.7 J	3.8	3.8 J	4.0 J	3.1	4.2 J	3.0	3.9 J
72629-94-8	PFTrDA	ug/kg	< 1.7	0.56 J	0.56 J	0.50	0.74 J	1.6 J	0.53 J	0.57 J	< 0.31 UJ	< 0.56 UJ
376-06-7	PFTA	ug/kg	< 1.8	0.73 J	0.66 J	0.88	1.1 J	1.1	0.72 J	1.6 J	0.71 J	1.2 J
Sulfonic Acids												
375-73-5	PFBS	ug/kg	< 0.83	< 0.10	< 0.099	< 0.11 U	1.6	1.8	0.20 J	< 0.84	1.1 IJ	1.1 J
2706-91-4	PFPeS	ug/kg	< 0.66	< 0.085	< 0.084	< 0.097	< 0.075	0.11 J	< 0.16	< 0.82	< 0.55	< 0.98
355-46-4	PFHxS	ug/kg	< 1.0	1.0	0.98	0.81	1.0	1.0	1.5 IJ	< 0.64	< 0.43	1.6 IJ
375-92-8	PFHpS	ug/kg	< 1.2	0.76 IJ	0.44 IJ	0.25 IJ	0.19 J	0.39	< 0.21	< 1.1	< 0.73	< 1.3
1763-23-1	PFOS	ug/kg	19 J	9.9	9.7	24 IJ	14	14.7	11	< 0.95	9.9	13 IJ
68259-12-1	PFNS	ug/kg	< 0.66	< 0.081	< 0.080	< 0.14	< 0.11	< 0.11	< 0.12	< 0.64	< 0.43	< 0.77
335-77-3	PFDS	ug/kg	4.6 J	1.6	1.5	1.5	1.7	1.7	< 0.22	10	1.4 IJ	4.8 J
79780-39-5	PFDoS	ug/kg	< 2.0	< 0.14 UJ	< 0.13	< 0.11	< 0.081	< 0.084	< 0.20	< 1.0	< 0.70	< 1.2
757124-72-4	4:2 FTS	ug/kg	< 12 UJ	< 0.14	< 0.14	< 0.094	< 0.072	< 0.075	< 0.22	< 1.1 UJ	< 0.76	< 1.3
27619-97-2	6:2 FTS	ug/kg	< 5.0	0.31 J	0.25 IJ	1.2	2.4 J	2.1	0.49 J	< 0.60 UJ	0.90 J	1.9 J
39108-34-4	8:2 FTS	ug/kg	< 8.3	0.89 J	0.84 J	1.0	1.1	1.2	0.86 J	1.1 J	0.88 J	1.3 J
Sulfonamides, Sulfonamidoacetic acids, Sulfonamidoethanols												
754-91-6	PFOSA	ug/kg	< 2.7	1.2	1.1	1.6	0.97	1.6	1.3	1.5 J	1.1 J	1.9 J
31506-32-8	NMeFOSA	ug/kg	< 1.4	0.25 J	< 0.11	0.17 J	0.096 IJ	0.13 J	< 0.21	< 1.1 UJ	< 0.73	< 1.3
4151-50-2	NEtFOSA	ug/kg	< 0.79	0.51 J	0.60 J	0.30 IJ	0.18 J	0.18 J	< 0.20	< 1.0 UJ	< 0.70	< 1.2
2355-31-9	NMeFOSAA	ug/kg	41 J	21	22	28	31	29.8	21	27 J-	20	32
2991-50-6	NEtFOSAA	ug/kg	14 J	7.3	7.9	9.2	7.9	9.0	7.9	9.2 J-	6.5	9.0
24448-09-7	NMeFOSE	ug/kg	9.9 J	17	16	9.7	5.1	5.8	17	21 J-	19	19
1691-99-2	NEtFOSE	ug/kg	< 1.2	3.4	3.2	3.4	2.4	2.8	3.3	3.3 J	10 J+	6.9
Replacement Chemicals												
13252-13-6	HFPO-DA	ug/kg	< 3.6	< 0.14	< 0.13	< 0.11	< 0.087	< 0.090	< 0.17	< 0.90	< 0.61	< 1.1
919005-14-4	DONA	ug/kg	< 0.60	< 0.17	< 0.17	< 0.15	< 0.11	< 0.12	< 0.16	< 0.86 UJ	< 0.58	< 1.0
756426-58-1	9CI-PF3ONS	ug/kg	< 0.89	< 0.066	< 0.065	< 0.10	< 0.078	< 0.081	< 0.15	< 0.77 UJ	< 0.52	< 0.93
763051-92-9	11CI-PF3OUdS	ug/kg	< 0.73	< 0.074	< 0.073	< 0.10	< 0.079	< 0.082	< 0.13	0.77 J	< 0.46 UJ	< 0.82 UJ
Sum of PFOA + PFOS												
-	PFOA+PFOS	ug/kg	35	11.6	11.4	45	38	40.5	17.1	6	19.1	29

Notes:
CAS RN = Chemical Abstracts Service Registry Number
Sum of PFOA and PFOS is based on the sum of detected concentrations.

Data Qualifiers:
U = nondetect
J = estimated
J+ = estimated with potential high bias
J- = estimated with potential low bias
I = ion transition ratio did not meet acceptance limits
UJ = estimated nondetect

Updated by: L. Auner, 6/18/2024
Checked by: A. Olson 6/19/2024

Table 9: Class A Biosolids Results (2023 Pile)
Madison Metropolitan Sewerage District
Madison, Dane County, Wisconsin
TRC Project #390131.0003.0000

Location ID	Biosolids-A-23	Biosolids-A-23	Biosolids-A-23	Biosolids-A-23	Biosolids-A-23	Biosolids-A-23	Biosolids-A-23	Biosolids-A-23	Biosolids-A-23	Biosolids-A-23	Biosolids-A-23	Biosolids-A-23	Biosolids-A-23	Biosolids-A-23	Biosolids-A-23	
Sample Name	Bio A 23-S-1 20230717	Bio A 23-S-2 20230717	Bio A 23-S-3 20230717	Bio A 23-S-4 20230717	Bio A-23-S-C 20230717	Bio A-23-D-1 20230717	Bio A-23-D-3 20230717	Bio A 23-S-1 20231010	Bio A 23-S-2 20231010	Bio A 23-S-3 20231010	Bio A 23-S-4 20231010	Bio A 23-S-C 20231010	Bio A 23-D-2 20231011	Bio A 23-D-4 20231011		
Sample Date	07/17/2023	07/17/2023	07/17/2023	07/17/2023	07/17/2023	07/17/2023	07/17/2023	10/10/2023	10/10/2023	10/10/2023	10/10/2023	10/10/2023	10/11/2023	10/11/2023		
CAS RN	Analyte	Unit														
Carboxylic Acids																
375-22-4	PFBA	ug/kg	4.0	0.96 J	< 0.73	< 0.75	< 0.75	< 0.89	< 0.93	2.6 J	1.4 J	0.69 J	< 0.71	1.7 J	< 0.75	< 0.77
2706-90-3	PFPeA	ug/kg	11	5.2	0.94 J	< 0.67	1.4 J	< 0.80	< 0.83	8.4	4.7	1.3 J	1.1 J	6.0	1.0 J	1.4 J
307-24-4	PFHxA	ug/kg	33	13	3.9	2.9 J	5.0	1.9 J	2.2 IJ	13	7.0	3.5	3.2	11	2.9 J	4.1
375-85-9	PFHpA	ug/kg	1.9 J	0.74 J	< 0.60	< 0.62	< 0.62	< 0.74	< 0.77	0.63 J	< 0.55	< 0.52	< 0.59	< 0.51	< 0.62	< 0.63
335-67-1	PFOA	ug/kg	23	7.0	3.5	3.1 J	4.0	2.7 J	3.3 J	6.0	3.2	2.3 J	3.0 J	5.6	3.0 J	3.2 J
375-95-1	PFNA	ug/kg	1.3 J	1.0 J	1.0 J	0.90 J	0.95 J	0.96 J	1.1 J	0.94 J	0.95 J	0.77 J	0.81 J	1.0 J	0.85 J	0.83 J
335-76-2	PFDA	ug/kg	13	10	9.2	9.7	9.7	9.6	11	8.5	8.2	6.6	8.5	8.9	8.2	8.5
2058-94-8	PFUnA	ug/kg	1.5 J	1.7 J	1.4 J	1.5 J	1.5 J	1.5 J	1.7 J	1.5 J	1.3 J	1.1 J	1.5 J	1.4 J	1.3 J	1.5 J
307-55-1	PFDoA	ug/kg	4.8	4.9	4.6	4.7	4.9	4.4	5.3	4.0	4.3	3.5	4.3	4.5	4.7	3.9
72629-94-8	PFTTrDA	ug/kg	0.59 J	0.75 J	0.53 J	0.49 J	0.57 J	0.55 J	0.77 J	0.37 J	0.39 J	0.33 J	0.33 J	0.38 J	0.38 J	0.35 J
376-06-7	PFTA	ug/kg	1.3 J	1.5 J	1.0 J	1.1 J	1.0 J	0.95 J	1.4 J	1.1 J	0.79 J	1.1 J	1.1 J	1.3 J	1.4 J	1.3 J
Sulfonic Acids																
375-73-5	PFBS	ug/kg	1.5 J	< 0.53	< 0.60	< 0.62	< 0.62	< 0.74	< 0.77	0.71 J	< 0.55	< 0.52	< 0.59	< 0.51	< 0.62	< 0.63
2706-91-4	PFPeS	ug/kg	< 0.44	< 0.51	< 0.59	< 0.60	< 0.60	< 0.72	< 0.75	< 0.50	< 0.54	< 0.51	< 0.57	< 0.50	< 0.61	< 0.62
355-46-4	PFHxS	ug/kg	< 0.34	< 0.40	< 0.46	< 0.47	< 0.47	< 0.56	< 0.58	< 0.39	< 0.42	< 0.40	< 0.45	< 0.39	< 0.47	< 0.48
375-92-8	PFHpS	ug/kg	< 0.58	< 0.68	< 0.78	< 0.80	< 0.80	< 0.95	< 0.99	< 0.66	< 0.71	< 0.67	< 0.76	< 0.66	< 0.80	< 0.82
1763-23-1	PFOS	ug/kg	< 0.51	< 0.60	< 0.68	< 0.70	< 0.70	< 0.84	< 0.87	13	14	12	13	13	15	15
68259-12-1	PFNS	ug/kg	< 0.34	< 0.40	< 0.46	< 0.47	< 0.47	< 0.56	< 0.58	< 0.39	< 0.42	< 0.40	< 0.45	< 0.39	< 0.47	< 0.48
335-77-3	PFDS	ug/kg	3.4	3.9	3.7	3.2 J	3.8	3.5 J	3.7 J	< 0.70	< 0.75	< 0.71	< 0.81	< 0.70	< 0.85	< 0.87
79780-39-5	PFDoS	ug/kg	< 0.56	< 0.65	< 0.74	< 0.76	< 0.77	< 0.91	< 0.95	< 0.64	< 0.68	< 0.64	< 0.73	< 0.63	< 0.77	< 0.78
757124-72-4	4:2 FTS	ug/kg	< 0.60	< 0.71	< 0.81	< 0.83	< 0.83	< 0.99	< 1.0	< 0.69	< 0.74	< 0.70	< 0.79	< 0.69	< 0.84	< 0.85
27619-97-2	6:2 FTS	ug/kg	2.4	1.2 IJ	0.45 J	< 0.44	0.58 J	< 0.52	< 0.54	0.89 J	0.60 J	0.40 J	0.55 J	0.84 J	< 0.44	0.45 J
39108-34-4	8:2 FTS	ug/kg	1.6 J	1.5 J	1.3 J	1.3 J	1.3 J	1.5 J	1.7 J	1.3 J	1.6 J	1.1 J	1.3 J	1.4 J	1.2 J	1.4 J
Sulfonamides, Sulfonamidoacetic acids, Sulfonamidoethanols																
754-91-6	PFOSA	ug/kg	1.3 J	1.8 J	1.6 J	1.5 J	1.4 J	1.5 J	1.7 J	1.5 J	1.6 J	1.3 J	1.5 J	1.5 J	1.5 J	1.4 J
31506-32-8	NMeFOSA	ug/kg	< 0.58	< 0.68	< 0.78	< 0.80	< 0.80	< 0.95	< 0.99	< 0.66	< 0.71	< 0.67	< 0.76	< 0.66	< 0.80	< 0.82
4151-50-2	NEtFOSA	ug/kg	< 0.56	< 0.65	< 0.74	< 0.76	< 0.77	< 0.91	< 0.95	< 0.64	< 0.68	< 0.64	< 0.73	< 0.63	< 0.77	< 0.78
2355-31-9	NMeFOSAA	ug/kg	29	27	24	26	25	24	27	26	26	21	26	27	26	27
2991-50-6	NEtFOSAA	ug/kg	9.5	11	9.1	11	10	9.3	11	9.8	9.6	8.0	10	9.8	10	10
24448-09-7	NMeFOSE	ug/kg	15	22	17	18	18	18	21	14	15	13	14	14	17	15
1691-99-2	NEtFOSE	ug/kg	3.9	4.7	3.9	4.1	4.0	3.9	5.1	4.3	5.5	4.4	5.5	4.7	5.3	5.4
Replacement Chemicals																
13252-13-6	HFPO-DA	ug/kg	< 0.49	< 0.57	< 0.65	< 0.67	< 0.67	< 0.80	< 0.83	< 0.56	< 0.59	< 0.56	< 0.64	< 0.55	< 0.67	< 0.68
919005-14-4	DONA	ug/kg	< 0.46	< 0.54	< 0.62	< 0.63	< 0.64	< 0.76	< 0.79	< 0.53	< 0.56	< 0.53	< 0.61	< 0.53	< 0.64	< 0.65
756426-58-1	9Cl-PF3ONS	ug/kg	< 0.41	< 0.49	< 0.55	< 0.57	< 0.57	< 0.68	< 0.71	< 0.47	< 0.51	< 0.48	< 0.54	< 0.47	< 0.57	< 0.58
763051-92-9	11Cl-PF3OUdS	ug/kg	< 0.37	< 0.43	< 0.49	< 0.50	< 0.50	< 0.60	< 0.62	< 0.42	0.63 J	0.51 J	0.52 J	0.49 J	0.73 J	0.58 J
Sum of PFOA + PFOS																
-	PFOA+PFOS	ug/kg	23	7	3.5	3.1	4	2.7	3.3	19	17.2	14.3	16	18.6	18	18.2

Notes:
CAS RN = Chemical Abstracts Service Registry Number
Sum of PFOA and PFOS is based on the sum of detected concentrations.

Data Qualifiers:
J = estimated
I = ion transition ratio did not meet acceptance limits

Updated by: L. Auner, 6/18/2024
Checked by: A. Olson 6/19/2024

Table 10: TOP Assay Results (Influent and Effluent)
Madison Metropolitan Sewerage District
Madison, Dane County, Wisconsin
TRC Project #390131.0003.0000

Location ID			Influent-02	Influent-02	Influent-02	Influent-02	Influent-02	Influent-02	Influent-02	Influent-02	Influent-07	Influent-07	Influent-07	Influent-07	Influent-07	Influent-07	Influent-07	
Pre/Post Oxidation			Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Sample Name			Influent-02-20220620	Influent-02-20220620	Influent 02-20221212	Influent 02-20221212	Inf-02-20230320	Inf-02-20230320	Inf02-20230911	Inf02-20230911	Influent-07-20220620	Influent-07-20220620	Influent 07-20221212	Influent 07-20221212	Inf-07-20230320	Inf-07-20230320	Inf07-20230911	Inf07-20230911
Sample Date			06/20/2022	06/20/2022	12/12/2022	12/12/2022	03/20/2023	03/20/2023	09/11/2023	09/11/2023	06/20/2022	06/20/2022	12/12/2022	12/12/2022	03/20/2023	03/20/2023	09/11/2023	09/11/2023
CAS RN	Analyte	Unit																
Carboxylic Acids																		
375-22-4	PFBA	ng/L	< 3.8	20.7	3.88 J	11.9	< 6.0	24	< 6.0	< 33 U	5.58 J	29.7	12.2	25.9	14	52	15	< 59 U
2706-90-3	PFPeA	ng/L	13	29.2	53.3	12.3	3.9 J	19	4.9 J	33	13.8	40.8	7.51 J	15.2	8.0	36	9.4	63
307-24-4	PFHxA	ng/L	4 J	8.92 J	5.05 J	5.96 J	5.2	17	5.4	18	6.1 J	14.4	12.0	14.9	16	35	15	45
375-85-9	PFHpA	ng/L	< 2.9	6.59 J	< 2.90	< 2.90	1.3 J	6.1	1.7 J	7.3	< 2.9	9.69 J	< 2.90	< 2.90	3.4 J	10	3.2 J	14
335-67-1	PFOA	ng/L	2.23 J	5.93 J	2.73 J	2.75 J	3.2 J	6.2	3.3 J	7.2	2.82 J	7.43 J	6.39 J	6.70 J	8.7	13	8.8	16
375-95-1	PFNA	ng/L	< 2.45	< 2.45	< 2.45	< 2.45	< 0.68	1.1 J	< 0.68	1.8 J	< 2.45	2.64 J	< 2.45	< 2.45	< 0.68	2.0 J	< 0.68	2.8 J
335-76-2	PFDA	ng/L	< 3.6	< 3.6	< 3.60	< 3.60	< 0.78	0.89 J	0.97 J	1.6 J	< 3.6	< 3.6	< 3.60	< 3.60	< 0.78	1.5 J	< 0.78	2.9 J
2058-94-8	PFUnA	ng/L	< 3.1	< 3.1	< 3.10	< 3.10	< 2.8	< 2.8	< 2.8	< 2.8	< 3.1	< 3.1	< 3.10	< 3.10	< 2.8	< 2.8	< 2.8	< 2.8
307-55-1	PFDoA	ng/L	< 3.25	< 3.25	< 3.25	< 3.25	< 1.4	< 1.4	< 1.4	< 1.4	< 3.25	< 3.25	< 3.25	< 3.25	< 1.4	< 1.4	< 1.4	< 1.4
72629-94-8	PFTDA	ng/L	< 3.08	< 3.08	< 3.08	< 3.08	< 3.2	< 3.2	< 3.2	< 3.2	< 3.08	< 3.08	< 3.08	< 3.08	< 3.2	< 3.2	< 3.2	< 3.2
376-06-7	PFTA	ng/L	< 2.85	< 2.85	< 2.85	< 2.85	< 0.73	< 0.73	< 0.73	< 0.73	< 2.85	< 2.85	< 2.85	< 2.85	< 0.73	< 0.73	< 0.73	< 0.73
Sulfonic Acids																		
375-73-5	PFBS	ng/L	1.67 J	< 1.55	2.54 J	< 1.55	3.0 J	2.9 J	< 0.50	1.6 J	2.06 J	1.99 J	4.14 J	< 1.55	6.3	5.8	3.8 J	3.9 J
2706-91-4	PFPeS	ng/L	< 2.55	< 2.55	< 2.55	< 2.55	< 0.75	< 0.75	< 0.75	< 0.75	< 2.55	< 2.55	< 2.55	3.36 J	1.0 J	0.96 J	< 0.75	0.85 J
355-46-4	PFHxS	ng/L	4.6 J	< 3.1	5.71 J	6.68 J	4.2 J	3.8 J	< 0.43	3.1 J	5.4 J	4.76 J	11.6	16.4	14	11	12	11
375-92-8	PFHpS	ng/L	< 3.05	< 3.05	< 3.05	< 3.05	< 0.48	< 0.48	< 0.48	< 0.48	< 3.05	< 3.05	< 3.05	< 3.05	< 0.48	< 0.48	< 0.48	< 0.48
1763-23-1	PFOS	ng/L	5.2 J	3.02 J	4.09 J	< 16.1 U	4.0 J	< 0.80	< 0.80	2.8 J	5.34 J	2.5 J	5.96 J	< 15.5 U	8.5	5.4	6.4	5.0
68259-12-1	PFNS	ng/L	< 4.35	< 4.35	< 4.35	< 4.35	< 0.40	< 0.40	< 0.40	< 0.40	< 4.35	< 4.35	< 4.35	< 4.35	< 0.40	< 0.40	< 0.40	< 0.40
335-77-3	PFDS	ng/L	< 3.05	< 3.05	< 3.05	< 3.05	< 1.4	< 1.4	< 1.4	< 1.4	< 3.05	< 3.05	< 3.05	< 3.05	< 1.4	< 1.4	< 1.4	< 1.4
79780-39-5	PFDoS	ng/L	< 3.28	< 3.28	< 3.28	< 3.28	< 2.4	< 2.4	< 2.4	< 2.4	< 3.28	< 3.28	< 3.28	< 3.28	< 2.4	< 2.4	< 2.4	< 2.4
757124-72-4	4:2 FTS	ng/L	< 3.1	< 3.1	< 3.10	< 3.10	< 0.60	< 0.60	< 0.60	< 0.60	< 3.1	< 3.1	< 3.10	< 3.10	< 0.60	< 0.60	< 0.60	< 0.60
27619-97-2	6:2 FTS	ng/L	< 3.75	< 3.75	< 3.75	< 15.3 U	< 6.3	< 6.3	< 6.3	< 6.3	< 3.75	< 3.75	< 3.75	< 16.9 U	< 6.3	< 6.3	< 6.3	< 6.3
39108-34-4	8:2 FTS	ng/L	< 2.65	< 2.65	< 2.65	< 2.65	< 1.2	< 1.2	< 1.2	< 1.2	< 2.65	< 2.65	< 2.65	< 2.65	< 1.2	< 1.2	< 1.2	< 1.2
Sulfonamides, Sulfonamidoacetic acids, Sulfonamidoethanols																		
754-91-6	PFOSA	ng/L	< 1.85	< 1.85	< 1.85	< 1.85	< 0.88	< 0.88	< 0.88	< 0.88	< 1.85	< 1.85	< 1.85	< 1.85	< 0.88	< 0.88	< 0.88	< 0.88
31506-32-8	NMeFOSA	ng/L	< 4.15	< 4.15	< 4.15	< 4.15	< 1.1	< 1.1	< 1.1	< 1.1	< 4.15	R	< 4.15	< 4.15	< 1.1	< 1.1	< 1.1	< 1.1
4151-50-2	NEtFOSA	ng/L	< 3.5	< 3.5	< 3.50	< 3.50	< 2.2 UJ	< 2.2	< 2.2	< 2.2	< 3.5	R	< 3.50	< 3.50	< 2.2 UJ	< 2.2	< 2.2	< 2.2
2355-31-9	NMeFOSAA	ng/L	< 2.25	< 2.25	< 2.25	< 2.25	< 3.0	< 3.0	< 3.0	< 3.0	< 2.25	< 2.25	< 2.25	< 2.25	< 3.0	< 3.0	< 3.0	< 3.0
2991-50-6	NEtFOSAA	ng/L	< 3.95	< 3.95	< 3.95	< 3.95	< 3.3	< 3.3	< 3.3	< 3.3	< 3.95	< 3.95	< 3.95	< 3.95	< 3.3	< 3.3	< 3.3	< 3.3
24448-09-7	NMeFOSE	ng/L	< 3.25	< 3.25	< 3.25	< 3.25	< 3.5	< 3.5	4.8 J	< 3.5	< 3.25	< 3.25	< 3.25	< 3.25	< 3.5	< 3.5	< 3.5	< 3.5
1691-99-2	NEtFOSE	ng/L	< 2.53	< 2.53	< 2.53	< 2.53	< 2.2	< 2.2	9.4	< 2.2	< 2.53	< 2.53	< 2.53	< 2.53	< 2.2	< 2.2	< 2.2	< 2.2
Replacement Chemicals																		
13252-13-6	HFPO-DA	ng/L	< 16.7	< 16.7	< 4.33	< 4.33	< 3.8	< 3.8	< 3.8	< 3.8	< 16.7	< 16.7	< 4.33	< 4.33	< 3.8	< 3.8	< 3.8	< 3.8
919005-14-4	DONA	ng/L	< 2.15	< 2.15	< 2.15	< 2.15	< 1.0	< 1.0	< 1.0	< 1.0	< 2.15	< 2.15	< 2.15	< 2.15	< 1.0	< 1.0	< 1.0	< 1.0
756426-58-1	9CI-PF3ONS	ng/L	< 2.25	< 2.25	< 2.25	< 2.25	< 0.60	< 0.60	< 0.60	< 0.60	< 2.25	< 2.25	< 2.25	< 2.25	< 0.60	< 0.60	< 0.60	< 0.60
763051-92-9	11CI-PF3OUdS	ng/L	< 2.25	< 2.25	< 2.25	< 2.25	< 0.80	< 0.80	< 0.80	< 0.80	< 2.25	< 2.25	< 2.25	< 2.25	< 0.80	< 0.80	< 0.80	< 0.80

Notes:
CAS RN = Chemical Abstracts Service Registry Number
TOP Assay = Total oxidizable precursor assay

Data Qualifiers:
U = nondetect
J = estimated
R = rejected
UJ = estimated nondetect
I = ion transition ratio did not meet acceptance limits

Updated by: L. Auner, 6/18/2024
Checked by: A. Olson 6/19/2024

Table 10: TOP Assay Results (Influent and Effluent)
Madison Metropolitan Sewerage District
Madison, Dane County, Wisconsin
TRC Project #390131.0003.0000

Location ID	Influent-08	Influent-08	Influent-08	Influent-08	Influent-08	Influent-08	Influent-08	Influent-08	Influent-08	Influent-11	Influent-11	Influent-11	Influent-11	Influent-11	Influent-11	Influent-11	Influent-11	
Pre/Post Oxidation	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	
Sample Name	Influent-08-20220620	Influent-08-20220620	Influent 08-20221212	Influent 08-20221212	Inf-08-20230320	Inf-08-20230320	Inf08-20230911	Inf08-20230911	Influent-11-20220620	Influent-11-20220620	Influent 11-20221212	Influent 11-20221212	Inf-11-20230320	Inf-11-20230320	Inf11-20230911	Inf11-20230911		
Sample Date	06/20/2022	06/20/2022	12/12/2022	12/12/2022	03/20/2023	03/20/2023	09/11/2023	09/11/2023	06/20/2022	06/20/2022	12/12/2022	12/12/2022	03/20/2023	03/20/2023	09/11/2023	09/11/2023		
CAS RN	Analyte	Unit																
Carboxylic Acids																		
375-22-4	PFBA	ng/L	< 3.8	21.1	< 3.80	10.7	< 6.0	39	< 6.0	< 32 U	< 3.8	22.6	< 3.80	11.7	< 6.0	40	< 6.0	< 40 U
2706-90-3	PFPeA	ng/L	11.9	32.6	56.3	18.1	8.6	41	6.1	32	19	31.4	69.7	11.0	2.5 J	38	< 1.2	44
307-24-4	PFHxA	ng/L	3.15 J	10.8	4.86 J	9.00 J	6.3	25	8.5	27	3.06 J	11.4	3.44 J	7.96 J	3.8 IJ	23	5.1	25
375-85-9	PFHpA	ng/L	< 2.9	10	< 2.90	< 2.90	0.92 J	10	1.4 J	8.6	< 2.9	10.4	< 2.90	< 2.90	< 0.63	10	0.92 J	12
335-67-1	PFOA	ng/L	< 2.1	5.27 J	2.56 J	2.70 J	< 2.1	8.3	2.4 J	8.6	< 2.1	5.46 J	2.52 J	2.96 J	2.3 J	9.8	2.1 J	13
375-95-1	PFNA	ng/L	< 2.45	2.79 J	< 2.45	< 2.45	< 0.68	2.8 J	< 0.68	2.5 J	< 2.45	2.61 J	< 2.45	< 2.45	< 0.68	2.6 J	< 0.68	2.7 J
335-76-2	PFDA	ng/L	< 3.6	< 3.6	< 3.60	< 3.60	< 0.78	2.2 J	< 0.78	2.2 J	< 3.6	< 3.6	< 3.60	< 3.60	< 0.78	1.9 J	< 0.78	2.2 J
2058-94-8	PFUnA	ng/L	< 3.1	< 3.1	< 3.10	< 3.10	< 2.8	< 2.8	< 2.8	< 2.8	< 3.1	< 3.1	< 3.10	< 3.10	< 2.8	< 2.8	< 2.8	< 2.8
307-55-1	PFDoA	ng/L	< 3.25	< 3.25	< 3.25	< 3.25	< 1.4	< 1.4	< 1.4	< 1.4	< 3.25	< 3.25	< 3.25	< 3.25	< 1.4	< 1.4	< 1.4	< 1.4
72629-94-8	PFTDA	ng/L	< 3.08	< 3.08	< 3.08	< 3.08	< 3.2	< 3.2	< 3.2	< 3.2	< 3.08	< 3.08	< 3.08	< 3.08	< 3.2	< 3.2	< 3.2	< 3.2
376-06-7	PFTA	ng/L	< 2.85	< 2.85	< 2.85	< 2.85	< 0.73	0.74 J	< 0.73	< 0.73	< 2.85	< 2.85	< 2.85	< 2.85	< 0.73	< 0.73	< 0.73	< 0.73
Sulfonic Acids																		
375-73-5	PFBS	ng/L	< 1.55	< 1.55	1.60 J	< 1.55	1.4 J	1.7 J	1.6 IJ	1.3 J	< 1.55	< 1.55	< 1.55	1.95 J	1.4 J	1.7 J	0.88 J	1.6 J
2706-91-4	PFPeS	ng/L	< 2.55	< 2.55	< 2.55	< 2.55	< 0.75	< 0.75	< 0.75	< 0.75	< 2.55	< 2.55	< 2.55	< 2.55	< 0.75	< 0.75	< 0.75	< 0.75
355-46-4	PFHxS	ng/L	< 3.1	< 3.1	5.76 J	6.71 J	2.3 IJ	2.4 J	3.8 IJ	3.0 J	< 3.1	< 3.1	< 3.10	7.85 J	2.1 IJ	1.9 J	< 0.43	2.1 J
375-92-8	PFHpS	ng/L	< 3.05	< 3.05	< 3.05	< 3.05	< 0.48	< 0.48	< 0.48	< 0.48	< 3.05	< 3.05	< 3.05	< 3.05	< 0.48	< 0.48	< 0.48	< 0.48
1763-23-1	PFOS	ng/L	3.25 J	< 1.9	5.48 J	15.3	< 0.80	1.8 J	< 0.80	3.0 J	4.12 J	< 1.9	3.97 J	< 14.4 U	3.6 J	1.9 J	3.6 J	2.8 J
68259-12-1	PFNS	ng/L	< 4.35	< 4.35	< 4.35	< 4.35	< 0.40	< 0.40	< 0.40	< 0.40	< 4.35	< 4.35	< 4.35	< 4.35	< 0.40	< 0.40	< 0.40	< 0.40
335-77-3	PFDS	ng/L	< 3.05	< 3.05	< 3.05	< 3.05	< 1.4	< 1.4	< 1.4	< 1.4	< 3.05	< 3.05	< 3.05	< 3.05	< 1.4	< 1.4	< 1.4	< 1.4
79780-39-5	PFDoS	ng/L	< 3.28	< 3.28	< 3.28	< 3.28	< 2.4	< 2.4	< 2.4	< 2.4	< 3.28	< 3.28	< 3.28	< 3.28	< 2.4	< 2.4	< 2.4	< 2.4
757124-72-4	4:2 FTS	ng/L	< 3.1	< 3.1	< 3.10	< 3.10	< 0.60	< 0.60	< 0.60	< 0.60	< 3.1	< 3.1	< 3.10	< 3.10	< 0.60	< 0.60	< 0.60	< 0.60
27619-97-2	6:2 FTS	ng/L	< 3.75	< 3.75	< 3.75	< 15.0 U	< 6.3	< 6.3	< 6.3	< 6.3	< 3.75	< 3.75	< 3.75	< 17.3 U	< 6.3	< 6.3	< 6.3	< 6.3
39108-34-4	8:2 FTS	ng/L	< 2.65	< 2.65	< 2.65	< 2.65	< 1.2	< 1.2	< 1.2	< 1.2	< 2.65	< 2.65	< 2.65	< 2.65	< 1.2	< 1.2	< 1.2	< 1.2
Sulfonamides, Sulfonamidoacetic acids, Sulfonamidoethanols																		
754-91-6	PFOSA	ng/L	< 1.85	< 1.85	< 1.85	< 1.85	< 0.88	< 0.88	< 0.88	< 0.88	< 1.85	< 1.85	< 1.85	< 1.85	< 0.88	< 0.88	< 0.88	< 0.88
31506-32-8	NMeFOSA	ng/L	< 4.15	< 4.15	< 4.15	< 4.15	< 1.1	< 1.1	< 1.1	< 1.1	< 4.15	< 4.15	< 4.15	< 4.15	< 1.1	< 1.1	< 1.1	< 1.1
4151-50-2	NEtFOSA	ng/L	< 3.5	< 3.5	< 3.50	< 3.50	< 2.2 UJ	< 2.2	< 2.2	< 2.2	< 3.5	< 3.5	< 3.50	< 3.50	< 2.2 UJ	< 2.2	< 2.2	< 2.2
2355-31-9	NMeFOSAA	ng/L	< 2.25	< 2.25	< 2.25	< 2.25	< 3.0	< 3.0	< 3.0	< 3.0	< 2.25	< 2.25	< 2.25	< 2.25	< 3.0	< 3.0	< 3.0	< 3.0
2991-50-6	NEtFOSAA	ng/L	< 3.95	< 3.95	< 3.95	< 3.95	< 3.3	< 3.3	< 3.3	< 3.3	< 3.95	< 3.95	< 3.95	< 3.95	< 3.3	< 3.3	< 3.3	< 3.3
24448-09-7	NMeFOSE	ng/L	< 3.25	< 3.25	< 3.25	< 3.25	< 3.5	< 3.5	< 3.5	< 3.5	< 3.25	< 3.25	< 3.25	< 3.25	< 3.5	< 3.5	< 3.5	< 3.5
1691-99-2	NEtFOSE	ng/L	< 2.53	< 2.53	< 2.53	< 2.53	< 2.2	< 2.2	< 2.2	< 2.2 UJ	< 2.53	< 2.53	< 2.53	< 2.53	< 2.2	< 2.2	< 2.2	< 2.2
Replacement Chemicals																		
13252-13-6	HFPO-DA	ng/L	< 16.7	< 16.7	< 4.33	< 4.33	< 3.8	< 3.8	< 3.8	< 3.8	< 16.7	< 16.7	< 4.33	< 4.33	< 3.8	< 3.8	< 3.8	< 3.8
919005-14-4	DONA	ng/L	< 2.15	< 2.15	< 2.15	< 2.15	< 1.0	< 1.0	< 1.0	< 1.0	< 2.15	< 2.15	< 2.15	< 2.15	< 1.0	< 1.0	< 1.0	< 1.0
756426-58-1	9CI-PF3ONS	ng/L	< 2.25	< 2.25	< 2.25	< 2.25	< 0.60	< 0.60	< 0.60	< 0.60	< 2.25	< 2.25	< 2.25	< 2.25	< 0.60	< 0.60	< 0.60	< 0.60
763051-92-9	11CI-PF3OUdS	ng/L	< 2.25	< 2.25	< 2.25	< 2.25	< 0.80	< 0.80	< 0.80	< 0.80	< 2.25	< 2.25	< 2.25	< 2.25	< 0.80	< 0.80	< 0.80	< 0.80

Notes:
CAS RN = Chemical Abstracts Service Registry Number
TOP Assay = Total oxidizable precursor assay

Data Qualifiers:
U = nondetect
J = estimated
R = rejected
UJ = estimated nondetect
I = ion transition ratio did not meet acceptance limits

Updated by: L. Auner, 6/18/2024
Checked by: A. Olson 6/19/2024

Table 10: TOP Assay Results (Influent and Effluent)
Madison Metropolitan Sewerage District
Madison, Dane County, Wisconsin
TRC Project #390131.0003.0000

Location ID	Influent-18	Influent-18	Influent-18	Influent-18	Influent-18	Influent-18	Influent-18	Influent-18	Influent-18	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent	
Pre/Post Oxidation	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	
Sample Name	Influent-18-20220620	Influent-18-20220620	Influent 18-20221212	Influent 18-20221212	Inf-18-20230320	Inf-18-20230320	Inf18-20230911	Inf18-20230911	Effluent-20220621	Effluent-20220621	Effluent-20221213	Effluent-20221213	Eff-20230321	Eff-20230321	Eff-20230912	Eff-20230912		
Sample Date	06/20/2022	06/20/2022	12/12/2022	12/12/2022	03/20/2023	03/20/2023	09/11/2023	09/11/2023	06/21/2022	06/21/2022	12/13/2022	12/13/2022	03/21/2023	03/21/2023	09/12/2023	09/12/2023		
CAS RN	Analyte	Unit																
Carboxylic Acids																		
375-22-4	PFBA	ng/L	4.43 J	27.1	8.77 J	22.8	11 J	44	14	< 62 U	< 3.8	9.25 J	7.34 J	20.1 J	8.7 J	33	8.3 J	< 37 U
2706-90-3	PFPeA	ng/L	16.5	43.7	6.59 J	12.0	6.0	35	6.4	73	5.17 J	8.37 J	12.3	15.9 J	12	24	20	25
307-24-4	PFHxA	ng/L	5.37 J	13.1	8.01 J	11.2	10	32	10	47	6.18 J	6.61 J	16.4	14.8 J	21	25	20	21
375-85-9	PFHpA	ng/L	< 2.9	9.51 J	< 2.90	< 2.90	2.7 J	10	2.7 J	14	< 2.9	< 2.9	< 2.90	3.28 J	2.5 J	3.2 J	2.5 J	3.3 J
335-67-1	PFOA	ng/L	3.03 J	7.23 J	6.81 J	7.12 J	8.8	14	8.4	16	2.84 J	3.36 J	7.29 J	5.21 J	7.4	8.4	8.5	9.3
375-95-1	PFNA	ng/L	< 2.45	2.45 J	< 2.45	< 2.45	< 0.68	2.0 J	< 0.68	2.5 J	< 2.45	< 2.45	< 2.45	< 2.45 UJ	< 0.68	< 0.68	< 0.68	0.69 J
335-76-2	PFDA	ng/L	< 3.6	< 3.6	< 3.60	< 3.60	< 0.78	1.3 J	< 0.78	2.4 J	< 3.6	< 3.6	< 3.60	< 3.60 UJ	< 0.78	0.82 J	0.99 J	1.1 J
2058-94-8	PFUnA	ng/L	< 3.1	< 3.1	< 3.10	< 3.10	< 2.8	< 2.8	< 2.8	< 2.8	< 3.1	< 3.1	< 3.10	< 3.10 UJ	< 2.8	< 2.8	< 2.8	< 2.8
307-55-1	PFDoA	ng/L	< 3.25	< 3.25	< 3.25	< 3.25	< 1.4	< 1.4	< 1.4	< 1.4	< 3.25	< 3.25	< 3.25	< 3.25 UJ	< 1.4	< 1.4	< 1.4	< 1.4
72629-94-8	PFTDA	ng/L	< 3.08	< 3.08	< 3.08	< 3.08	< 3.2	< 3.2	< 3.2	< 3.2	< 3.08	< 3.08	< 3.08	< 3.08 UJ	< 3.2	< 3.2	< 3.2	< 3.2
376-06-7	PFTA	ng/L	< 2.85	< 2.85	< 2.85	< 2.85	< 0.73	< 0.73	< 0.73	< 0.73	< 2.85	< 2.85	< 2.85	< 2.85 UJ	< 0.73	< 0.73	1.2 IJ	< 0.73
Sulfonic Acids																		
375-73-5	PFBS	ng/L	2.53 J	2.07 J	3.96 J	< 1.55	5.3	5.5	3.3 J	3.8 J	< 1.55	< 1.55	2.86 J	3.30 J	3.8 J	3.7 J	4.4 IJ	2.7 J
2706-91-4	PFPeS	ng/L	< 2.55	< 2.55	< 2.55	< 2.55	1.5 J	1.3 J	0.96 IJ	1.1 J	< 2.55	< 2.55	< 2.55	< 2.55 UJ	< 0.75	< 0.75	< 0.75	< 0.75
355-46-4	PFHxS	ng/L	6.98 J	6.23 J	14.9	19.4	14	14	16	14	< 3.1	< 3.1	7.27 J	6.04 J	6.9	6.2	7.0	6.8
375-92-8	PFHpS	ng/L	< 3.05	< 3.05	< 3.05	< 3.05	< 0.48	< 0.48	< 0.48	< 0.48	< 3.05	< 3.05	< 3.05	< 3.05 UJ	< 0.48	< 0.48	< 0.48	< 0.48
1763-23-1	PFOS	ng/L	4.25 J	3.76 J	8.87 J	< 21.2 U	7.6	8.2	10	7.0	1.98 J	< 1.9	4.17 J	8.90 J	4.0 J	3.4 J	5.1	4.2 J
68259-12-1	PFNS	ng/L	< 4.35	< 4.35	< 4.35	< 4.35	< 0.40	< 0.40	< 0.40	< 0.40	< 4.35	< 4.35	< 4.35	< 4.35 UJ	< 0.40	< 0.40	< 0.40	< 0.40
335-77-3	PFDS	ng/L	< 3.05	< 3.05	< 3.05	< 3.05	< 1.4	< 1.4	< 1.4	< 1.4	< 3.05	< 3.05	< 3.05	< 3.05 UJ	< 1.4	< 1.4	< 1.4	< 1.4
79780-39-5	PFDoS	ng/L	< 3.28	< 3.28	< 3.28	< 3.28	< 2.4	< 2.4	< 2.4	< 2.4	< 3.28	< 3.28	< 3.28	< 3.28 UJ	< 2.4	< 2.4	< 2.4	< 2.4
757124-72-4	4:2 FTS	ng/L	< 3.1	< 3.1	< 3.10	< 3.10	< 0.60	< 0.60	< 0.60	< 0.60	< 3.1	< 3.1	< 3.10	< 3.10 UJ	< 0.60	< 0.60	< 0.60	< 0.60
27619-97-2	6:2 FTS	ng/L	< 3.75	< 3.75	< 3.75	< 19.9 U	< 6.3	< 6.3	< 6.3	< 6.3	< 3.75	< 3.75	< 3.75	< 3.75 UJ	< 6.3	< 6.3	< 6.3	< 6.3
39108-34-4	8:2 FTS	ng/L	< 2.65	< 2.65	< 2.65	< 2.65	< 1.2	< 1.2	< 1.2	< 1.2	< 2.65	< 2.65	< 2.65	< 2.65 UJ	< 1.2	< 1.2	< 1.2	< 1.2
Sulfonamides, Sulfonamidoacetic acids, Sulfonamidoethanols																		
754-91-6	PFOSA	ng/L	< 1.85	< 1.85	< 1.85	< 1.85	< 0.88	< 0.88	< 0.88	< 0.88	< 1.85	< 1.85	< 1.85	< 1.85 UJ	< 0.88	< 0.88	1.0 J	< 0.88
31506-32-8	NMeFOSA	ng/L	< 4.15	R	< 4.15	< 4.15	< 1.1	< 1.1	< 1.1	< 1.1	< 4.15	< 4.15	< 4.15	< 4.15 UJ	< 1.1	< 1.1	< 1.1	< 1.1
4151-50-2	NEtFOSA	ng/L	< 3.5	R	< 3.50	< 3.50	< 2.2 UJ	< 2.2	< 2.2	< 2.2	< 3.5	< 3.5	< 3.50	< 3.50 UJ	< 2.2 UJ	< 2.2	< 2.2	< 2.2
2355-31-9	NMeFOSAA	ng/L	< 2.25	< 2.25	< 2.25	< 2.25	< 3.0	< 3.0	< 3.0	< 3.0	< 2.25	< 2.25	< 2.25	< 2.25 UJ	< 3.0	< 3.0	< 3.0	< 3.0
2991-50-6	NEtFOSAA	ng/L	< 3.95	< 3.95	< 3.95	< 3.95	< 3.3	< 3.3	< 3.3	< 3.3	< 3.95	< 3.95	< 3.95	< 3.95 UJ	< 3.3	< 3.3	< 3.3	< 3.3
24448-09-7	NMeFOSE	ng/L	< 3.25	< 3.25	< 3.25	< 3.25	< 3.5	< 3.5	< 3.5	< 3.5	< 3.25	< 3.25	< 3.25	< 3.25 UJ	< 3.5	< 3.5	< 3.5	< 3.5
1691-99-2	NEtFOSE	ng/L	< 2.53	R	< 2.53	< 2.53	< 2.2	< 2.2	< 2.2	< 2.2	< 2.53	< 2.53	< 2.53	< 2.53 UJ	< 2.2	< 2.2	4.5 J	< 2.2
Replacement Chemicals																		
13252-13-6	HFPO-DA	ng/L	< 16.7	< 16.7	< 4.33	< 4.33	< 3.8	< 3.8	< 3.8	< 3.8	< 16.7	< 16.7	< 4.33	< 4.33 UJ	< 3.8	< 3.8	< 3.8	< 3.8
919005-14-4	DONA	ng/L	< 2.15	< 2.15	< 2.15	< 2.15	< 1.0	< 1.0	< 1.0	< 1.0	< 2.15	< 2.15	< 2.15	< 2.15 UJ	< 1.0	< 1.0	< 1.0	< 1.0
756426-58-1	9CI-PF3ONS	ng/L	< 2.25	< 2.25	< 2.25	< 2.25	< 0.60	< 0.60	< 0.60	< 0.60	< 2.25	< 2.25	< 2.25	< 2.25 UJ	< 0.60	< 0.60	< 0.60	< 0.60
763051-92-9	11CI-PF3OUdS	ng/L	< 2.25	< 2.25	< 2.25	< 2.25	< 0.80	< 0.80	< 0.80	< 0.80	< 2.25	< 2.25	< 2.25	< 2.25 UJ	< 0.80	< 0.80	< 0.80	< 0.80

Notes:
CAS RN = Chemical Abstracts Service Registry Number
TOP Assay = Total oxidizable precursor assay

Data Qualifiers:
U = nondetect
J = estimated
R = rejected
UJ = estimated nondetect
I = ion transition ratio did not meet acceptance limits

Updated by: L. Auner, 6/18/2024
Checked by: A. Olson 6/19/2024

Table 11: TOP Assay Results (Biosolids)
Madison Metropolitan Sewerage District
Madison, Dane County, Wisconsin
TRC Project #390131.0003.0000

Location ID			Biosolids-A-22	Biosolids-A-22	Biosolids-A-22	Biosolids-A-22	Biosolids-A-22	Biosolids-A-22	Biosolids-A-22	Biosolids-A-22	Biosolids-A-23	Biosolids-A-23	Biosolids-A-23	Biosolids-A-23
Pre/Post TOP Assay			Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Sample Name			Biosolids A-20220622	Biosolids A-20220622	Biosolids A20221214	Biosolids A20221214	BioA-22-20230321	BioA-22-20230321	Bio A-22-20230912	Bio A-22-20230912	Bio A-23-S-C 20230717	Bio A-23-S-C 20230717	Bio A 23-S-C 20231010	Bio A 23-S-C 20231010
Sample Date			06/22/2022	06/22/2022	12/14/2022	12/14/2022	03/21/2023	03/21/2023	09/12/2023	09/12/2023	07/17/2023	07/17/2023	10/10/2023	10/10/2023
CAS RN	Analyte	Unit												
Carboxylic Acids														
375-22-4	PFBA	ug/kg	1.74 J	15	6.56	33.1 J	< 7.2 U	97	3.4 J	170	< 0.88 UJ	170 J	1.7 J	190
2706-90-3	PFPeA	ug/kg	3.15 J	8.91	12.1	22.1 J-	4.3 J	43	10	91	2.3 J	87 J	5.0	77
307-24-4	PFHxA	ug/kg	8.43	6.31	28.5	17.7 J-	10	33	18	70	4.1 J	50 J	8.0	74
375-85-9	PFHpA	ug/kg	0.433 J	3.30 J	1.74 J	8.07 J-	< 0.83	16	1.4 J	31	< 0.73 UJ	32 J	< 0.69	33
335-67-1	PFOA	ug/kg	7.81	6.76	22.0	9.25 J-	5.8	35	9.5	52	2.8 J	40 J	4.1	44
375-95-1	PFNA	ug/kg	0.442 J	1.41 J	1.06 J	2.73 J	0.80 J	8.3	1.0 J	15	0.63 J	16 J	0.76 J	14
335-76-2	PFDA	ug/kg	3.48 J	1.73 J	10.2	4.09 J-	7.6	10	7.7	17	6.3 J	16 J	8.4	17
2058-94-8	PFUnA	ug/kg	0.485 J	0.602 J	1.10 J	1.44 J	1.5 J	4.1 J	1.3 J	5.8	1.0 J	7.1 J	1.4 J	4.2
307-55-1	PFDoA	ug/kg	1.33 J	0.615 J	2.95	1.93 J	2.9 J	5.0	3.5	6.0	2.7 J	7.5 J	3.7	4.9
72629-94-8	PFTTrDA	ug/kg	0.212 J	0.189 J	0.440 J	0.423 J	< 0.46	1.4 J	< 0.37	1.5 J	< 0.40 UJ	2.3 J	0.45 J	1.4 J
376-06-7	PFTA	ug/kg	0.354 J	0.188 J	0.717 J	0.406 J	0.85 J	1.5 J	1.0 IJ	2.1 J	1.2 IJ	3.2 J	0.96 J	1.6 J
Sulfonic Acids														
375-73-5	PFBS	ug/kg	0.234 J	0.204 J	1.42 J	2.33 J	3.6 J	13	4.4	28	2.5 J	21 J	< 0.69	18
2706-91-4	PFPeS	ug/kg	< 0.079	< 0.079	< 0.056	< 0.055	< 0.81	< 0.78	< 0.65	< 0.66	< 0.71 UJ	< 0.74 UJ	< 0.67	< 0.70
355-46-4	PFHxS	ug/kg	0.353 J	0.322 J	0.866 J	0.805 J	3.7 J	2.6 J	4.1 IJ	3.3 J	3.5 IJ	2.0 J	< 0.53	1.9 J
375-92-8	PFHpS	ug/kg	0.167 J	< 0.079	0.206 J	0.082 J	< 1.1	< 1.0	< 0.86	< 0.88	< 0.94 UJ	< 0.98 UJ	< 0.90	< 0.93
1763-23-1	PFOS	ug/kg	3.74 J	1.56 J	11.8	9.56	17	18	21 IJ	21	14 J	17 J	14 IJ	14
68259-12-1	PFNS	ug/kg	< 0.118	< 0.119	< 0.085	< 0.082	< 0.63	< 0.61	< 0.51	< 0.52	< 0.56 UJ	< 0.58 UJ	< 0.53	< 0.55
335-77-3	PFDS	ug/kg	0.574 J	0.212 J	1.41 J	0.857 J	< 1.1	1.9 J	1.6 J	1.2 J	1.9 J	1.0 J	1.6 J	0.99 J
79780-39-5	PFDoS	ug/kg	2.14 J	< 0.119	1.25 J	< 0.082	< 1.0	< 1.0	< 0.82	< 0.85	< 0.91 UJ	< 0.94 UJ	< 0.86	< 0.89
757124-72-4	4:2 FTS	ug/kg	< 0.197	< 0.198	< 0.141	< 0.137	< 1.1	< 1.1	< 0.89	< 0.92	< 0.98 UJ	< 1.0 UJ	< 0.93	< 0.97
27619-97-2	6:2 FTS	ug/kg	0.511 J	< 0.238	5.67	< 2.81 UJ	< 0.59	< 0.57	1.6 J	< 0.49	< 0.52 UJ	< 0.54 UJ	0.72 J	< 0.51
39108-34-4	8:2 FTS	ug/kg	0.443 J	< 0.119	1.56 J	< 0.694 UJ	< 0.76	< 0.74	1.1 J	< 0.63	< 0.67 UJ	< 0.70 UJ	1.4 J	< 0.66
Sulfonamides, Sulfonamidoacetic acids, Sulfonamidoethanols														
754-91-6	PFOSA	ug/kg	0.497 J	< 0.079	< 1.54 UJ	< 0.151 UJ	< 0.72	< 0.70	1.0 J	< 0.59	1.0 J	< 0.66 UJ	1.5 J	< 0.62
31506-32-8	NMeFOSA	ug/kg	< 0.157	< 0.159	0.201 J	< 0.110	< 1.0	< 1.0	< 0.86	< 0.88	< 0.94 UJ	< 0.98 UJ	< 0.93	< 0.93
4151-50-2	NEtFOSA	ug/kg	< 0.157	< 0.159	< 0.180 UJ	< 0.110	< 0.99	< 1.0	< 0.82	< 0.85	< 0.91 UJ	< 0.94 UJ	< 0.89	< 0.89
2355-31-9	NMeFOSAA	ug/kg	10.3	< 0.079	25.3	0.075 J	17	< 0.49	15	< 0.41	12 J	< 0.46 UJ	21	< 0.44
2991-50-6	NEtFOSAA	ug/kg	3.14 J	< 0.119	6.41	< 0.082	6.1	< 1.0	4.3	< 0.86	5.1 J	< 0.96 UJ	8.3	< 0.91
24448-09-7	NMeFOSE	ug/kg	3.81 J	< 0.119	4.25	< 0.082	11	< 1.0	7.5	< 0.85	14 J	< 0.94 UJ	18	< 0.89
1691-99-2	NEtFOSE	ug/kg	1.07 J	< 0.119	0.986 J	0.135 J	6.3	< 0.59	7.8	< 0.50	9.0 J	< 0.56 UJ	4.2	< 0.53
Replacement Chemicals														
13252-13-6	HFPO-DA	ug/kg	< 0.55	< 0.556	< 0.395	< 0.384	< 0.90	< 0.87	< 0.72	< 0.74	< 0.79 UJ	18 J	< 0.75	< 0.81 UJ
919005-14-4	DONA	ug/kg	< 0.039	< 0.04	< 0.028	< 0.027	< 0.85	< 0.82	< 0.68	< 0.70	< 0.75 UJ	< 0.78 UJ	< 0.71	< 0.74
756426-58-1	9Cl-PF3ONS	ug/kg	< 0.118	< 0.119	< 0.085	< 0.082	< 0.76	< 0.74	< 0.61	< 0.63	< 0.67 UJ	< 0.70 UJ	< 0.64	< 0.66
763051-92-9	11Cl-PF3OUdS	ug/kg	< 0.079	< 0.079	< 0.056	< 0.055	< 0.67	< 0.65	< 0.54	< 0.56	< 0.60 UJ	< 0.62 UJ	< 0.57	< 0.59

Notes:
CAS RN = Chemical Abstracts Service Registry Number
TOP Assay = Total oxidizable precursor assay

Data Qualifiers:
U = nondetect
J = estimated
J- = estimated with potential low bias
R = rejected
UJ = estimated nondetect
I = ion transition ratio did not meet acceptance limits

Updated by: L. Auner, 6/18/2024
Checked by: A. Olson 6/19/2024

Table 11: TOP Assay Results (Biosolids)
Madison Metropolitan Sewerage District
Madison, Dane County, Wisconsin
TRC Project #390131.0003.0000

Location ID			Biosolids-B	Biosolids-B	Biosolids-B	Biosolids-B	Biosolids-B	Biosolids-B	Biosolids-B	Biosolids-B
Pre/Post TOP Assay			Pre	Post	Pre	Post	Pre	Post	Pre	Post
Sample Name			Biosolids B-20220622	Biosolids B-20220622	Biosolids B20221214	Biosolids B20221214	Bio B-20230321	Bio B-20230321	Bio B 20230912	Bio B 20230912
Sample Date			06/22/2022	06/22/2022	12/14/2022	12/14/2022	03/21/2023	03/21/2023	09/12/2023	09/12/2023
CAS RN	Analyte	Unit								
Carboxylic Acids										
375-22-4	PFBA	ug/kg	< 0.704	< 0.687 UJ	< 0.598	34.2 J	< 18 U	< 97 U	< 3.4	170
2706-90-3	PFPeA	ug/kg	< 0.352	< 0.343 UJ	0.411 J	18.4 J-	< 3.4	51	< 3.0	120
307-24-4	PFHxA	ug/kg	1.01 J	< 0.343 UJ	0.991 J	11.1 J	4.1 J	28	3.2 J	64
375-85-9	PFHpA	ug/kg	< 0.352	1.68 J	< 0.299	6.01 J	< 3.1	15 J	< 2.8	42
335-67-1	PFOA	ug/kg	< 1.41	2.17 J	< 1.20	5.48 J	< 4.4	21	< 3.9	44
375-95-1	PFNA	ug/kg	< 0.352	0.699 J	0.323 J	2.31 J	< 1.8	7.9 J	< 1.6	19
335-76-2	PFDA	ug/kg	1.59 J	< 0.687	2.26 J	1.93 J	< 4.0	6.6 J	4.0 J	16
2058-94-8	PFUnA	ug/kg	0.370 J	< 0.343	0.589 J	1.20 J	< 3.5	4.1 J	< 3.1	9.3 J
307-55-1	PFDoA	ug/kg	0.787 J	< 0.343	1.30 J	1.04 J	< 2.5	3.6 J	2.7 J	8.2 J
72629-94-8	PFTTrDA	ug/kg	< 0.528	< 0.515	< 0.449	R	< 1.7	1.7 J	< 1.5	3.0 J
376-06-7	PFTA	ug/kg	< 0.352	< 0.343	0.413 J	R	< 3.1	< 3.0	< 2.7 UJ	4.0 J
Sulfonic Acids										
375-73-5	PFBS	ug/kg	< 0.352	< 0.343	< 0.299	0.834 J	< 3.1	3.2 J	3.2 J	13 J
2706-91-4	PFPeS	ug/kg	< 0.352	< 0.343	< 0.299	< 0.301	< 3.1	< 3.0	< 2.7	< 2.9
355-46-4	PFHxS	ug/kg	2.74 J	< 0.515	0.873 J	0.584 J	< 2.4	< 2.4	< 2.1	3.3 J
375-92-8	PFHpS	ug/kg	< 0.352	< 0.343	< 0.299	< 0.301	< 4.1	< 4.0	< 3.6	< 3.8
1763-23-1	PFOS	ug/kg	3.77 J	1.06 J	5.64 J	4.51 J	14 J	11 J	< 36	15 J
68259-12-1	PFNS	ug/kg	< 0.528	< 0.515	< 0.449	< 0.451	< 2.4	< 2.4	< 2.1	< 2.3
335-77-3	PFDS	ug/kg	0.730 J	< 0.515	7.57 J	< 0.451	< 4.3	< 4.2	< 3.8	< 4.1
79780-39-5	PFDoS	ug/kg	< 0.528	< 0.515	2.57 J	< 0.451	< 3.9	< 3.8	< 3.4	< 3.7
757124-72-4	4:2 FTS	ug/kg	< 0.88	< 0.859	< 0.748	< 0.752	< 4.2	< 4.2	< 3.7	< 4.0
27619-97-2	6:2 FTS	ug/kg	< 1.06	< 1.03	< 0.897	< 7.54 UJ	< 2.2	< 2.2	< 2.0	< 2.1
39108-34-4	8:2 FTS	ug/kg	0.852 J	< 0.515	< 0.449	< 1.87 UJ	< 2.9	< 2.8	< 2.6	< 2.7
Sulfonamides, Sulfonamidoacetic acids, Sulfonamidoethanols										
754-91-6	PFOSA	ug/kg	< 0.352	< 0.343	< 1.85 UJ	< 0.556 UJ	< 2.7	< 2.7	< 2.4	< 2.6
31506-32-8	NMeFOSA	ug/kg	R	< 0.687	R	< 0.601	< 4.0	< 4.0	< 3.6	< 3.8
4151-50-2	NEtFOSA	ug/kg	R	< 0.687	R	< 0.601	< 3.9	< 3.8	< 3.4	< 3.7
2355-31-9	NMeFOSAA	ug/kg	3.55 J	< 0.343	7.23 J	< 0.301	< 1.9	< 1.9	7.6 J	< 1.8
2991-50-6	NEtFOSAA	ug/kg	1.96 J	< 0.515	3.28 J	< 0.451	< 4.0	< 3.9	< 3.5	< 3.7
24448-09-7	NMeFOSE	ug/kg	2.53 J	< 0.515	3.76 J	< 0.451	5.8 J	< 3.8	6.6 J	< 3.7
1691-99-2	NEtFOSE	ug/kg	0.746 J	< 0.515	0.740 J	< 0.451	6.8 J	< 2.3	6.2 J	< 2.2
Replacement Chemicals										
13252-13-6	HFPO-DA	ug/kg	< 2.47	< 2.4	< 2.09	< 2.11	< 3.4	< 3.3	< 3.0	< 3.2
919005-14-4	DONA	ug/kg	< 0.176	< 0.172	< 0.150	< 0.150	< 3.2	< 3.2	< 2.8	< 3.0
756426-58-1	9CI-PF3ONS	ug/kg	< 0.528	< 0.515	< 0.449	< 0.451	< 2.9	< 2.8	< 2.6	< 2.7
763051-92-9	11CI-PF3OUdS	ug/kg	< 0.352	< 0.343	< 0.299	< 0.301	< 2.6	< 2.5	< 2.3	< 2.4

Notes:
CAS RN = Chemical Abstracts Service Registry Number
TOP Assay = Total oxidizable precursor assay

Data Qualifiers:
U = nondetect
J = estimated
J- = estimated with potential low bias
R = rejected
UJ = estimated nondetect
I = ion transition ratio did not meet acceptance limits

Updated by: L. Auner, 6/18/2024
Checked by: A. Olson 6/19/2024

Table 12: Blank Sample Results
Madison Metropolitan Sewerage District
Madison, Dane County, Wisconsin
TRC Project #390131.0003.0000

Location ID	Equipment Blank	Equipment Blank	Equipment Blank	Equipment Blank	Equipment Blank	Equipment Blank	Equipment Blank	Equipment Blank	Equipment Blank	Equipment Blank	Equipment Blank	Equipment Blank	Field Blank	Field Blank	Field Blank	Field Blank	Field Blank	
Sample Name	EB01-20210504	EB01-20220330	Equipment Blank 20220622	EB-01 20220914	EB01 202221214	EB01-20230321	EB01 20230621	EB 01 20230717	EB01 20230912	EB01 20231010	EB01-20231212	FB01-20210506	FB02-20210506	FB03-20210506	FB01-20220426	FB-20220427		
Sample Date	05/04/2021	03/30/2022	06/22/2022	09/14/2022	12/14/2022	03/21/2023	06/21/2023	07/17/2023	09/12/2023	10/10/2023	12/12/2023	05/06/2021	05/06/2021	05/06/2021	04/26/2022	04/27/2022		
CAS RN	Analyte	Unit																
Carboxylic Acids																		
375-22-4	PFBA	ng/L	< 2.2	< 0.42	5.6 J	< 0.49	< 0.49	< 2.2	< 2.1	< 2.1	< 2.2	< 2.3	< 2.1	< 2.1	< 2.2	< 2.1	< 0.43	< 0.43
2706-90-3	PFPeA	ng/L	< 0.45	< 0.41	R	< 0.81	< 0.81	< 0.45	< 0.43	< 0.42	< 0.45	< 0.48	< 0.42	< 0.43	< 0.45	< 0.43	< 0.43	< 0.42
307-24-4	PFHxA	ng/L	< 0.53	< 0.41	R	< 0.89	< 0.90	< 0.53	< 0.51	< 0.50	0.72 IJ	< 0.57	< 0.50	< 0.51	< 0.53	< 0.50	< 0.43	< 0.42
375-85-9	PFHpA	ng/L	< 0.23	< 0.52	R	< 0.68	< 0.68	< 0.23	< 0.22	< 0.21	< 0.23	< 0.24	< 0.21	< 0.22	< 0.23	< 0.22	< 0.53	< 0.53
335-67-1	PFOA	ng/L	< 0.78	< 0.55	R	< 0.85	< 0.85	< 0.78	< 0.75	< 0.73	< 0.79	< 0.83	< 0.73	< 0.75	< 0.78	< 0.74	< 0.57	< 0.57
375-95-1	PFNA	ng/L	< 0.25	< 0.70	R	< 0.78	< 0.78	< 0.25	< 0.24	< 0.23	< 0.25	< 0.26	< 0.23	< 0.24	< 0.25	< 0.23	< 0.72	< 0.72
335-76-2	PFDA	ng/L	< 0.28	< 0.53	< 0.53 UJ	< 0.60	< 0.60	< 0.28	< 0.27	< 0.27	< 0.29	< 0.30	< 0.27	< 0.27	< 0.29	< 0.27	< 0.55	< 0.55
2058-94-8	PFUnA	ng/L	< 1.0	< 0.51	< 0.51 UJ	< 0.48	< 0.48	< 1.0	< 0.97	< 0.94	< 1.0	< 1.1	< 0.95	< 0.97	< 1.0	< 0.96	< 0.52	< 0.52
307-55-1	PFDoA	ng/L	< 0.50	< 0.45	< 0.46	< 0.47	< 0.47	< 0.50	< 0.48	< 0.47	< 0.51	< 0.54	< 0.47	< 0.48	< 0.51	< 0.48	< 0.47	< 0.47
72629-94-8	PFTrDA	ng/L	< 1.2	< 0.59	< 0.59	< 0.61	< 0.61	< 1.2	< 1.1	< 1.1	< 1.2	< 1.3	< 1.1	< 1.1	< 1.2	< 1.1	< 0.60	< 0.60
376-06-7	PFTA	ng/L	< 0.67	< 0.45	< 0.45	< 0.59	< 0.59	< 0.67	< 0.64	< 0.63	< 0.68	< 0.71	< 0.63	< 0.64	< 0.67	< 0.63	< 0.46	< 0.46
Sulfonic Acids																		
375-73-5	PFBS	ng/L	< 0.18	< 0.45	0.48 J	< 0.48	< 0.48	< 0.18	< 0.18	< 0.17	< 0.19	< 0.20	< 0.17	< 0.18	< 0.18	< 0.17	< 0.46	< 0.46
2706-91-4	PFPeS	ng/L	< 0.27	< 0.45	R	< 0.59	< 0.59	< 0.27	< 0.26	< 0.26	< 0.28	< 0.29	< 0.26	< 0.26	< 0.28	< 0.26	< 0.46	< 0.46
355-46-4	PFHxS	ng/L	< 0.52	< 0.48	R	< 0.52	< 0.52	< 0.52	< 0.50	< 0.49	< 0.53	< 0.56	< 0.49	< 0.50	< 0.53	< 0.50	< 0.49	< 0.49
375-92-8	PFHpS	ng/L	< 0.17	< 0.39	< 0.39 UJ	< 0.66	< 0.66	< 0.17	< 0.17	< 0.16	< 0.18	< 0.19	< 0.16	< 0.17	< 0.18	< 0.17	< 0.40	< 0.40
1763-23-1	PFOS	ng/L	< 0.49	< 0.52	< 0.52 UJ	< 0.65	< 0.66	< 0.49	< 0.48	< 0.46	< 0.50	< 0.53	< 0.46	< 0.47	< 0.50	< 0.47	< 0.53	< 0.53
68259-12-1	PFNS	ng/L	< 0.34	< 0.42	< 0.42 UJ	< 0.58	< 0.58	< 0.34	< 0.33	< 0.32	< 0.34	< 0.36	< 0.32	< 0.33	< 0.34	< 0.32	< 0.43	< 0.43
335-77-3	PFDS	ng/L	< 0.29	< 0.42	< 0.43 UJ	< 0.63	< 0.63	< 0.29	< 0.28	< 0.27	< 0.30	< 0.31	< 0.28	< 0.28	< 0.29	< 0.28	< 0.44	< 0.44
79780-39-5	PFDoS	ng/L	< 0.89	< 0.43	< 0.44 UJ	< 0.58	< 0.58	< 0.89	< 0.85	< 0.83	< 0.90	< 0.95	< 0.83	< 0.85	< 0.89	< 0.84	< 0.45	< 0.45
757124-72-4	4:2 FTS	ng/L	< 0.22	< 0.53	R	< 0.46	< 0.46	< 0.22	< 0.21 UJ	< 0.21	< 0.22	< 0.23	< 0.21	< 0.21	< 0.22	< 0.21	< 0.54	< 0.54
27619-97-2	6:2 FTS	ng/L	< 2.3	< 0.61	R	< 0.66	< 0.66	< 2.3	< 2.2 UJ	< 2.1	< 2.3	< 2.4	< 2.1	< 2.2	< 2.3	< 2.2	< 0.63	< 0.62
39108-34-4	8:2 FTS	ng/L	< 0.42	< 0.62	< 0.62 UJ	< 0.50	< 0.50	< 0.42	< 0.41 UJ	< 0.39	< 0.43	< 0.45	< 0.40	< 0.40	< 0.42	< 0.40	< 0.63	< 0.63
Sulfonamides, Sulfonamidoacetic acids, Sulfonamidoethanols																		
754-91-6	PFOSA	ng/L	< 0.90	< 0.77	R	< 0.70	< 0.71	< 0.90	< 0.86 UJ	< 0.84	< 0.91	< 0.96	< 0.84	< 0.86	< 0.90	< 0.85	< 0.79	< 0.79
31506-32-8	NMeFOSA	ng/L	< 0.39	< 0.48	R	< 0.54	< 0.54	< 0.39	< 0.38 UJ	< 0.37	< 0.40	< 0.42	< 0.37	< 0.38	< 0.40	< 0.37	< 0.50	< 0.49
4151-50-2	NEtFOSA	ng/L	< 0.80	< 0.57	R	< 0.56	< 0.57	< 0.80	< 0.77 UJ	< 0.75	< 0.81	< 0.85	< 0.75	< 0.76	< 0.80	< 0.76	< 0.59	< 0.59
2355-31-9	NMeFOSAA	ng/L	< 1.1	< 0.41	< 0.41	< 0.68	< 0.68	< 1.1	< 1.1 UJ	< 1.0	< 1.1	< 1.2	< 1.0	< 1.1	< 1.1	< 1.0	< 0.42	< 0.42
2991-50-6	NEtFOSAA	ng/L	< 1.2	< 0.52	< 0.53	< 0.80	4.1	< 1.2	< 1.1 UJ	< 1.1	< 1.2	< 1.3	< 1.1	< 1.1	< 1.2	< 1.1	< 0.54	< 0.54
24448-09-7	NMeFOSE	ng/L	< 1.3	< 0.31	R	< 0.51	< 0.51	< 1.3	< 1.2 UJ	< 1.2	< 1.3	< 1.4	< 1.2	< 1.2	< 1.3	< 1.2	< 0.32	< 0.32
1691-99-2	NEtFOSE	ng/L	< 0.78	< 0.47	R	< 0.87	< 0.88	< 0.78	< 0.75 UJ	< 0.73	< 0.79	< 0.83	< 0.73	< 0.75	< 0.78	< 0.74	< 0.48	< 0.48
Replacement Chemicals																		
13252-13-6	HFPO-DA	ng/L	< 1.4	< 0.50	0.63 J	< 0.48	< 0.49	< 1.4	< 1.3	< 1.3	< 1.4	< 1.5	< 1.3	< 1.3	< 1.4	< 1.3	< 0.51	< 0.51
919005-14-4	DONA	ng/L	< 0.37	< 0.48	R	< 0.90	< 0.90	< 0.37	< 0.35 UJ	< 0.34	0.40 J	< 0.39	< 0.34	< 0.35	< 0.37	< 0.35	< 0.50	< 0.50
756426-58-1	9Cl-PF3ONS	ng/L	< 0.22	< 0.29	< 0.29 UJ	< 0.46	< 0.46	< 0.22	< 0.21 UJ	< 0.21	< 0.22	< 0.23	< 0.21	< 0.21	< 0.22	< 0.21	< 0.30	< 0.30
763051-92-9	11Cl-PF3OUdS	ng/L	< 0.29	< 0.41	< 0.41 UJ	< 0.55	< 0.55	< 0.29	< 0.28 UJ	< 0.27	< 0.30	< 0.31	< 0.28	< 0.28	< 0.29	< 0.28	< 0.42	< 0.42

Notes:
CAS RN = Chemical Abstracts Service Registry Number

Data Qualifiers:
J = estimated
R = rejected
UJ = estimated nondetect
I = ion transition ratio did not meet acceptance limits

Updated by: L. Auner, 6/18/2024
Checked by: A. Olson 6/19/2024

Figure 1
 Calculated Influent & Composite Influent PFAS Results

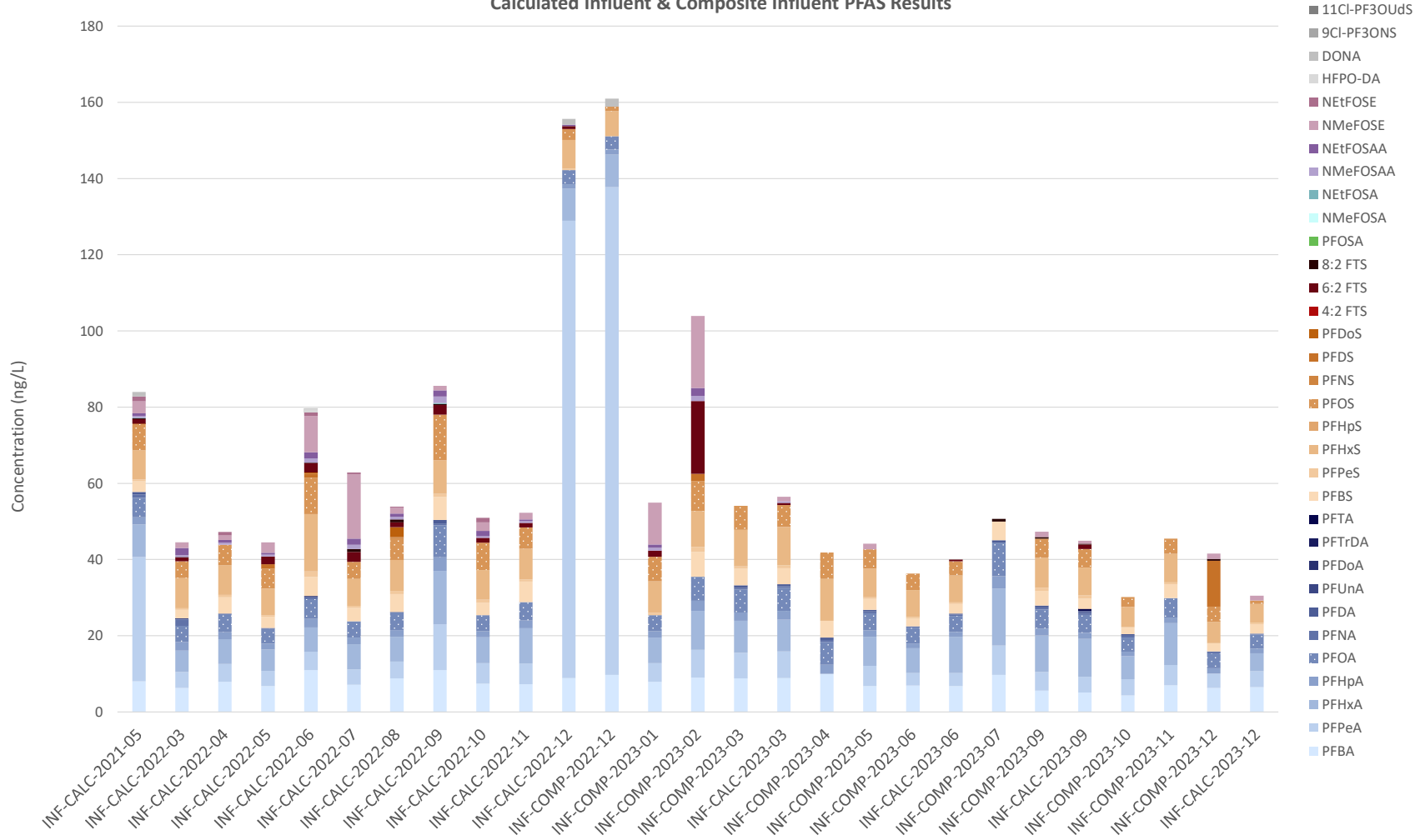


Figure 2a
Influent PFOA Time Series

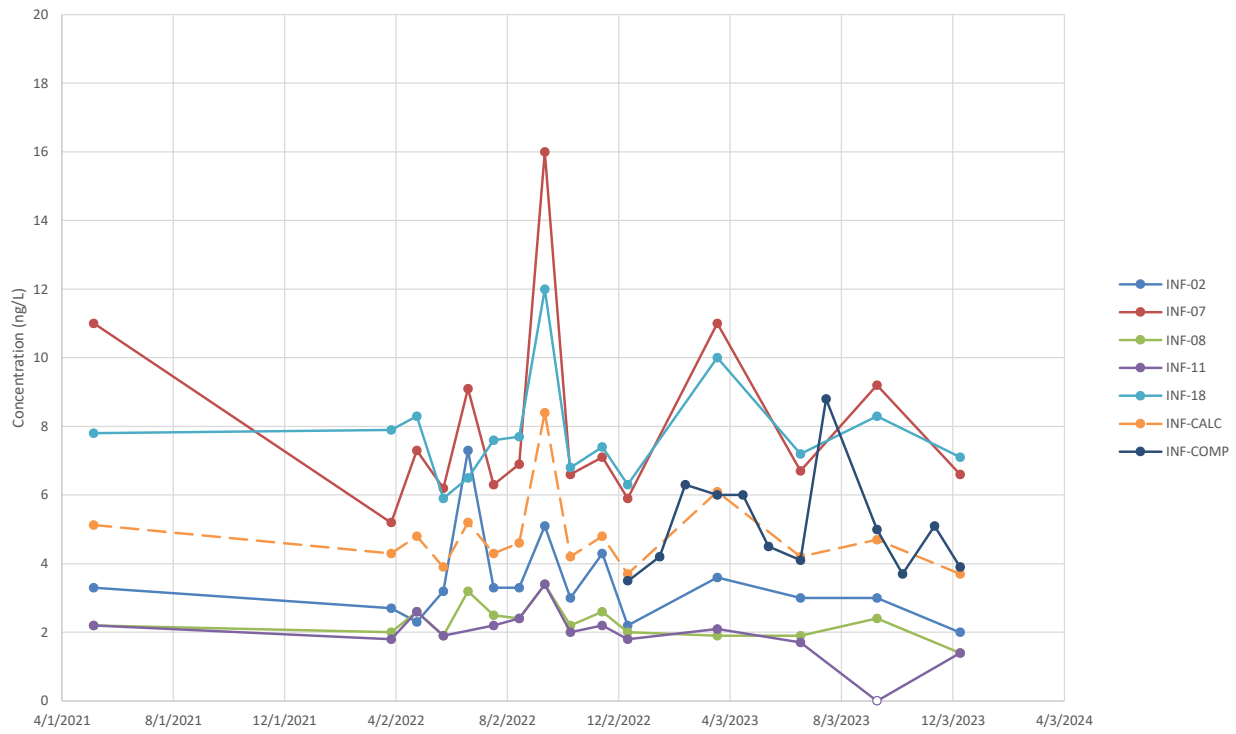
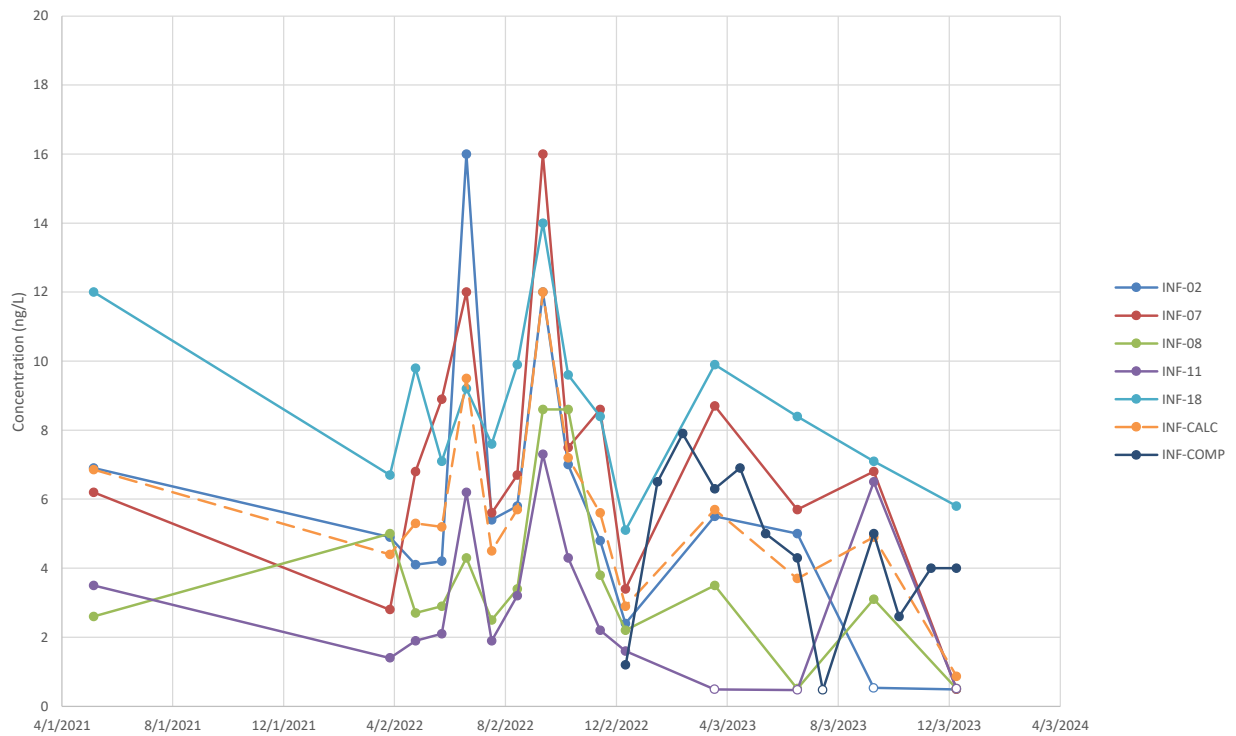


Figure 2b
Influent PFOS Time Series



Nondetect results are plotted with a hollow symbol at the detection limit.

Figure 3
Effluent PFAS Results

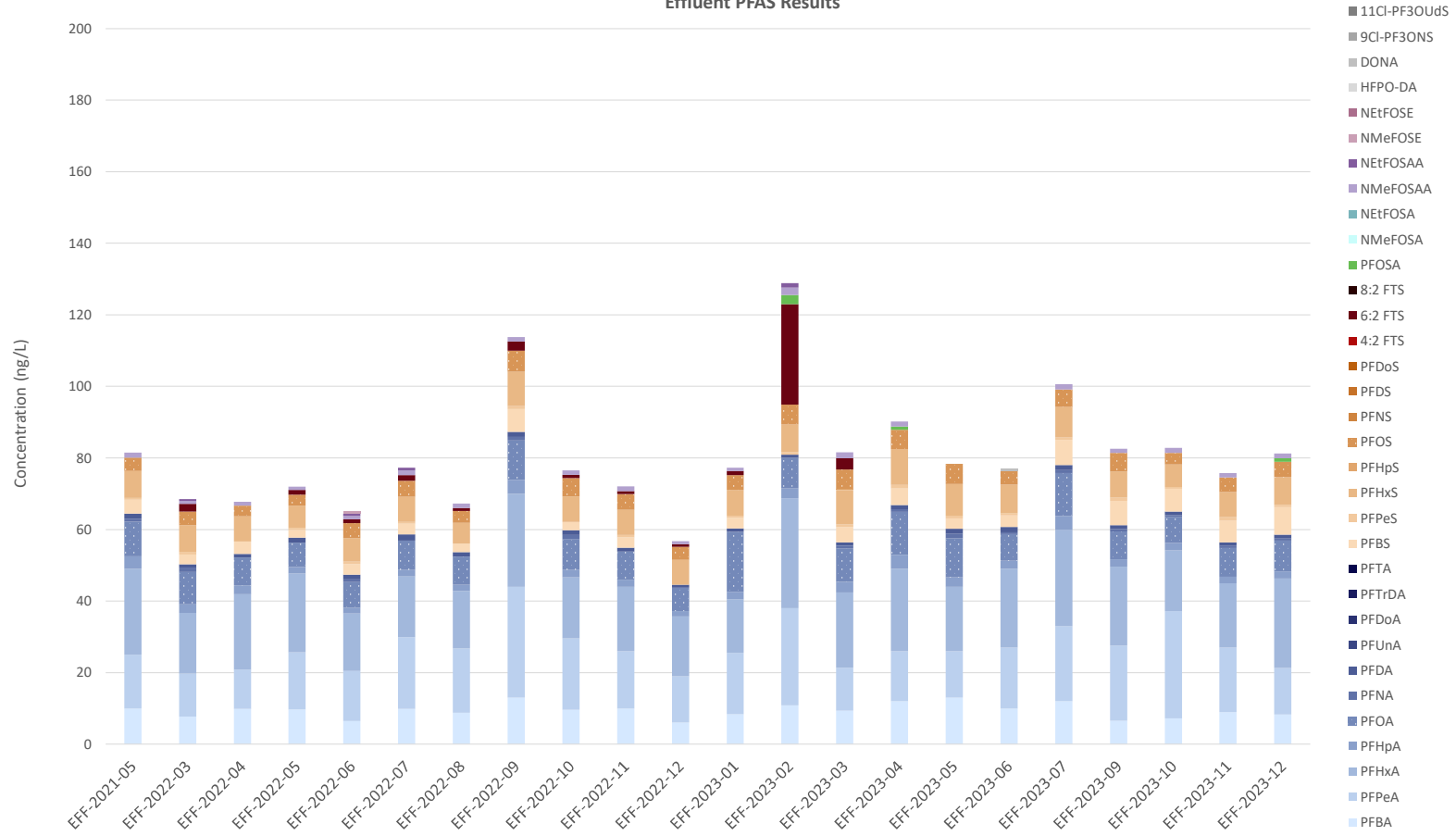


Figure 4a
Effluent PFOA Time Series

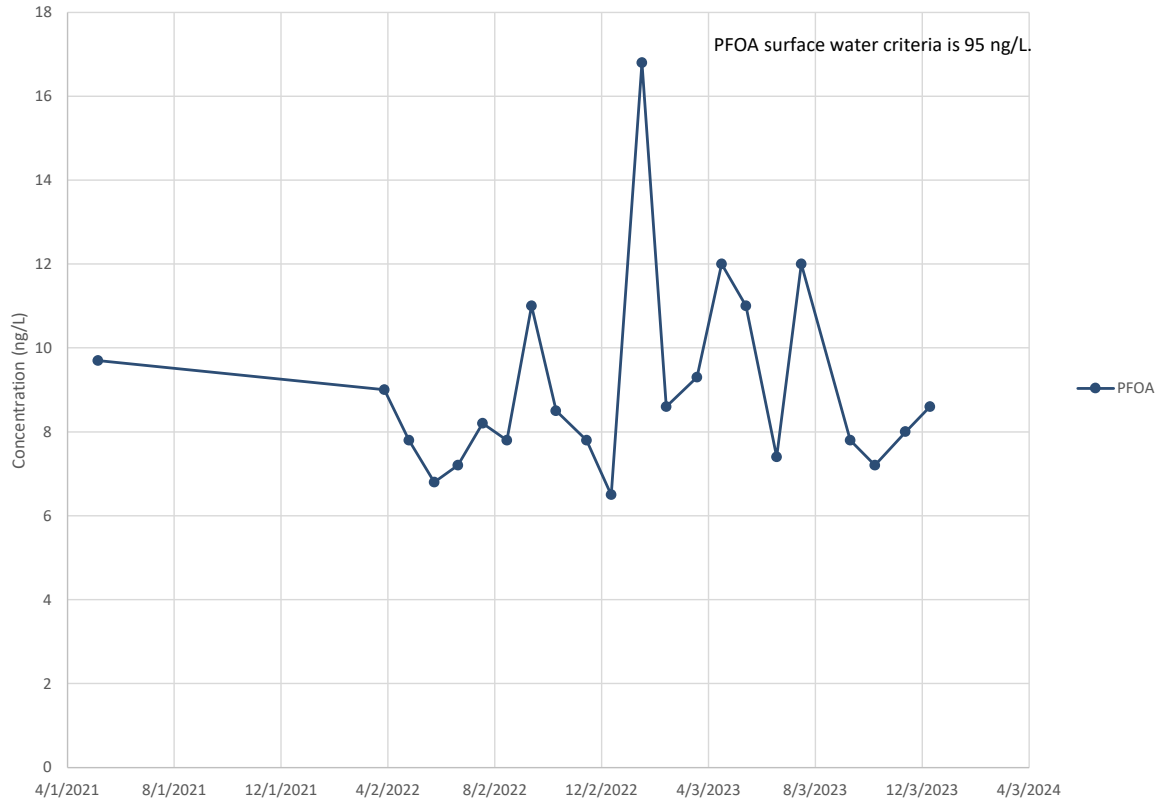


Figure 4b
Effluent PFOS Time Series

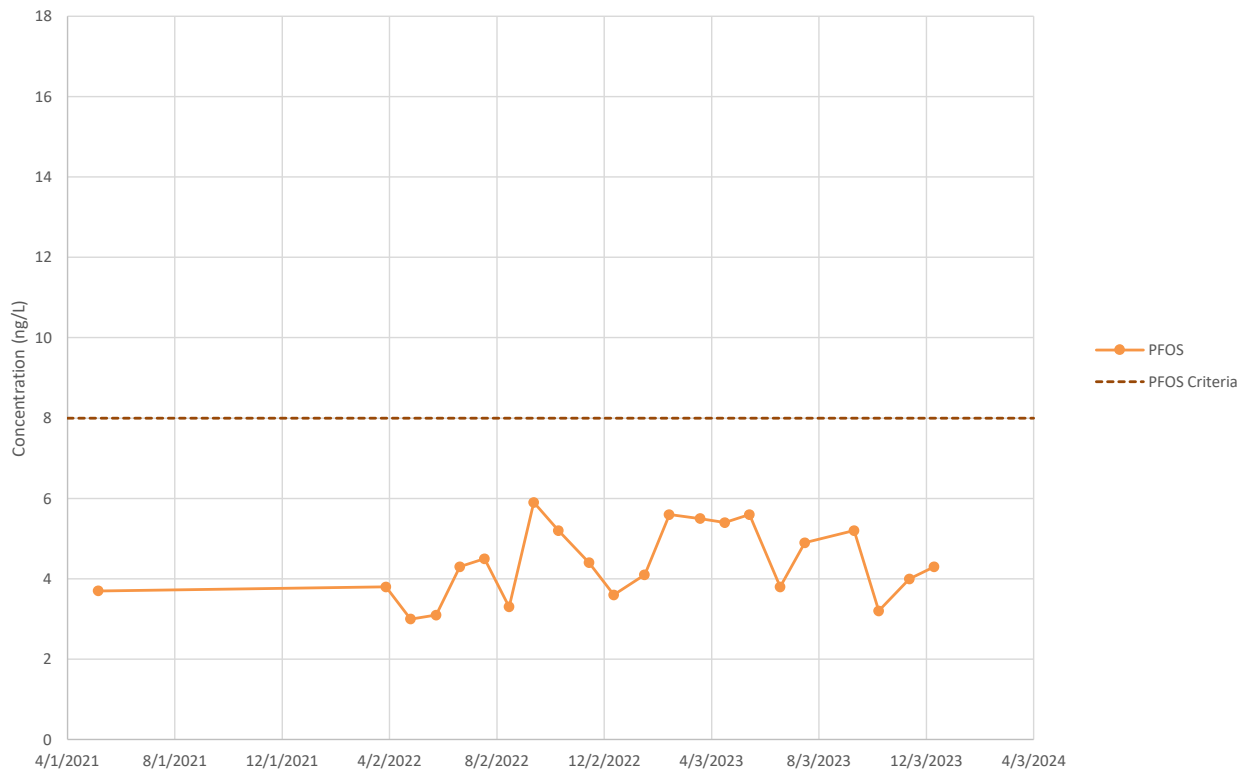
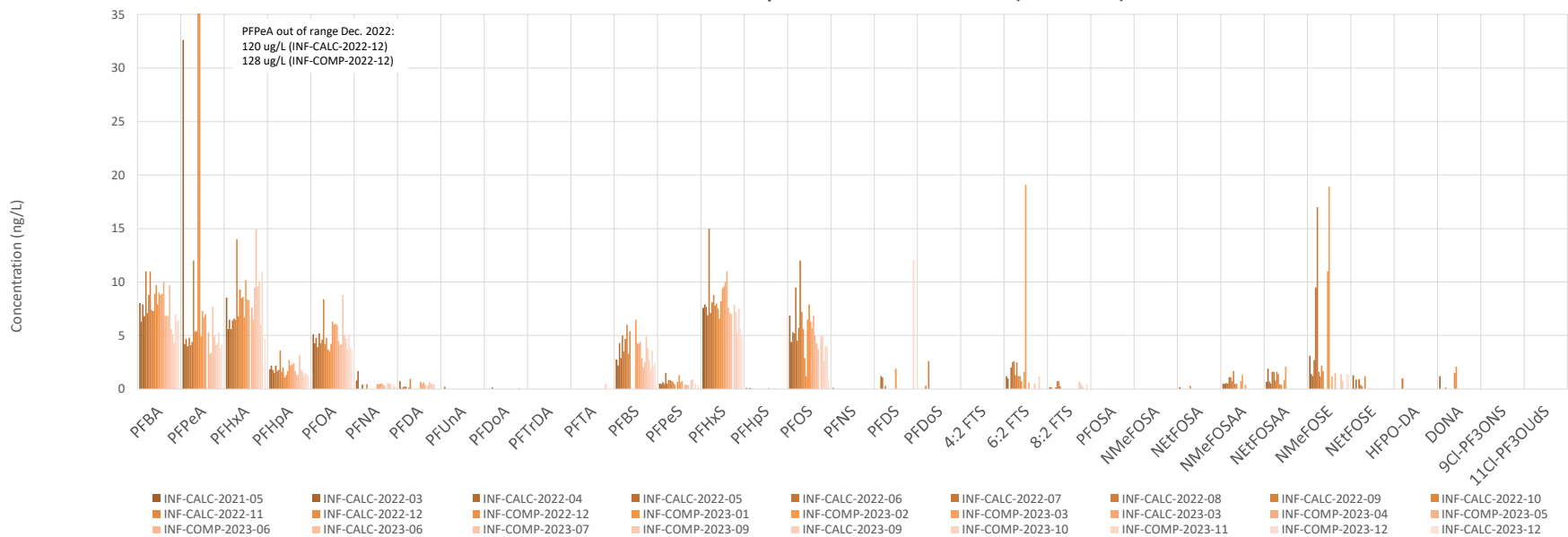


Figure 5
Influent vs. Effluent PFAS Detections

Calculated Influent & Composite Influent Detections (2021-2023)



Effluent Detections (2021-2023)

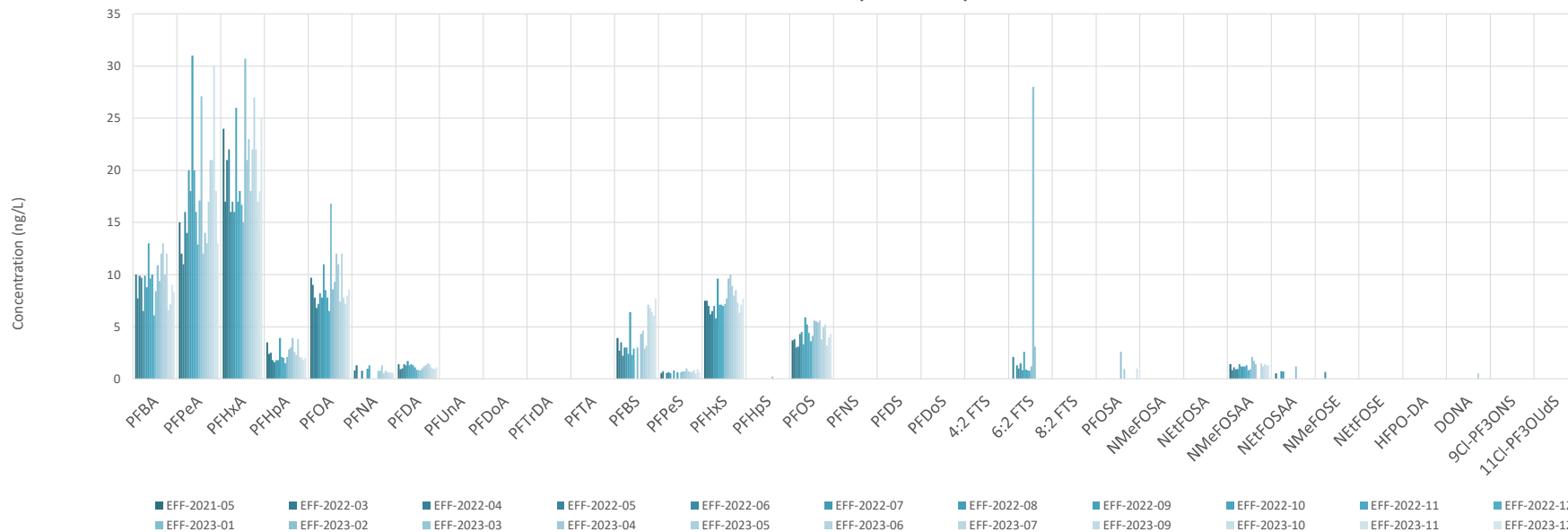


Figure 6
Class B Biosolids PFAS Results

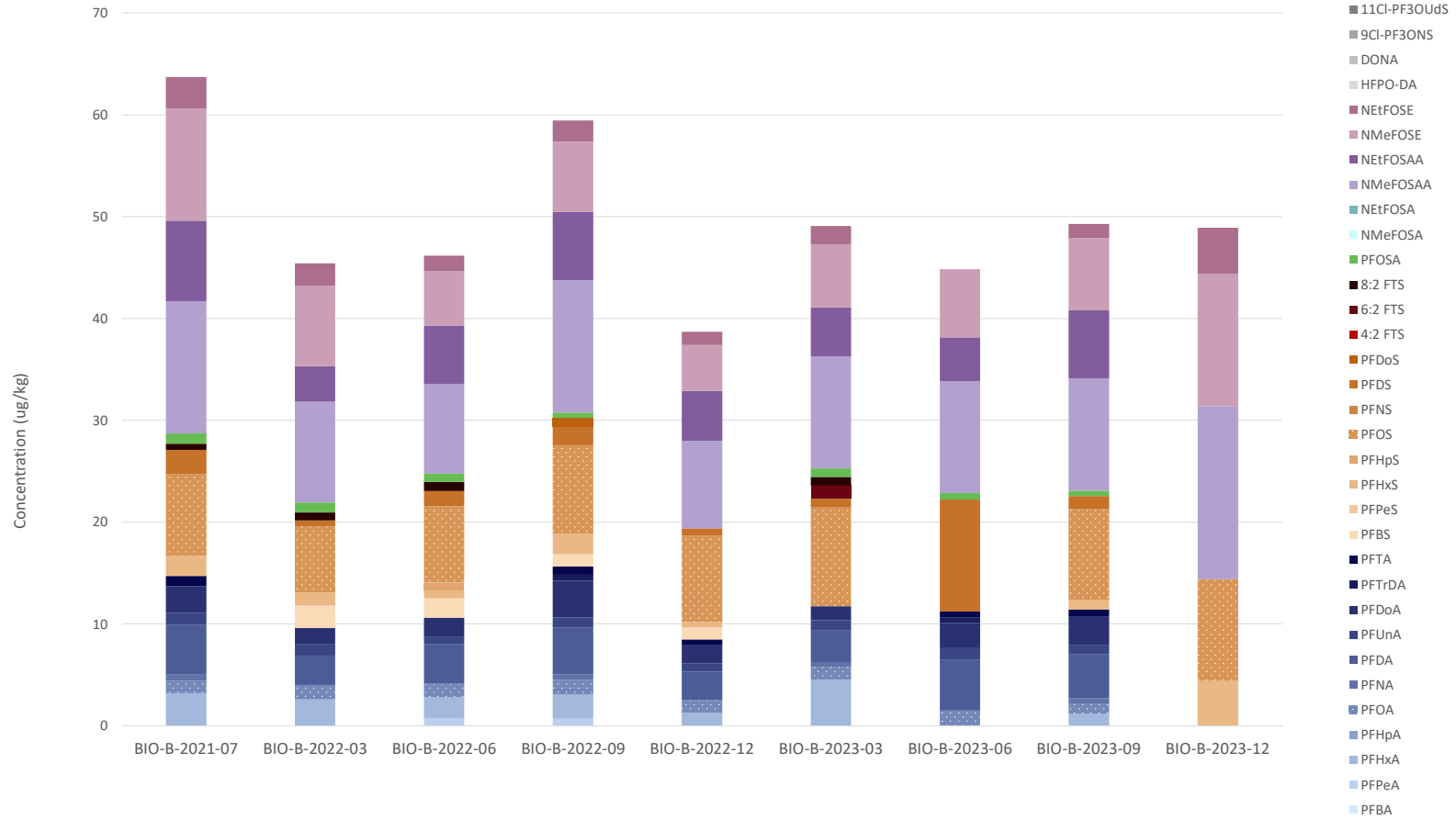


Figure 7a
Biosolids Class B PFOA and PFOS Time Series

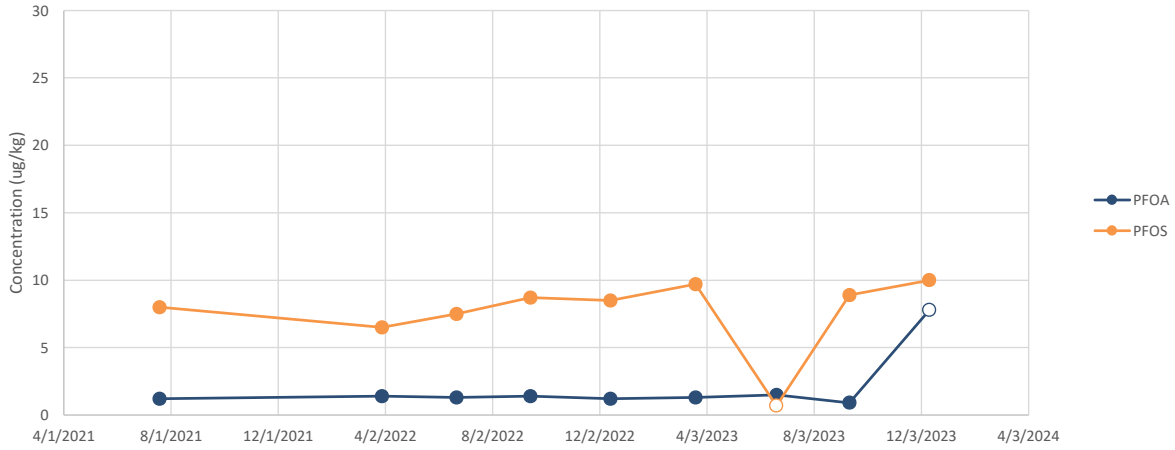


Figure 7b
Biosolids Class A (2022 Pile) PFOA and PFOS Time Series

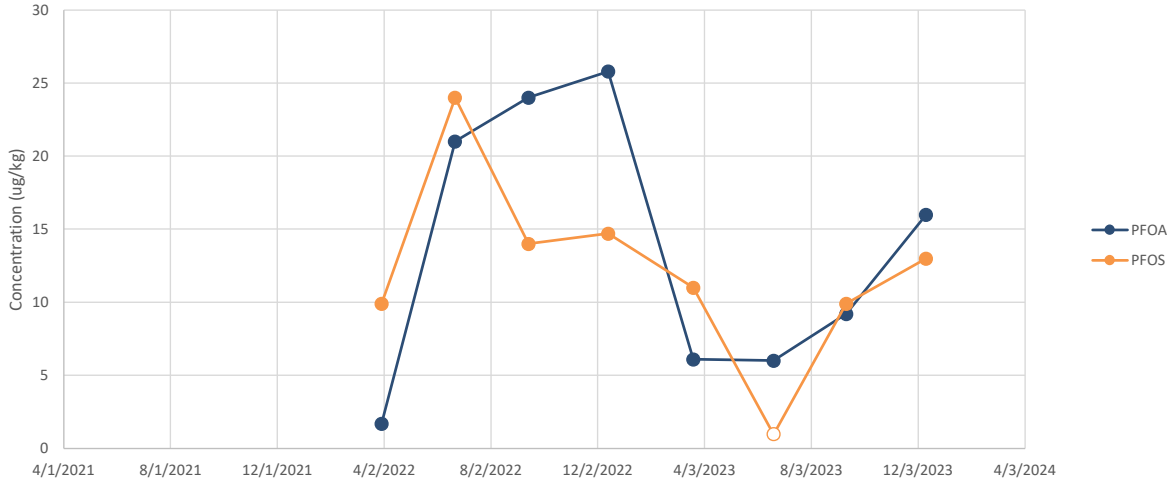
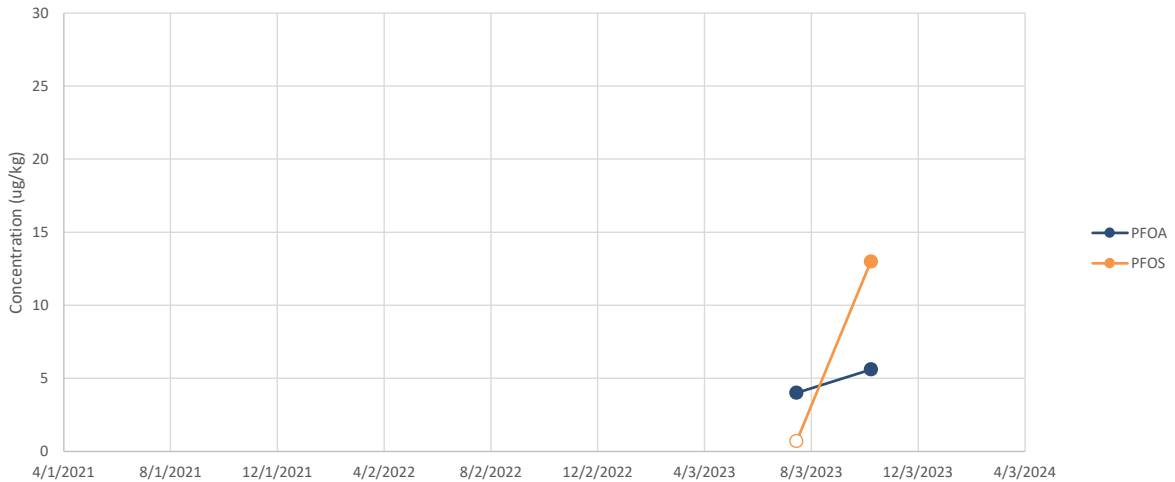
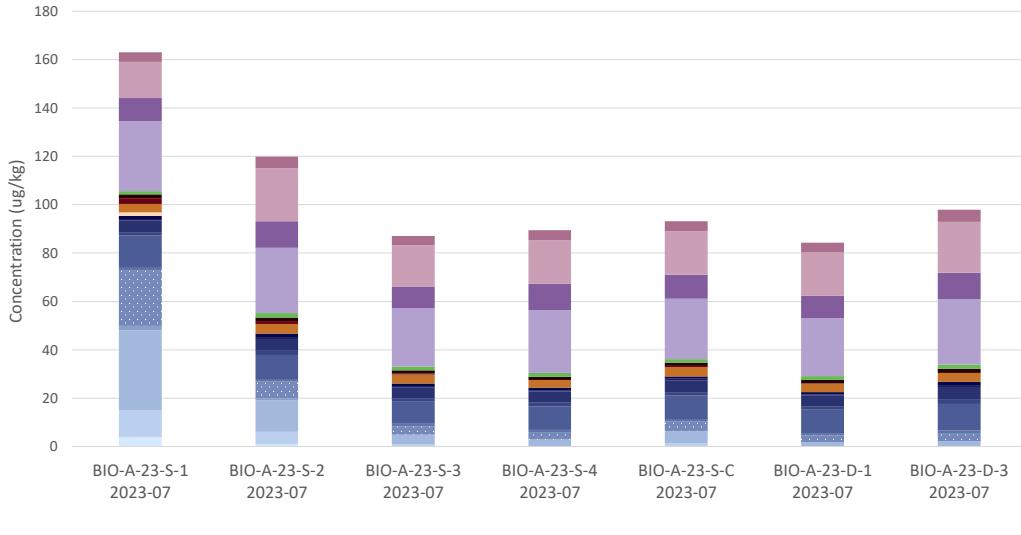


Figure 7c
Biosolids Class A (2023 Pile Shallow Composite) PFOA and PFOS Time Series



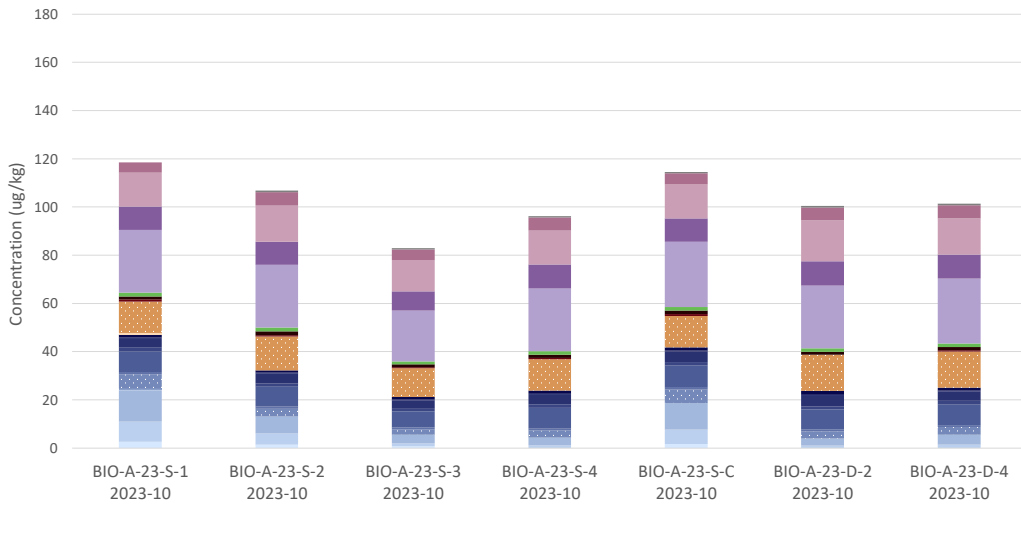
Note: Nondetect results plotted with hollow symbols at the detection limit.

Figure 9a
Class A Cake (2023 Pile) PFAS Results - July 2023



- 11CI-PF3OUds
- 9CI-PF3ONS
- DONA
- HFPO-DA
- NETFOSE
- NMeFOSE
- NETFOSAA
- NMeFOSAA
- NETFOSA
- NMeFOSA
- PFOSA
- 8:2 FTS
- 6:2 FTS
- 4:2 FTS
- PFDoS
- PFDS
- PFNS
- PFOs
- PFHpS
- PFHxS
- PFPeS
- PFBS
- PFTA
- PFTrDA
- PFDoA
- PFUnA
- PFDA
- PFNA
- PFOA
- PFHpA
- PFHxA
- PFPeA
- PFBA

Figure 9b
Class A Cake (2023 Pile) PFAS Results - October 2023



- 11CI-PF3OUds
- 9CI-PF3ONS
- DONA
- HFPO-DA
- NETFOSE
- NMeFOSE
- NETFOSAA
- NMeFOSAA
- NETFOSA
- NMeFOSA
- PFOSA
- 8:2 FTS
- 6:2 FTS
- 4:2 FTS
- PFDoS
- PFDS
- PFNS
- PFOs
- PFHpS
- PFHxS
- PFPeS
- PFBS
- PFTA
- PFTrDA
- PFDoA
- PFUnA
- PFDA
- PFNA
- PFOA
- PFHpA
- PFHxA
- PFPeA
- PFBA

Appendix A: Laboratory Reports

January 2023

March 27, 2023

Mike Ursin
TRC Environmental
708 Heartland Trail
Madison, WI 53717

RE: Project: MMSD PFAS
Pace Project No.: 10640247

Dear Mike Ursin:

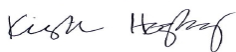
Enclosed are the analytical results for sample(s) received by the laboratory on January 19, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Minneapolis

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kirsten Hogberg
kirsten.hogberg@pacelabs.com
(612)607-1700
Project Manager

Enclosures

cc: Lydia Auner, TRC
Peggy Popp, TRC Solutions
Jeff Ramey, TRC



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: MMSD PFAS

Pace Project No.: 10640247

Pace Analytical Services, LLC - Minneapolis MN

1700 Elm Street SE, Minneapolis, MN 55414

1800 Elm Street SE, Minneapolis, MN 55414--Satellite Air Lab

A2LA Certification #: 2926.01*

Alabama Certification #: 40770

Alaska Contaminated Sites Certification #: 17-009*

Alaska DW Certification #: MN00064

Arizona Certification #: AZ0014*

Arkansas DW Certification #: MN00064

Arkansas WW Certification #: 88-0680

California Certification #: 2929

Colorado Certification #: MN00064

Connecticut Certification #: PH-0256

EPA Region 8 Tribal Water Systems+Wyoming DW Certification #: via MN 027-053-137

Florida Certification #: E87605*

Georgia Certification #: 959

GMP+ Certification #: GMP050884

Hawaii Certification #: MN00064

Idaho Certification #: MN00064

Illinois Certification #: 200011

Indiana Certification #: C-MN-01

Iowa Certification #: 368

Kansas Certification #: E-10167

Kentucky DW Certification #: 90062

Kentucky WW Certification #: 90062

Louisiana DEQ Certification #: AI-03086*

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064*

Maryland Certification #: 322

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137*

Minnesota Dept of Ag Approval: via MN 027-053-137

Minnesota Petrofund Registration #: 1240*

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081*

New Jersey Certification #: MN002

New York Certification #: 11647*

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification (A2LA) #: R-036

North Dakota Certification (MN) #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification (1700) #: CL101

Ohio VAP Certification (1800) #: CL110*

Oklahoma Certification #: 9507*

Oregon Primary Certification #: MN300001

Oregon Secondary Certification #: MN200001*

Pennsylvania Certification #: 68-00563

Puerto Rico Certification #: MN00064

South Carolina Certification #: 74003001

Tennessee Certification #: TN02818

Texas Certification #: T104704192*

Utah Certification #: MN00064*

Vermont Certification #: VT-027053137

Virginia Certification #: 460163*

Washington Certification #: C486*

West Virginia DEP Certification #: 382

West Virginia DW Certification #: 9952 C

Wisconsin Certification #: 999407970

Wyoming UST Certification #: via A2LA 2926.01

USDA Permit #: P330-19-00208

Please Note: Applicable air certifications are denoted with an asterisk ().

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: MMSD PFAS

Pace Project No.: 10640247

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10640247001	Influent 20230116	Water	01/16/23 23:59	01/19/23 08:50
10640247002	Effluent 20230117	Water	01/17/23 23:59	01/19/23 08:50

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: MMSD PFAS

Pace Project No.: 10640247

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10640247001	Influent 20230116	ENV-SOP-MIN4-0178	MM4	57
		SM 2540D	RM3	1
10640247002	Effluent 20230117	ENV-SOP-MIN4-0178	MM4	57
		SM 2540D	RM3	1

PASI-M = Pace Analytical Services - Minneapolis

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: MMSD PFAS

Pace Project No.: 10640247

Method: ENV-SOP-MIN4-0178

Description: WI ID NPW

Client: TRC-WI

Date: March 27, 2023

General Information:

2 samples were analyzed for ENV-SOP-MIN4-0178 by Pace Analytical Services Minneapolis. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

H2: Extraction or preparation was conducted outside of the recognized method holding time.

- Influent 20230116 (Lab ID: 10640247001)

Sample Preparation:

The samples were prepared in accordance with ENV-SOP-MIN4-0178 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

QC Batch: 865122

S0: Surrogate recovery outside laboratory control limits.

- BLANK (Lab ID: 4567416)
 - d3-NMeFOSA (S)
 - d5-NEtFOSA (S)
 - d7-NMeFOSE (S)
 - d9-NEtFOSE (S)
- Effluent 20230117 (Lab ID: 10640247002)
 - d3-NMeFOSA (S)
 - d5-NEtFOSA (S)
- LCS (Lab ID: 4567417)
 - d3-NMeFOSA (S)
 - d5-NEtFOSA (S)
- MS (Lab ID: 4568179)
 - d3-NMeFOSA (S)
 - d5-NEtFOSA (S)
- MSD (Lab ID: 4568180)
 - d3-NMeFOSA (S)
 - d5-NEtFOSA (S)

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: MMSD PFAS

Pace Project No.: 10640247

Method: ENV-SOP-MIN4-0178

Description: WI ID NPW

Client: TRC-WI

Date: March 27, 2023

QC Batch: 865122

S0: Surrogate recovery outside laboratory control limits.

- d7-NMeFOSE (S)
- d9-NEtFOSE (S)

QC Batch: 867306

S0: Surrogate recovery outside laboratory control limits.

- Influent 20230116 (Lab ID: 10640247001)
 - 13C2-PFDoA (S)
 - 13C26:2FTS (S)
 - d3-MeFOSAA (S)
 - d7-NMeFOSE (S)
 - d9-NEtFOSE (S)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 867306

B: Analyte was detected in the associated method blank.

- BLANK for HBN 867306 [PFAS/159 (Lab ID: 4576325)]
 - Perfluorobutanesulfonic acid

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 865122

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10641076019

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 4568179)
 - PFDoS
 - Perfluorohexanoic acid
- MSD (Lab ID: 4568180)
 - Perfluorohexanoic acid

R1: RPD value was outside control limits.

- MSD (Lab ID: 4568180)
 - NEtFOSA
 - NMeFOSA

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: MMSD PFAS

Pace Project No.: 10640247

Method: ENV-SOP-MIN4-0178

Description: WI ID NPW

Client: TRC-WI

Date: March 27, 2023

Analyte Comments:

QC Batch: 865122

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 4567416)
 - 11CI-PF3OUdS
 - 4:2 FTS
 - 6:2 FTS
 - 8:2 FTS
 - 9CI-PF3ONS
 - ADONA
 - HFPO-DA
 - NEtFOSA
 - NEtFOSAA
 - NEtFOSE
 - NMeFOSA
 - NMeFOSAA
 - NMeFOSE
 - PFBA
 - Perfluorobutanesulfonic acid
 - Perfluorodecanoic acid
 - PFDS
 - Perfluorododecanoic acid
 - PFDoS
 - Perfluoroheptanoic acid
 - PFHpS
 - Perfluorohexanoic acid
 - Perfluorohexanesulfonic acid
 - Perfluorononanoic acid
 - PFNS
 - Perfluorooctanoic acid
 - Perfluorooctanesulfonic acid
 - PFOSA
 - PFPeA
 - PFPeS
 - Perfluorotetradecanoic acid
 - Perfluorotridecanoic acid
 - Perfluoroundecanoic acid
- Effluent 20230117 (Lab ID: 10640247002)
 - 11CI-PF3OUdS
 - 4:2 FTS
 - 6:2 FTS
 - 8:2 FTS
 - 9CI-PF3ONS
 - ADONA
 - HFPO-DA

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: MMSD PFAS

Pace Project No.: 10640247

Method: ENV-SOP-MIN4-0178

Description: WI ID NPW

Client: TRC-WI

Date: March 27, 2023

Analyte Comments:

QC Batch: 865122

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- Effluent 20230117 (Lab ID: 10640247002)

- NEtFOSA
- NEtFOSAA
- NEtFOSE
- NMeFOSA
- NMeFOSAA
- NMeFOSE
- PFBA
- Perfluorobutanesulfonic acid
- Perfluorodecanoic acid
- PFDS
- Perfluorododecanoic acid
- PFDoS
- Perfluoroheptanoic acid
- PFHpS
- Perfluorohexanoic acid
- Perfluorohexanesulfonic acid
- Perfluorononanoic acid
- PFNS
- Perfluorooctanoic acid
- Perfluorooctanesulfonic acid
- PFOSA
- PFPeA
- PFPeS
- Perfluorotetradecanoic acid
- Perfluorotridecanoic acid
- Perfluoroundecanoic acid

- LCS (Lab ID: 4567417)

- 11Cl-PF3OUdS
- 4:2 FTS
- 6:2 FTS
- 8:2 FTS
- 9Cl-PF3ONS
- ADONA
- HFPO-DA
- NEtFOSA
- NEtFOSAA
- NEtFOSE
- NMeFOSA
- NMeFOSAA
- NMeFOSE
- PFBA

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: MMSD PFAS

Pace Project No.: 10640247

Method: ENV-SOP-MIN4-0178

Description: WI ID NPW

Client: TRC-WI

Date: March 27, 2023

Analyte Comments:

QC Batch: 865122

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- LCS (Lab ID: 4567417)
 - Perfluorobutanesulfonic acid
 - Perfluorodecanoic acid
 - PFDS
 - Perfluorododecanoic acid
 - PFDoS
 - Perfluoroheptanoic acid
 - PFHpS
 - Perfluorohexanoic acid
 - Perfluorohexanesulfonic acid
 - Perfluorononanoic acid
 - PFNS
 - Perfluorooctanoic acid
 - Perfluorooctanesulfonic acid
 - PFOSA
 - PFPeA
 - PFPeS
 - Perfluorotetradecanoic acid
 - Perfluorotridecanoic acid
 - Perfluoroundecanoic acid
- MS (Lab ID: 4568179)
 - 11Cl-PF3OUdS
 - 4:2 FTS
 - 6:2 FTS
 - 8:2 FTS
 - 9Cl-PF3ONS
 - ADONA
 - HFPO-DA
 - NEtFOSA
 - NEtFOSAA
 - NEtFOSE
 - NMeFOSA
 - NMeFOSAA
 - NMeFOSE
 - PFBA
 - Perfluorobutanesulfonic acid
 - Perfluorodecanoic acid
 - PFDS
 - Perfluorododecanoic acid
 - PFDoS
 - Perfluoroheptanoic acid
 - PFHpS

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: MMSD PFAS

Pace Project No.: 10640247

Method: ENV-SOP-MIN4-0178

Description: WI ID NPW

Client: TRC-WI

Date: March 27, 2023

Analyte Comments:

QC Batch: 865122

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- MS (Lab ID: 4568179)
 - Perfluorohexanoic acid
 - Perfluorohexanesulfonic acid
 - Perfluorononanoic acid
 - PFNS
 - Perfluorooctanoic acid
 - Perfluorooctanesulfonic acid
 - PFOSA
 - PFPeA
 - PFPeS
 - Perfluorotetradecanoic acid
 - Perfluorotridecanoic acid
 - Perfluoroundecanoic acid
- MSD (Lab ID: 4568180)
 - 11Cl-PF3OUdS
 - 4:2 FTS
 - 6:2 FTS
 - 8:2 FTS
 - 9Cl-PF3ONS
 - ADONA
 - HFPO-DA
 - NEtFOSA
 - NEtFOSAA
 - NEtFOSE
 - NMeFOSA
 - NMeFOSAA
 - NMeFOSE
 - PFBA
 - Perfluorobutanesulfonic acid
 - Perfluorodecanoic acid
 - PFDS
 - Perfluorododecanoic acid
 - PFDoS
 - Perfluoroheptanoic acid
 - PFHpS
 - Perfluorohexanoic acid
 - Perfluorohexanesulfonic acid
 - Perfluorononanoic acid
 - PFNS
 - Perfluorooctanoic acid
 - Perfluorooctanesulfonic acid
 - PFOSA

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: MMSD PFAS

Pace Project No.: 10640247

Method: ENV-SOP-MIN4-0178

Description: WI ID NPW

Client: TRC-WI

Date: March 27, 2023

Analyte Comments:

QC Batch: 865122

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- MSD (Lab ID: 4568180)
 - PFPeA
 - PFPeS
 - Perfluorotetradecanoic acid
 - Perfluorotridecanoic acid
 - Perfluoroundecanoic acid

QC Batch: 867306

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 4576325)
 - 11CI-PF3OUdS
 - 4:2 FTS
 - 6:2 FTS
 - 8:2 FTS
 - 9CI-PF3ONS
 - ADONA
 - HFPO-DA
 - NEtFOSA
 - NEtFOSAA
 - NEtFOSE
 - NMeFOSA
 - NMeFOSAA
 - NMeFOSE
 - PFBA
 - Perfluorobutanesulfonic acid
 - Perfluorodecanoic acid
 - PFDS
 - Perfluorododecanoic acid
 - PFDoS
 - Perfluoroheptanoic acid
 - PFHpS
 - Perfluorohexanoic acid
 - Perfluorohexanesulfonic acid
 - Perfluorononanoic acid
 - PFNS
 - Perfluorooctanoic acid
 - Perfluorooctanesulfonic acid
 - PFOSA
 - PFPeA
 - PFPeS
 - Perfluorotetradecanoic acid

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PROJECT NARRATIVE

Project: MMSD PFAS

Pace Project No.: 10640247

Method: ENV-SOP-MIN4-0178

Description: WI ID NPW

Client: TRC-WI

Date: March 27, 2023

Analyte Comments:

QC Batch: 867306

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 4576325)
 - Perfluorotridecanoic acid
 - Perfluoroundecanoic acid
- DUP (Lab ID: 4576425)
 - 11CI-PF3OUdS
 - 4:2 FTS
 - 6:2 FTS
 - 8:2 FTS
 - 9CI-PF3ONS
 - ADONA
 - HFPO-DA
 - NEtFOSA
 - NEtFOSAA
 - NEtFOSE
 - NMeFOSA
 - NMeFOSAA
 - NMeFOSE
 - PFBA
 - Perfluorobutanesulfonic acid
 - Perfluorodecanoic acid
 - PFDS
 - Perfluorododecanoic acid
 - PFDoS
 - Perfluoroheptanoic acid
 - PFHpS
 - Perfluorohexanoic acid
 - Perfluorohexanesulfonic acid
 - Perfluorononanoic acid
 - PFNS
 - Perfluorooctanoic acid
 - Perfluorooctanesulfonic acid
 - PFOSA
 - PFPeA
 - PFPeS
 - Perfluorotetradecanoic acid
 - Perfluorotridecanoic acid
 - Perfluoroundecanoic acid
- LCS (Lab ID: 4576326)
 - 11CI-PF3OUdS
 - 4:2 FTS
 - 6:2 FTS
 - 8:2 FTS

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PROJECT NARRATIVE

Project: MMSD PFAS

Pace Project No.: 10640247

Method: ENV-SOP-MIN4-0178

Description: WI ID NPW

Client: TRC-WI

Date: March 27, 2023

Analyte Comments:

QC Batch: 867306

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- LCS (Lab ID: 4576326)
 - 9CI-PF3ONS
 - ADONA
 - HFPO-DA
 - NEtFOSA
 - NEtFOSAA
 - NEtFOSE
 - NMeFOSA
 - NMeFOSAA
 - NMeFOSE
 - PFBA
 - Perfluorobutanesulfonic acid
 - Perfluorodecanoic acid
 - PFDS
 - Perfluorododecanoic acid
 - PFDoS
 - Perfluoroheptanoic acid
 - PFHpS
 - Perfluorohexanoic acid
 - Perfluorohexanesulfonic acid
 - Perfluorononanoic acid
 - PFNS
 - Perfluorooctanoic acid
 - Perfluorooctanesulfonic acid
 - PFOSA
 - PFPeA
 - PFPeS
 - Perfluorotetradecanoic acid
 - Perfluorotridecanoic acid
 - Perfluoroundecanoic acid
- LCSD (Lab ID: 4576327)
 - 11CI-PF3OUdS
 - 4:2 FTS
 - 6:2 FTS
 - 8:2 FTS
 - 9CI-PF3ONS
 - ADONA
 - HFPO-DA
 - NEtFOSA
 - NEtFOSAA
 - NEtFOSE
 - NMeFOSA

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PROJECT NARRATIVE

Project: MMSD PFAS

Pace Project No.: 10640247

Method: ENV-SOP-MIN4-0178

Description: WI ID NPW

Client: TRC-WI

Date: March 27, 2023

Analyte Comments:

QC Batch: 867306

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- LCSD (Lab ID: 4576327)
 - NMeFOSAA
 - NMeFOSE
 - PFBA
 - Perfluorobutanesulfonic acid
 - Perfluorodecanoic acid
 - PFDS
 - Perfluorododecanoic acid
 - PFDoS
 - Perfluoroheptanoic acid
 - PFHpS
 - Perfluorohexanoic acid
 - Perfluorohexanesulfonic acid
 - Perfluorononanoic acid
 - PFNS
 - Perfluorooctanoic acid
 - Perfluorooctanesulfonic acid
 - PFOSA
 - PFPeA
 - PFPeS
 - Perfluorotetradecanoic acid
 - Perfluorotridecanoic acid
 - Perfluoroundecanoic acid
- MS (Lab ID: 4576426)
 - 11Cl-PF3OUdS
 - 4:2 FTS
 - 6:2 FTS
 - 8:2 FTS
 - 9Cl-PF3ONS
 - ADONA
 - HFPO-DA
 - NEtFOSA
 - NEtFOSAA
 - NEtFOSE
 - NMeFOSA
 - NMeFOSAA
 - NMeFOSE
 - PFBA
 - Perfluorobutanesulfonic acid
 - Perfluorodecanoic acid
 - PFDS
 - Perfluorododecanoic acid

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PROJECT NARRATIVE

Project: MMSD PFAS

Pace Project No.: 10640247

Method: ENV-SOP-MIN4-0178

Description: WI ID NPW

Client: TRC-WI

Date: March 27, 2023

Analyte Comments:

QC Batch: 867306

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- MS (Lab ID: 4576426)
 - PFDoS
 - Perfluoroheptanoic acid
 - PFHpS
 - Perfluorohexanoic acid
 - Perfluorohexanesulfonic acid
 - Perfluorononanoic acid
 - PFNS
 - Perfluorooctanoic acid
 - Perfluorooctanesulfonic acid
 - PFOSA
 - PFPeA
 - PFPeS
 - Perfluorotetradecanoic acid
 - Perfluorotridecanoic acid
 - Perfluoroundecanoic acid

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PROJECT NARRATIVE

Project: MMSD PFAS

Pace Project No.: 10640247

Method: SM 2540D

Description: 2540D Total Suspended Solids

Client: TRC-WI

Date: March 27, 2023

General Information:

2 samples were analyzed for SM 2540D by Pace Analytical Services Minneapolis. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: 864175

D6: The precision between the sample and sample duplicate exceeded laboratory control limits.

- DUP (Lab ID: 4563074)
- Total Suspended Solids

QC Batch: 864285

D6: The precision between the sample and sample duplicate exceeded laboratory control limits.

- DUP (Lab ID: 4563492)
- Total Suspended Solids

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: MMSD PFAS

Pace Project No.: 10640247

Sample: Influent 20230116 Lab ID: 10640247001 Collected: 01/16/23 23:59 Received: 01/19/23 08:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
11CI-PF3OUdS	<0.57	ng/L	1.9	0.57	1	02/15/23 08:18	02/21/23 00:19	763051-92-9	H2
4:2 FTS	<0.48	ng/L	1.9	0.48	1	02/15/23 08:18	02/21/23 00:19	757124-72-4	H2
6:2 FTS	1.6J	ng/L	1.9	0.69	1	02/15/23 08:18	02/21/23 00:19	27619-97-2	H2
8:2 FTS	<0.51	ng/L	2.0	0.51	1	02/15/23 08:18	02/21/23 00:19	39108-34-4	H2
9CI-PF3ONS	<0.48	ng/L	1.9	0.48	1	02/15/23 08:18	02/21/23 00:19	756426-58-1	H2
ADONA	<0.94	ng/L	1.9	0.94	1	02/15/23 08:18	02/21/23 00:19	919005-14-4	H2
HFPO-DA	<0.50	ng/L	2.0	0.50	1	02/15/23 08:18	02/21/23 00:19	13252-13-6	H2
NEtFOSAA	0.86J	ng/L	2.0	0.83	1	02/15/23 08:18	02/21/23 00:19	2991-50-6	H2
NEtFOSA	<0.59	ng/L	2.0	0.59	1	02/15/23 08:18	02/21/23 00:19	4151-50-2	H2
NEtFOSE	<0.91	ng/L	2.0	0.91	1	02/15/23 08:18	02/21/23 00:19	1691-99-2	H2
NMeFOSAA	0.74J	ng/L	2.0	0.71	1	02/15/23 08:18	02/21/23 00:19	2355-31-9	H2
NMeFOSA	<0.56	ng/L	2.0	0.56	1	02/15/23 08:18	02/21/23 00:19	31506-32-8	H2
NMeFOSE	11.0	ng/L	2.0	0.53	1	02/15/23 08:18	02/21/23 00:19	24448-09-7	H2
Perfluorobutanesulfonic acid	5.9	ng/L	1.8	0.49	1	02/15/23 08:18	02/21/23 00:19	375-73-5	B,H2
Perfluorodecanoic acid	<0.62	ng/L	2.0	0.62	1	02/15/23 08:18	02/21/23 00:19	335-76-2	H2
Perfluorohexanoic acid	6.7	ng/L	2.0	0.93	1	02/15/23 08:18	02/21/23 00:19	307-24-4	H2
PFBA	7.9	ng/L	2.0	0.51	1	02/15/23 08:18	02/21/23 00:19	375-22-4	H2
PFDS	<0.65	ng/L	2.0	0.65	1	02/15/23 08:18	02/21/23 00:19	335-77-3	H2
PFDoS	<0.60	ng/L	2.0	0.60	1	02/15/23 08:18	02/21/23 00:19	79780-39-5	H2
PFHpS	<0.68	ng/L	1.9	0.68	1	02/15/23 08:18	02/21/23 00:19	375-92-8	H2
PFNS	<0.60	ng/L	2.0	0.60	1	02/15/23 08:18	02/21/23 00:19	68259-12-1	H2
PFOSA	<0.73	ng/L	2.0	0.73	1	02/15/23 08:18	02/21/23 00:19	754-91-6	H2
PFPeA	4.9	ng/L	2.0	0.84	1	02/15/23 08:18	02/21/23 00:19	2706-90-3	H2
PFPeS	0.66J	ng/L	1.9	0.61	1	02/15/23 08:18	02/21/23 00:19	2706-91-4	H2
Perfluorododecanoic acid	<0.49	ng/L	2.0	0.49	1	02/15/23 08:18	02/21/23 00:19	307-55-1	H2
Perfluoroheptanoic acid	1.7J	ng/L	2.0	0.70	1	02/15/23 08:18	02/21/23 00:19	375-85-9	H2
Perfluorohexanesulfonic acid	8.2	ng/L	1.9	0.54	1	02/15/23 08:18	02/21/23 00:19	355-46-4	H2
Perfluorononanoic acid	<0.81	ng/L	2.0	0.81	1	02/15/23 08:18	02/21/23 00:19	375-95-1	H2
Perfluorooctanesulfonic acid	6.5	ng/L	1.9	0.68	1	02/15/23 08:18	02/21/23 00:19	1763-23-1	H2
Perfluorooctanoic acid	4.2	ng/L	2.0	0.88	1	02/15/23 08:18	02/21/23 00:19	335-67-1	H2
Perfluorotetradecanoic acid	<0.61	ng/L	2.0	0.61	1	02/15/23 08:18	02/21/23 00:19	376-06-7	H2
Perfluorotridecanoic acid	<0.63	ng/L	2.0	0.63	1	02/15/23 08:18	02/21/23 00:19	72629-94-8	H2
Perfluoroundecanoic acid	<0.50	ng/L	2.0	0.50	1	02/15/23 08:18	02/21/23 00:19	2058-94-8	H2
Surrogates									
13C4-PFBA (S)	71	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
13C5-PFPeA (S)	79	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
13C3-PFBS (S)	84	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
13C24:2FTS (S)	128	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
13C3HFPO-DA (S)	67	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
13C4-PFHpA (S)	83	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
13C3-PFHxS (S)	88	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
13C26:2FTS (S)	168	%	25-150		1	02/15/23 08:18	02/21/23 00:19		S0
13C8-PFOA (S)	77	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
13C8-PFOS (S)	39	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
13C9-PFNA (S)	69	%	25-150		1	02/15/23 08:18	02/21/23 00:19		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: MMSD PFAS
Pace Project No.: 10640247

Sample: Influent 20230116 Lab ID: 10640247001 Collected: 01/16/23 23:59 Received: 01/19/23 08:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis									
Surrogates									
13C6-PFDA (S)	45	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
13C28:2FTS (S)	88	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
d3-MeFOSAA (S)	22	%	25-150		1	02/15/23 08:18	02/21/23 00:19		S0
13C7-PFUdA (S)	33	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
13C8-PFOA (S)	41	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
d5-EtFOSAA (S)	29	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
13C2-PFDoA (S)	23	%	25-150		1	02/15/23 08:18	02/21/23 00:19		S0
d3-NMeFOSA (S)	32	%	10-150		1	02/15/23 08:18	02/21/23 00:19		
d7-NMeFOSE (S)	7	%	10-150		1	02/15/23 08:18	02/21/23 00:19		S0
13C2-PFTA (S)	38	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
d9-NEtFOSE (S)	176	%	10-150		1	02/15/23 08:18	02/21/23 00:19		S0
d5-NEtFOSA (S)	23	%	10-150		1	02/15/23 08:18	02/21/23 00:19		
13C5-PFHxA (S)	76	%	25-150		1	02/15/23 08:18	02/21/23 00:19		

2540D Total Suspended Solids									
Analytical Method: SM 2540D Pace Analytical Services - Minneapolis									
Total Suspended Solids	202	mg/L	14.3	7.1	1		01/23/23 16:23		

Sample: Effluent 20230117 Lab ID: 10640247002 Collected: 01/17/23 23:59 Received: 01/19/23 08:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis									
11CI-PF3OUdS	<0.58	ng/L	2.0	0.58	1	02/01/23 14:18	02/06/23 11:26	763051-92-9	N2
4:2 FTS	<0.48	ng/L	1.9	0.48	1	02/01/23 14:18	02/06/23 11:26	757124-72-4	N2
6:2 FTS	1.2J	ng/L	2.0	0.70	1	02/01/23 14:18	02/06/23 11:26	27619-97-2	N2
8:2 FTS	<0.52	ng/L	2.0	0.52	1	02/01/23 14:18	02/06/23 11:26	39108-34-4	N2
9CI-PF3ONS	<0.49	ng/L	1.9	0.49	1	02/01/23 14:18	02/06/23 11:26	756426-58-1	N2
ADONA	<0.95	ng/L	2.0	0.95	1	02/01/23 14:18	02/06/23 11:26	919005-14-4	N2
HFPO-DA	<0.51	ng/L	2.1	0.51	1	02/01/23 14:18	02/06/23 11:26	13252-13-6	N2
NEtFOSAA	<0.85	ng/L	2.1	0.85	1	02/01/23 14:18	02/06/23 11:26	2991-50-6	N2
NEtFOSA	<0.60	ng/L	2.1	0.60	1	02/01/23 14:18	02/06/23 11:26	4151-50-2	N2
NEtFOSE	<0.92	ng/L	2.1	0.92	1	02/01/23 14:18	02/06/23 11:26	1691-99-2	N2
NMeFOSAA	0.91J	ng/L	2.1	0.72	1	02/01/23 14:18	02/06/23 11:26	2355-31-9	N2
NMeFOSA	<0.57	ng/L	2.1	0.57	1	02/01/23 14:18	02/06/23 11:26	31506-32-8	N2
NMeFOSE	<0.54	ng/L	2.1	0.54	1	02/01/23 14:18	02/06/23 11:26	24448-09-7	N2
Perfluorobutanesulfonic acid	3.0	ng/L	1.8	0.50	1	02/01/23 14:18	02/06/23 11:26	375-73-5	N2
Perfluorodecanoic acid	0.86J	ng/L	2.1	0.63	1	02/01/23 14:18	02/06/23 11:26	335-76-2	N2
Perfluorohexanoic acid	15.0	ng/L	2.1	0.94	1	02/01/23 14:18	02/06/23 11:26	307-24-4	N2
PFBA	8.4	ng/L	2.1	0.52	1	02/01/23 14:18	02/06/23 11:26	375-22-4	N2
PFDS	<0.67	ng/L	2.0	0.67	1	02/01/23 14:18	02/06/23 11:26	335-77-3	N2

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: MMSD PFAS

Pace Project No.: 10640247

Sample: Effluent 20230117 Lab ID: 10640247002 Collected: 01/17/23 23:59 Received: 01/19/23 08:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
PFDoS	<0.61	ng/L	2.0	0.61	1	02/01/23 14:18	02/06/23 11:26	79780-39-5	N2
PFHpS	<0.69	ng/L	2.0	0.69	1	02/01/23 14:18	02/06/23 11:26	375-92-8	N2
PFNS	<0.61	ng/L	2.0	0.61	1	02/01/23 14:18	02/06/23 11:26	68259-12-1	N2
PFOSA	<0.74	ng/L	2.1	0.74	1	02/01/23 14:18	02/06/23 11:26	754-91-6	N2
PFPeA	17.1	ng/L	2.1	0.85	1	02/01/23 14:18	02/06/23 11:26	2706-90-3	N2
PFPeS	0.63J	ng/L	2.0	0.62	1	02/01/23 14:18	02/06/23 11:26	2706-91-4	N2
Perfluorododecanoic acid	<0.50	ng/L	2.1	0.50	1	02/01/23 14:18	02/06/23 11:26	307-55-1	N2
Perfluoroheptanoic acid	2.1	ng/L	2.1	0.72	1	02/01/23 14:18	02/06/23 11:26	375-85-9	N2
Perfluorohexanesulfonic acid	7.2	ng/L	1.9	0.55	1	02/01/23 14:18	02/06/23 11:26	355-46-4	N2
Perfluorononanoic acid	<0.82	ng/L	2.1	0.82	1	02/01/23 14:18	02/06/23 11:26	375-95-1	N2
Perfluorooctanesulfonic acid	4.1	ng/L	1.9	0.69	1	02/01/23 14:18	02/06/23 11:26	1763-23-1	N2
Perfluorooctanoic acid	16.8	ng/L	2.1	0.89	1	02/01/23 14:18	02/06/23 11:26	335-67-1	N2
Perfluorotetradecanoic acid	<0.62	ng/L	2.1	0.62	1	02/01/23 14:18	02/06/23 11:26	376-06-7	N2
Perfluorotridecanoic acid	<0.65	ng/L	2.1	0.65	1	02/01/23 14:18	02/06/23 11:26	72629-94-8	N2
Perfluoroundecanoic acid	<0.50	ng/L	2.1	0.50	1	02/01/23 14:18	02/06/23 11:26	2058-94-8	N2
Surrogates									
13C4-PFBA (S)	69	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C5-PFPeA (S)	83	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C3-PFBS (S)	81	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C24:2FTS (S)	125	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C3HFPO-DA (S)	83	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C4-PFHpA (S)	82	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C3-PFHxS (S)	82	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C26:2FTS (S)	130	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C8-PFOA (S)	84	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C8-PFOS (S)	79	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C9-PFNA (S)	77	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C6-PFDA (S)	89	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C28:2FTS (S)	121	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
d3-MeFOSAA (S)	78	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C7-PFUDa (S)	84	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C8-PFOSA (S)	54	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
d5-EtFOSAA (S)	67	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C2-PFDoA (S)	73	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
d3-NMeFOSA (S)	6	%	10-150		1	02/01/23 14:18	02/06/23 11:26		S0
d7-NMeFOSE (S)	32	%	10-150		1	02/01/23 14:18	02/06/23 11:26		
13C2-PFTA (S)	53	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
d9-NEtFOSE (S)	27	%	10-150		1	02/01/23 14:18	02/06/23 11:26		
d5-NEtFOSA (S)	6	%	10-150		1	02/01/23 14:18	02/06/23 11:26		S0
13C5-PFHxA (S)	83	%	25-150		1	02/01/23 14:18	02/06/23 11:26		

2540D Total Suspended Solids

Analytical Method: SM 2540D
Pace Analytical Services - Minneapolis

Total Suspended Solids	<5.0	mg/L	10.0	5.0	1		01/24/23 12:14		
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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MMSD PFAS
Pace Project No.: 10640247

QC Batch: 865122 Analysis Method: ENV-SOP-MIN4-0178
QC Batch Method: ENV-SOP-MIN4-0178 Analysis Description: WI ID NPW
Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10640247002

METHOD BLANK: 4567416 Matrix: Water

Associated Lab Samples: 10640247002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
11CI-PF3OUdS	ng/L	<0.56	1.9	02/06/23 09:26	N2
4:2 FTS	ng/L	<0.47	1.9	02/06/23 09:26	N2
6:2 FTS	ng/L	<0.68	1.9	02/06/23 09:26	N2
8:2 FTS	ng/L	<0.51	2.0	02/06/23 09:26	N2
9CI-PF3ONS	ng/L	<0.48	1.9	02/06/23 09:26	N2
ADONA	ng/L	<0.93	1.9	02/06/23 09:26	N2
HFPO-DA	ng/L	<0.50	2.0	02/06/23 09:26	N2
NEtFOSA	ng/L	<0.58	2.0	02/06/23 09:26	N2
NEtFOSAA	ng/L	<0.83	2.0	02/06/23 09:26	N2
NEtFOSE	ng/L	<0.90	2.0	02/06/23 09:26	N2
NMeFOSA	ng/L	<0.56	2.0	02/06/23 09:26	N2
NMeFOSAA	ng/L	<0.70	2.0	02/06/23 09:26	N2
NMeFOSE	ng/L	<0.53	2.0	02/06/23 09:26	N2
Perfluorobutanesulfonic acid	ng/L	<0.49	1.8	02/06/23 09:26	N2
Perfluorodecanoic acid	ng/L	<0.62	2.0	02/06/23 09:26	N2
Perfluorododecanoic acid	ng/L	<0.49	2.0	02/06/23 09:26	N2
Perfluoroheptanoic acid	ng/L	<0.70	2.0	02/06/23 09:26	N2
Perfluorohexanesulfonic acid	ng/L	<0.54	1.8	02/06/23 09:26	N2
Perfluorohexanoic acid	ng/L	<0.92	2.0	02/06/23 09:26	N2
Perfluorononanoic acid	ng/L	<0.81	2.0	02/06/23 09:26	N2
Perfluorooctanesulfonic acid	ng/L	<0.68	1.9	02/06/23 09:26	N2
Perfluorooctanoic acid	ng/L	1.5J	2.0	02/06/23 09:26	N2
Perfluorotetradecanoic acid	ng/L	<0.61	2.0	02/06/23 09:26	N2
Perfluorotridecanoic acid	ng/L	<0.63	2.0	02/06/23 09:26	N2
Perfluoroundecanoic acid	ng/L	<0.49	2.0	02/06/23 09:26	N2
PFBA	ng/L	<0.51	2.0	02/06/23 09:26	N2
PFDoS	ng/L	<0.60	2.0	02/06/23 09:26	N2
PFDS	ng/L	<0.65	2.0	02/06/23 09:26	N2
PFHpS	ng/L	<0.68	1.9	02/06/23 09:26	N2
PFNS	ng/L	<0.59	1.9	02/06/23 09:26	N2
PFOSA	ng/L	<0.73	2.0	02/06/23 09:26	N2
PFPeA	ng/L	<0.83	2.0	02/06/23 09:26	N2
PFPeS	ng/L	<0.61	1.9	02/06/23 09:26	N2
13C2-PFDoA (S)	%	85	25-150	02/06/23 09:26	
13C2-PFTA (S)	%	78	25-150	02/06/23 09:26	
13C24:2FTS (S)	%	99	25-150	02/06/23 09:26	
13C26:2FTS (S)	%	89	25-150	02/06/23 09:26	
13C28:2FTS (S)	%	88	25-150	02/06/23 09:26	
13C3-PFBS (S)	%	79	25-150	02/06/23 09:26	
13C3-PFHxS (S)	%	80	25-150	02/06/23 09:26	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MMSD PFAS
Pace Project No.: 10640247

METHOD BLANK: 4567416 Matrix: Water
Associated Lab Samples: 10640247002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
13C3HFPO-DA (S)	%	85	25-150	02/06/23 09:26	
13C4-PFBA (S)	%	80	25-150	02/06/23 09:26	
13C4-PFHpA (S)	%	78	25-150	02/06/23 09:26	
13C5-PFHxA (S)	%	83	25-150	02/06/23 09:26	
13C5-PFPeA (S)	%	81	25-150	02/06/23 09:26	
13C6-PFDA (S)	%	81	25-150	02/06/23 09:26	
13C7-PFUdA (S)	%	82	25-150	02/06/23 09:26	
13C8-PFOA (S)	%	84	25-150	02/06/23 09:26	
13C8-PFOS (S)	%	82	25-150	02/06/23 09:26	
13C8-PFOSA (S)	%	55	25-150	02/06/23 09:26	
13C9-PFNA (S)	%	82	25-150	02/06/23 09:26	
d3-MeFOSAA (S)	%	63	25-150	02/06/23 09:26	
d3-NMeFOSA (S)	%	2	20-150	02/06/23 09:26	S0
d5-EtFOSAA (S)	%	64	25-150	02/06/23 09:26	
d5-NEtFOSA (S)	%	2	20-150	02/06/23 09:26	S0
d7-NMeFOSE (S)	%	13	20-150	02/06/23 09:26	S0
d9-NEtFOSE (S)	%	14	20-150	02/06/23 09:26	S0

LABORATORY CONTROL SAMPLE: 4567417

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
11Cl-PF3OUdS	ng/L	3.7	3.6	98	50-150	N2
4:2 FTS	ng/L	3.7	3.5	95	50-150	N2
6:2 FTS	ng/L	3.8	4.0	107	50-150	N2
8:2 FTS	ng/L	3.8	3.8	99	50-150	N2
9Cl-PF3ONS	ng/L	3.7	3.6	98	50-150	N2
ADONA	ng/L	3.7	4.1	109	50-150	N2
HFPO-DA	ng/L	4	4.3	110	50-150	N2
NEtFOSA	ng/L	4	4.9	124	50-150	N2
NEtFOSAA	ng/L	4	4.3	108	50-150	N2
NEtFOSE	ng/L	4	3.7	92	50-150	N2
NMeFOSA	ng/L	4	3.5	90	50-150	N2
NMeFOSAA	ng/L	4	3.9	98	50-150	N2
NMeFOSE	ng/L	4	4.1	104	50-150	N2
Perfluorobutanesulfonic acid	ng/L	3.5	3.8	110	50-150	N2
Perfluorodecanoic acid	ng/L	4	3.5	88	50-150	N2
Perfluorododecanoic acid	ng/L	4	4.3	109	50-150	N2
Perfluoroheptanoic acid	ng/L	4	4.7	119	50-150	N2
Perfluorohexanesulfonic acid	ng/L	3.6	4.0	110	50-150	N2
Perfluorohexanoic acid	ng/L	4	4.3	110	50-150	N2
Perfluorononanoic acid	ng/L	4	4.4	111	50-150	N2
Perfluorooctanesulfonic acid	ng/L	3.7	3.6	97	50-150	N2
Perfluorooctanoic acid	ng/L	4	5.6	142	50-150	N2
Perfluorotetradecanoic acid	ng/L	4	4.0	101	50-150	N2

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QUALITY CONTROL DATA

Project: MMSD PFAS

Pace Project No.: 10640247

LABORATORY CONTROL SAMPLE: 4567417

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Perfluorotridecanoic acid	ng/L	4	3.7	94	50-150	N2
Perfluoroundecanoic acid	ng/L	4	3.7	95	50-150	N2
PFBA	ng/L	4	4.3	109	50-150	N2
PFDoS	ng/L	3.8	3.2	82	50-150	N2
PFDS	ng/L	3.8	3.7	98	50-150	N2
PFHpS	ng/L	3.8	3.9	104	50-150	N2
PFNS	ng/L	3.8	4.0	104	50-150	N2
PFOSA	ng/L	4	4.0	102	50-150	N2
PFPeA	ng/L	4	4.4	111	50-150	N2
PFPeS	ng/L	3.7	4.3	116	50-150	N2
13C2-PFDoA (S)	%			86	25-150	
13C2-PFTA (S)	%			78	25-150	
13C24:2FTS (S)	%			100	25-150	
13C26:2FTS (S)	%			92	25-150	
13C28:2FTS (S)	%			81	25-150	
13C3-PFBS (S)	%			84	25-150	
13C3-PFHxS (S)	%			77	25-150	
13C3HFPO-DA (S)	%			82	25-150	
13C4-PFBA (S)	%			80	25-150	
13C4-PFHpA (S)	%			77	25-150	
13C5-PFHxA (S)	%			81	25-150	
13C5-PFPeA (S)	%			82	25-150	
13C6-PFDA (S)	%			89	25-150	
13C7-PFUdA (S)	%			88	25-150	
13C8-PFOA (S)	%			80	25-150	
13C8-PFOS (S)	%			86	25-150	
13C8-PFOSA (S)	%			62	25-150	
13C9-PFNA (S)	%			81	25-150	
d3-MeFOSAA (S)	%			67	25-150	
d3-NMeFOSA (S)	%			5	20-150	S0
d5-EtFOSAA (S)	%			62	25-150	
d5-NEtFOSA (S)	%			3	20-150	S0
d7-NMeFOSE (S)	%			25	20-150	
d9-NEtFOSE (S)	%			23	20-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4568179 4568180

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10641076019 Result	Spike Conc.	MSD Spike Conc.	MSD Result								
11CI-PF3OUdS	ng/L	ND	97.2	96.4	74.7	79.9	77	83	50-150	7	30	N2	
4:2 FTS	ng/L	ND	96.3	95.6	128	127	106	106	50-150	1	30	N2	
6:2 FTS	ng/L	310	97.8	97	406	408	98	101	50-150	0	30	N2	
8:2 FTS	ng/L	ND	98.8	98	112	104	113	105	50-150	8	30	N2	
9CI-PF3ONS	ng/L	ND	96.3	95.6	107	103	111	108	50-150	4	30	N2	
ADONA	ng/L	ND	97.2	96.4	123	105	125	107	50-150	16	30	N2	

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QUALITY CONTROL DATA

Project: MMSD PFAS

Pace Project No.: 10640247

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4568179 4568180													
Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		10641076019 Result	Spike Conc.	Spike Conc.	MS Conc.								
HFPO-DA	ng/L	ND	103	102	118	115	110	109	50-150	2	30	N2	
NEtFOSA	ng/L	ND	103	102	72.9	106	71	104	50-150	37	30	N2,R1	
NEtFOSAA	ng/L	ND	103	102	114	115	111	112	50-150	0	30	N2	
NEtFOSE	ng/L	ND	103	102	104	110	101	108	50-150	6	30	N2	
NMeFOSA	ng/L	ND	103	102	121	82.5	117	81	50-150	38	30	N2,R1	
NMeFOSAA	ng/L	ND	103	102	115	93.5	111	92	50-150	20	30	N2	
NMeFOSE	ng/L	ND	103	102	99.9	106	97	104	50-150	6	30	N2	
Perfluorobutanesulfonic acid	ng/L	395	91	90.3	509	479	125	93	50-150	6	30	N2	
Perfluorodecanoic acid	ng/L	ND	103	102	115	133	107	125	50-150	14	30	N2	
Perfluorododecanoic acid	ng/L	ND	103	102	109	111	106	109	50-150	2	30	N2	
Perfluoroheptanoic acid	ng/L	365	103	102	467	518	99	149	50-150	10	30	N2	
Perfluorohexanesulfonic acid	ng/L	161	94.3	93.6	280	269	125	115	50-150	4	30	N2	
Perfluorohexanoic acid	ng/L	1330	103	102	1510	1510	172	170	50-150	0	30	M1,N2	
Perfluorononanoic acid	ng/L	ND	103	102	141	114	123	98	50-150	21	30	N2	
Perfluorooctanesulfonic acid	ng/L	ND	95.7	95	136	132	110	106	50-150	3	30	N2	
Perfluorooctanoic acid	ng/L	155	103	102	306	255	146	98	50-150	18	30	N2	
Perfluorotetradecanoic acid	ng/L	ND	103	102	96.6	111	94	109	50-150	14	30	N2	
Perfluorotridecanoic acid	ng/L	ND	103	102	67.8	75.7	65	74	50-150	11	30	N2	
Perfluoroundecanoic acid	ng/L	ND	103	102	120	115	117	113	50-150	5	30	N2	
PFBA	ng/L	1650	103	102	1700	1730	51	79	50-150	2	30	N2	
PFDoS	ng/L	ND	99.8	99.1	41.2J	58.2	41	59	50-150		30	M1,N2	
PFDS	ng/L	ND	99.2	98.5	93.5	98.9	94	100	50-150	6	30	N2	
PFHpS	ng/L	ND	98.4	97.6	107	100	107	101	50-150	6	30	N2	
PFNS	ng/L	ND	98.8	98	109	112	110	115	50-150	3	30	N2	
PFOSA	ng/L	ND	103	102	109	110	105	107	50-150	1	30	N2	
PFPeA	ng/L	1810	103	102	1930	1950	122	142	50-150	1	30	N2	
PFPeS	ng/L	64.3	96.7	96	181	175	121	115	50-150	4	30	N2	
13C2-PFDoA (S)	%						76	71	25-150				
13C2-PFTA (S)	%						35	35	25-150				
13C24:2FTS (S)	%						125	97	25-150				
13C26:2FTS (S)	%						92	75	25-150				
13C28:2FTS (S)	%						82	69	25-150				
13C3-PFBS (S)	%						91	77	25-150				
13C3-PFHxS (S)	%						92	78	25-150				
13C3HFPO-DA (S)	%						92	76	25-150				
13C4-PFBA (S)	%						89	81	25-150				
13C4-PFHpA (S)	%						99	79	25-150				
13C5-PFHxA (S)	%						89	79	25-150				
13C5-PFPeA (S)	%						79	72	25-150				
13C6-PFDA (S)	%						92	75	25-150				
13C7-PFUdA (S)	%						87	75	25-150				
13C8-PFOA (S)	%						92	81	25-150				
13C8-PFOS (S)	%						95	78	25-150				

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MMSD PFAS

Pace Project No.: 10640247

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4568179												4568180	
Parameter	Units	10641076019		MS	MSD	MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
13C8-PFOSA (S)	%						64	43		25-150			
13C9-PFNA (S)	%						90	82		25-150			
d3-MeFOSAA (S)	%						85	70		25-150			
d3-NMeFOSA (S)	%						2	1		10-150			S0
d5-EtFOSAA (S)	%						76	59		25-150			
d5-NEtFOSA (S)	%						2	1		10-150			S0
d7-NMeFOSE (S)	%						14	5		10-150			S0
d9-NEtFOSE (S)	%						12	6		10-150			S0

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MMSD PFAS
Pace Project No.: 10640247

QC Batch: 867306 Analysis Method: ENV-SOP-MIN4-0178
QC Batch Method: ENV-SOP-MIN4-0178 Analysis Description: WI ID NPW
Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10640247001

METHOD BLANK: 4576325 Matrix: Water
Associated Lab Samples: 10640247001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
11CI-PF3OUdS	ng/L	<0.52	1.8	02/20/23 21:19	N2
4:2 FTS	ng/L	<0.44	1.8	02/20/23 21:19	N2
6:2 FTS	ng/L	<0.63	1.8	02/20/23 21:19	N2
8:2 FTS	ng/L	<0.47	1.8	02/20/23 21:19	N2
9CI-PF3ONS	ng/L	<0.44	1.7	02/20/23 21:19	N2
ADONA	ng/L	<0.86	1.8	02/20/23 21:19	N2
HFPO-DA	ng/L	<0.46	1.9	02/20/23 21:19	N2
NEtFOSA	ng/L	<0.54	1.9	02/20/23 21:19	N2
NEtFOSAA	ng/L	<0.77	1.9	02/20/23 21:19	N2
NEtFOSE	ng/L	<0.83	1.9	02/20/23 21:19	N2
NMeFOSA	ng/L	<0.52	1.9	02/20/23 21:19	N2
NMeFOSAA	ng/L	<0.65	1.9	02/20/23 21:19	N2
NMeFOSE	ng/L	<0.49	1.9	02/20/23 21:19	N2
Perfluorobutanesulfonic acid	ng/L	0.78J	1.7	02/20/23 21:19	N2
Perfluorodecanoic acid	ng/L	<0.57	1.9	02/20/23 21:19	N2
Perfluorododecanoic acid	ng/L	<0.45	1.9	02/20/23 21:19	N2
Perfluoroheptanoic acid	ng/L	<0.65	1.9	02/20/23 21:19	N2
Perfluorohexanesulfonic acid	ng/L	<0.50	1.7	02/20/23 21:19	N2
Perfluorohexanoic acid	ng/L	<0.85	1.9	02/20/23 21:19	N2
Perfluorononanoic acid	ng/L	<0.75	1.9	02/20/23 21:19	N2
Perfluorooctanesulfonic acid	ng/L	<0.63	1.7	02/20/23 21:19	N2
Perfluorooctanoic acid	ng/L	<0.81	1.9	02/20/23 21:19	N2
Perfluorotetradecanoic acid	ng/L	<0.56	1.9	02/20/23 21:19	N2
Perfluorotridecanoic acid	ng/L	<0.58	1.9	02/20/23 21:19	N2
Perfluoroundecanoic acid	ng/L	<0.46	1.9	02/20/23 21:19	N2
PFBA	ng/L	<0.47	1.9	02/20/23 21:19	N2
PFDoS	ng/L	<0.55	1.8	02/20/23 21:19	N2
PFDS	ng/L	<0.60	1.8	02/20/23 21:19	N2
PFHpS	ng/L	<0.63	1.8	02/20/23 21:19	N2
PFNS	ng/L	<0.55	1.8	02/20/23 21:19	N2
PFOSA	ng/L	<0.67	1.9	02/20/23 21:19	N2
PFPeA	ng/L	<0.77	1.9	02/20/23 21:19	N2
PFPeS	ng/L	<0.56	1.8	02/20/23 21:19	N2
13C2-PFDoA (S)	%	83	25-150	02/20/23 21:19	
13C2-PFTA (S)	%	69	25-150	02/20/23 21:19	
13C24:2FTS (S)	%	100	25-150	02/20/23 21:19	
13C26:2FTS (S)	%	107	25-150	02/20/23 21:19	
13C28:2FTS (S)	%	85	25-150	02/20/23 21:19	
13C3-PFBS (S)	%	114	25-150	02/20/23 21:19	
13C3-PFHxS (S)	%	104	25-150	02/20/23 21:19	

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QUALITY CONTROL DATA

Project: MMSD PFAS
Pace Project No.: 10640247

METHOD BLANK: 4576325 Matrix: Water
Associated Lab Samples: 10640247001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
13C3HFPO-DA (S)	%	86	25-150	02/20/23 21:19	
13C4-PFBA (S)	%	97	25-150	02/20/23 21:19	
13C4-PFHpA (S)	%	86	25-150	02/20/23 21:19	
13C5-PFHxA (S)	%	100	25-150	02/20/23 21:19	
13C5-PFPeA (S)	%	99	25-150	02/20/23 21:19	
13C6-PFDA (S)	%	93	25-150	02/20/23 21:19	
13C7-PFUdA (S)	%	86	25-150	02/20/23 21:19	
13C8-PFOA (S)	%	102	25-150	02/20/23 21:19	
13C8-PFOS (S)	%	95	25-150	02/20/23 21:19	
13C8-PFOSA (S)	%	57	25-150	02/20/23 21:19	
13C9-PFNA (S)	%	95	25-150	02/20/23 21:19	
d3-MeFOSAA (S)	%	77	25-150	02/20/23 21:19	
d3-NMeFOSA (S)	%	41	20-150	02/20/23 21:19	
d5-EtFOSAA (S)	%	72	25-150	02/20/23 21:19	
d5-NEtFOSA (S)	%	44	20-150	02/20/23 21:19	
d7-NMeFOSE (S)	%	62	20-150	02/20/23 21:19	
d9-NEtFOSE (S)	%	65	20-150	02/20/23 21:19	

LABORATORY CONTROL SAMPLE & LCSD: 4576326

Parameter	Units	Spike Conc.	4576327		LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
			LCS Result	LCSD Result						
11CI-PF3OUdS	ng/L	3.5	2.7	2.6	77	73	50-150	4	30	N2
4:2 FTS	ng/L	3.5	3.5	3.6	101	102	50-150	2	30	N2
6:2 FTS	ng/L	3.6	3.4	3.4	94	94	50-150	1	30	N2
8:2 FTS	ng/L	3.6	3.7	3.7	101	102	50-150	3	30	N2
9CI-PF3ONS	ng/L	3.5	3.2	3.4	92	96	50-150	6	30	N2
ADONA	ng/L	3.5	3.3	3.7	93	104	50-150	12	30	N2
HFPO-DA	ng/L	3.8	4.7	4.5	125	117	50-150	5	30	N2
NEtFOSA	ng/L	3.8	3.5	3.6	94	95	50-150	3	30	N2
NEtFOSAA	ng/L	3.8	4.5	4.4	121	115	50-150	4	30	N2
NEtFOSE	ng/L	3.8	3.7	3.9	98	102	50-150	6	30	N2
NMeFOSA	ng/L	3.8	3.8	3.6	100	95	50-150	4	30	N2
NMeFOSAA	ng/L	3.8	3.4	3.3	91	87	50-150	3	30	N2
NMeFOSE	ng/L	3.8	3.8	3.7	101	97	50-150	3	30	N2
Perfluorobutanesulfonic acid	ng/L	3.3	4.6	4.4	138	130	50-150	4	30	N2
Perfluorodecanoic acid	ng/L	3.8	3.9	3.7	103	98	50-150	3	30	N2
Perfluorododecanoic acid	ng/L	3.8	4.0	4.0	108	104	50-150	2	30	N2
Perfluoroheptanoic acid	ng/L	3.8	4.8	4.8	127	125	50-150	0	30	N2
Perfluorohexanesulfonic acid	ng/L	3.4	3.4	3.6	100	104	50-150	5	30	N2
Perfluorohexanoic acid	ng/L	3.8	4.0	4.1	107	106	50-150	1	30	N2
Perfluorononanoic acid	ng/L	3.8	3.9	4.4	104	116	50-150	13	30	N2
Perfluorooctanesulfonic acid	ng/L	3.5	3.5	3.7	99	105	50-150	8	30	N2
Perfluorooctanoic acid	ng/L	3.8	4.1	4.3	109	114	50-150	5	30	N2
Perfluorotetradecanoic acid	ng/L	3.8	3.8	3.9	101	102	50-150	3	30	N2

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QUALITY CONTROL DATA

Project: MMSD PFAS

Pace Project No.: 10640247

LABORATORY CONTROL SAMPLE & LCSD: 4576326		4576327								
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Perfluorotridecanoic acid	ng/L	3.8	3.7	3.8	98	99	50-150	3	30	N2
Perfluoroundecanoic acid	ng/L	3.8	3.5	3.6	93	94	50-150	3	30	N2
PFBA	ng/L	3.8	4.1	4.2	110	110	50-150	1	30	N2
PFDoS	ng/L	3.6	2.2	2.4	61	64	50-150	6	30	N2
PFDS	ng/L	3.6	2.8	2.9	78	79	50-150	3	30	N2
PFHpS	ng/L	3.6	3.9	3.7	108	101	50-150	6	30	N2
PFNS	ng/L	3.6	3.3	3.4	90	92	50-150	3	30	N2
PFOSA	ng/L	3.8	4.0	4.0	105	105	50-150	1	30	N2
PFPeA	ng/L	3.8	4.1	4.3	109	113	50-150	5	30	N2
PFPeS	ng/L	3.5	3.8	3.9	107	110	50-150	4	30	N2
13C2-PFDoA (S)	%				78	79	25-150			
13C2-PFTA (S)	%				64	69	25-150			
13C24:2FTS (S)	%				101	97	25-150			
13C26:2FTS (S)	%				103	105	25-150			
13C28:2FTS (S)	%				89	80	25-150			
13C3-PFBS (S)	%				113	109	25-150			
13C3-PFHxS (S)	%				105	100	25-150			
13C3HFPO-DA (S)	%				80	80	25-150			
13C4-PFBA (S)	%				94	90	25-150			
13C4-PFHpA (S)	%				82	82	25-150			
13C5-PFHxA (S)	%				96	96	25-150			
13C5-PFPeA (S)	%				97	96	25-150			
13C6-PFDA (S)	%				88	96	25-150			
13C7-PFUdA (S)	%				85	84	25-150			
13C8-PFOA (S)	%				97	96	25-150			
13C8-PFOS (S)	%				100	98	25-150			
13C8-PFOSA (S)	%				55	54	25-150			
13C9-PFNA (S)	%				98	90	25-150			
d3-MeFOSAA (S)	%				76	71	25-150			
d3-NMeFOSA (S)	%				34	39	20-150			
d5-EtFOSAA (S)	%				63	63	25-150			
d5-NEtFOSA (S)	%				37	44	20-150			
d7-NMeFOSE (S)	%				53	60	20-150			
d9-NEtFOSE (S)	%				56	61	20-150			

MATRIX SPIKE SAMPLE: 4576426		10641076018		MS		% Rec	
Parameter	Units	Result	Spike Conc.	Result	% Rec	Limits	Qualifiers
11Cl-PF3OUdS	ng/L	ND	98.6	96.2	98	50-150	N2
4:2 FTS	ng/L	ND	97.8	104	103	50-150	N2
6:2 FTS	ng/L	393	99.2	446	54	50-150	N2
8:2 FTS	ng/L	ND	100	97.6	95	50-150	N2
9Cl-PF3ONS	ng/L	ND	97.8	98.0	100	50-150	N2
ADONA	ng/L	ND	98.6	108	109	50-150	N2
HFPO-DA	ng/L	ND	104	111	103	50-150	N2

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QUALITY CONTROL DATA

Project: MMSD PFAS
Pace Project No.: 10640247

MATRIX SPIKE SAMPLE:		4576426		10641076018		Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Result	% Rec	Limits	Qualifiers	
NEtFOSA	ng/L	ND	104	110	95	50-150	N2			
NEtFOSAA	ng/L	ND	104	127	92	50-150	N2			
NEtFOSE	ng/L	ND	104	98.3	94	50-150	N2			
NMeFOSA	ng/L	ND	104	160	111	50-150	N2			
NMeFOSAA	ng/L	ND	104	104	99	50-150	N2			
NMeFOSE	ng/L	ND	104	96.5	90	50-150	N2			
Perfluorobutanesulfonic acid	ng/L	202	92.3	304	111	50-150	N2			
Perfluorodecanoic acid	ng/L	ND	104	116	107	50-150	N2			
Perfluorododecanoic acid	ng/L	ND	104	109	104	50-150	N2			
Perfluoroheptanoic acid	ng/L	179	104	297	112	50-150	N2			
Perfluorohexanesulfonic acid	ng/L	159	95.7	246	91	50-150	N2			
Perfluorohexanoic acid	ng/L	502	104	593	88	50-150	N2			
Perfluorononanoic acid	ng/L	ND	104	128	105	50-150	N2			
Perfluorooctanesulfonic acid	ng/L	144	97.1	247	106	50-150	N2			
Perfluorooctanoic acid	ng/L	205	104	313	104	50-150	N2			
Perfluorotetradecanoic acid	ng/L	ND	104	120	114	50-150	N2			
Perfluorotridecanoic acid	ng/L	ND	104	120	114	50-150	N2			
Perfluoroundecanoic acid	ng/L	ND	104	105	100	50-150	N2			
PFBA	ng/L	208	104	300	88	50-150	N2			
PFDoS	ng/L	ND	101	101	99	50-150	N2			
PFDS	ng/L	ND	101	95.2	94	50-150	N2			
PFHpS	ng/L	ND	99.9	107	105	50-150	N2			
PFNS	ng/L	ND	100	101	101	50-150	N2			
PFOSA	ng/L	ND	104	113	100	50-150	N2			
PFPeA	ng/L	358	104	449	88	50-150	N2			
PFPeS	ng/L	62.7	98.2	163	102	50-150	N2			
13C2-PFDoS (S)	%				100	25-150				
13C2-PFTA (S)	%				110	25-150				
13C24:2FTS (S)	%				105	25-150				
13C26:2FTS (S)	%				94	25-150				
13C28:2FTS (S)	%				115	25-150				
13C3-PFBS (S)	%				99	25-150				
13C3-PFHxS (S)	%				102	25-150				
13C3HFPO-DA (S)	%				94	25-150				
13C4-PFBA (S)	%				89	25-150				
13C4-PFHpA (S)	%				96	25-150				
13C5-PFHxA (S)	%				96	25-150				
13C5-PFPeA (S)	%				88	25-150				
13C6-PFDA (S)	%				97	25-150				
13C7-PFUdA (S)	%				106	25-150				
13C8-PFOA (S)	%				103	25-150				
13C8-PFOS (S)	%				103	25-150				
13C8-PFOSA (S)	%				68	25-150				
13C9-PFNA (S)	%				100	25-150				
d3-MeFOSAA (S)	%				95	25-150				
d3-NMeFOSA (S)	%				37	10-150				
d5-EtFOSAA (S)	%				107	25-150				

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QUALITY CONTROL DATA

Project: MMSD PFAS

Pace Project No.: 10640247

MATRIX SPIKE SAMPLE: 4576426		10641076018	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
d5-NEtFOSA (S)	%.				33	10-150	
d7-NMeFOSE (S)	%.				74	10-150	
d9-NEtFOSE (S)	%.				70	10-150	

SAMPLE DUPLICATE: 4576425

Parameter	Units	10641076017	Dup	RPD	Max	Qualifiers
		Result	Result		RPD	
11Cl-PF3OUdS	ng/L	ND	<15.8		30	N2
4:2 FTS	ng/L	70.1	72.1	3	30	N2
6:2 FTS	ng/L	18000	18100	0	30	N2
8:2 FTS	ng/L	ND	<14.3		30	N2
9Cl-PF3ONS	ng/L	ND	<13.4		30	N2
ADONA	ng/L	ND	<26.1		30	N2
HFPO-DA	ng/L	9090	9370	3	30	N2
NEtFOSA	ng/L	ND	<16.3		30	N2
NEtFOSAA	ng/L	ND	<23.2		30	N2
NEtFOSE	ng/L	ND	<25.3		30	N2
NMeFOSA	ng/L	ND	<15.7		30	N2
NMeFOSAA	ng/L	ND	<19.8		30	N2
NMeFOSE	ng/L	ND	<14.8		30	N2
Perfluorobutanesulfonic acid	ng/L	3800	3750	1	30	N2
Perfluorodecanoic acid	ng/L	144	152	5	30	N2
Perfluorododecanoic acid	ng/L	ND	44.7J		30	N2
Perfluoroheptanoic acid	ng/L	1670	1550	7	30	N2
Perfluorohexanesulfonic acid	ng/L	623	677	8	30	N2
Perfluorohexanoic acid	ng/L	15200	15500	2	30	N2
Perfluorononanoic acid	ng/L	ND	27.8J		30	N2
Perfluorooctanesulfonic acid	ng/L	669	654	2	30	N2
Perfluorooctanoic acid	ng/L	4720	5160	9	30	N2
Perfluorotetradecanoic acid	ng/L	ND	<17.1		30	N2
Perfluorotridecanoic acid	ng/L	ND	<17.7		30	N2
Perfluoroundecanoic acid	ng/L	ND	<13.8		30	N2
PFBA	ng/L	11400	11500	1	30	N2
PFDoS	ng/L	ND	<16.8		30	N2
PFDS	ng/L	ND	<18.2		30	N2
PFHpS	ng/L	ND	<19.0		30	N2
PFNS	ng/L	ND	<16.7		30	N2
PFOSA	ng/L	ND	<20.4		30	N2
PFPeA	ng/L	3300	3380	2	30	N2
PFPeS	ng/L	376	374	1	30	N2
13C2-PFDoA (S)	%.	92	83			
13C2-PFTA (S)	%.	81	79			
13C24:2FTS (S)	%.	70	63			
13C26:2FTS (S)	%.	117	109			
13C28:2FTS (S)	%.	87	92			

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QUALITY CONTROL DATA

Project: MMSD PFAS

Pace Project No.: 10640247

SAMPLE DUPLICATE: 4576425

Parameter	Units	10641076017 Result	Dup Result	RPD	Max RPD	Qualifiers
13C3-PFBS (S)	%.	90	91			
13C3-PFHxS (S)	%.	94	94			
13C3HFPO-DA (S)	%.	106	96			
13C4-PFBA (S)	%.	113	110			
13C4-PFHpA (S)	%.	80	86			
13C5-PFHxA (S)	%.	109	103			
13C5-PFPeA (S)	%.	54	50			
13C6-PFDA (S)	%.	89	88			
13C7-PFUdA (S)	%.	80	77			
13C8-PFOA (S)	%.	79	75			
13C8-PFOS (S)	%.	87	91			
13C8-PFOSA (S)	%.	80	77			
13C9-PFNA (S)	%.	90	93			
d3-MeFOSAA (S)	%.	90	89			
d3-NMeFOSA (S)	%.	43	34			
d5-EtFOSAA (S)	%.	80	78			
d5-NEtFOSA (S)	%.	39	32			
d7-NMeFOSE (S)	%.	65	58			
d9-NEtFOSE (S)	%.	65	60			

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QUALITY CONTROL DATA

Project: MMSD PFAS
Pace Project No.: 10640247

QC Batch: 864175	Analysis Method: SM 2540D
QC Batch Method: SM 2540D	Analysis Description: 2540D Total Suspended Solids
	Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10640247001

METHOD BLANK: 4563071 Matrix: Water

Associated Lab Samples: 10640247001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<5.0	10.0	01/23/23 16:23	

LABORATORY CONTROL SAMPLE: 4563072

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	100	87.2	87	80-120	

SAMPLE DUPLICATE: 4563073

Parameter	Units	10640050005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	38.3	40.2	5	5	

SAMPLE DUPLICATE: 4563074

Parameter	Units	10640027001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	158	148	7	5	D6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MMSD PFAS

Pace Project No.: 10640247

QC Batch: 864285

Analysis Method: SM 2540D

QC Batch Method: SM 2540D

Analysis Description: 2540D Total Suspended Solids

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10640247002

METHOD BLANK: 4563489

Matrix: Water

Associated Lab Samples: 10640247002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<5.0	10.0	01/24/23 12:13	

LABORATORY CONTROL SAMPLE: 4563490

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	100	90.0	90	80-120	

SAMPLE DUPLICATE: 4563491

Parameter	Units	10640075001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	ND	<5.0		5	

SAMPLE DUPLICATE: 4563492

Parameter	Units	10640113001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	57.4	51.9	10	5	D6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALIFIERS

Project: MMSD PFAS

Pace Project No.: 10640247

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.

H2 Extraction or preparation was conducted outside of the recognized method holding time.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

R1 RPD value was outside control limits.

S0 Surrogate recovery outside laboratory control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MMSD PFAS

Pace Project No.: 10640247

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10640247001	Influent 20230116	ENV-SOP-MIN4-0178	867306	ENV-SOP-MIN4-0178	868326
10640247002	Effluent 20230117	ENV-SOP-MIN4-0178	865122	ENV-SOP-MIN4-0178	867087
10640247001	Influent 20230116	SM 2540D	864175		
10640247002	Effluent 20230117	SM 2540D	864285		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY - Affix Workorder/Invoice Label
WO#: 10640247
 10640247
 ** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Company: **TRC**
 Address: **708 Heartland Trail Suite 3000 Madison WI 53717**
 Report To: **Mike Ursin**
 Copy To:

Customer Project Name/Number: **MMSD PFAS**
 State: **WI** County/City: **Madison** Time Zone Collected: [] PT [] MT [X] CT [] ET
 Site Collection Info/Address: **1610 Moorhead Rd**

Site/Facility ID #: _____
 Compliance Monitoring: [] Yes [X] No
 DW PWS ID #: _____
 DW Location Code: _____
 Immediately Packed on Ice: [X] Yes [] No
 Field Filtered (if applicable): [] Yes [X] No
 Analysis: _____

Turnaround Date Required: **standed TAT**
 Rush: [] Same Day [] Next Day [] 2 Day [] 3 Day [] 4 Day [] 5 Day (Expedite Charges Apply)
 * Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Time	Composite End Date	Time	Res CI	Wet	Blue	Dry	None	# of Ctns
Influent 20230116	WN	Comp	1/16/23	0:00	1/16/23	23:59	3					

Customer Remarks / Special Conditions / Possible Hazards:
For Influent sample follow EPA 19-01 (WI PFAS method expectations) section 11.3 procedure for particulate in aqueous samples + centrifuge if necessary

Date/Time: **1/15/23**
 Received by/Company: **Michael Faust**
 Date/Time: **1-19-23 8:50**
 Received by/Company: **Michael Faust**
 Date/Time: _____
 Received by/Company: (Signature)

Lab Profile/Line:	Analytes	SHO	HOLDS	PRESENT (<72 hours)	Y	N	N/A
Lab Sample Receipt Checklist:							
Custody Seals Present/Intact							
Custody Signatures Present							
Collector Signatures Present							
Bottles Intact							
Correct Bottles							
Sufficient Volume							
Samples Received on Ice							
VDA - Headspace Acceptable							
USDA Regulated Soils							
Samples in Holding Time							
Residual Chlorine Present							
Cl Strips:							
Sample pH Acceptable							
pH Strips:							
Sulfide Present							
Lead Acetate Strips:							
LAB USE ONLY:							
Lab Sample # / Comments:							

Lab Sample Temperature Info:
 Temp Blank Received: **0** N NA
 Therm ID#: **11**
 Cooler 1 Therm Upon Receipt: **4.4** oC
 Cooler 1 Therm Corr. Factor: **True**
 Cooler 1 Corrected Temp: **4.4** oC
 Comments:

Workorder Number or
ONLY

Trip Blank Received: Y N NA
 HCL MeOH TSP Other

Non Conformance(s): YES / NO
 Page: _____ of: _____

Sample Condition Upon Receipt
 Client Name: **TRC**

Project #: **WO# : 10640247**
 PM: KNH Due Date: 02/09/23
 CLIENT: TRC-WI

Courier: FedEx UPS USPS Client
 Pace Speedee Commercial

Tracking Number: **5923 7143 4277** See Exceptions ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No
 Packing Material: Bubble Wrap Bubble Bags None Other
 Thermometer: T1 (0461) T2 (1336) T3 (0459) T4 (0254) T5 (0178)
 T6 (0235) T7 (0042) T8 (0775) T9(0727) 01339252/1710
 Biological Tissue Frozen? Yes No N/A
 Temp Blank? Yes No
 Type of Ice: Wet Blue Dry None
 Melted

Did Samples Originate in West Virginia? Yes No Were All Container Temps Taken? Yes No N/A
 Temp should be above freezing to 6 °C Cooler temp Read w/Temp Blank: **4.4** °C Average Corrected Temp (no temp blank only): _____ °C
 Correction Factor: **True** Cooler Temp Corrected w/temp blank: **4.4** °C See Exceptions ENV-FRM-MIN4-0142 1 Container

USDA Regulated Soil: N/A (water sample/other: _____) Date/Initials of Person Examining Contents: **EC 1/19/23**
 Did samples originate in a quarantine zone within the United States: AL, AR, AZ CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check maps)? Yes No
 Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.

Location (Check one):	Duluth	<input checked="" type="checkbox"/> Minneapolis	Virginia	COMMENTS
Chain of Custody Present and Filled Out?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> No	1.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> No	4. If fecal: <input type="checkbox"/> <8 hrs <input type="checkbox"/> >8 hr, <24 <input type="checkbox"/> No
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E.coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrom <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> No	6.
Sufficient Sample Volume?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> No	7. samples Effluent 2023 0117 10:00 AM
Correct Containers Used?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	8. Date + time: 11/17/23, 23:59 COC
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> No	
Containers Intact?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	10. Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> No	11. If no, write ID/Date/Time of container below: The influent container listed collection date/time as 1/17/23 06:50. <input type="checkbox"/> See Exceptions ENV-FRM-MIN4-0142
All containers needing acid/base preservation have been checked?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	12. Sample # KV 1/19/23 <input type="checkbox"/> NaOH <input type="checkbox"/> HNO3 <input type="checkbox"/> H2SO4 <input type="checkbox"/> Zinc Acetate
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO3, H2SO4, <2pH, NaOH >9 Sulfide, NaOH >10 Cyanide)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Positive for Residual Chlorine? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Exceptions ENV-FRM-MIN4-0142
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxins/PFAS (*if adding preservative to a container, it must be added to associated field and equipment blanks--verify with PM first.)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	pH Paper Lot # Residual Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Headspace in Methyl Mercury Container?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	13.
Extra labels present on soil VOA or WIDRO containers?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	14. <input type="checkbox"/> See Exceptions ENV-FRM-MIN4-0142
Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	
3 Trip Blanks Present?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased): _____

CLIENT NOTIFICATION/RESOLUTION
 Person Contacted: _____ Date/Time: _____
 Comments/Resolution: _____
 Project Manager Review: *[Signature]* Date: 1/19/23

NOTE: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

Company: TRC
Address: 708 Heartland Trail Suite 3000
 Madison WI 53717

Report To: Mike Ursin
Copy To:

Customer Project Name/Number: MMSD PFAS

Site/Facility ID #:

Collected By (print): Jennifer Faust
Collected By (signature): *Jennifer Faust*

Sample Disposal:
 Dispose as appropriate Return
 Archive: _____
 Hold: _____

*** Matrix Codes (Insert in Matrix box below):** Drinking Water (DW), Ground Water (GW), Wastewater (WW),
 Product (P), Soil/Solid (SL), Oil (OL), Wipe (WI), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Lab Profile/Line: 439 FG

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signature Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
VOL - Headpace Acceptable	Y	N	NA
USDA Regulated Solids	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:			
Sample pH Acceptable	Y	N	NA
pH Strips:			
Sulfide Present			
Lead Acetate Strips:			
LAB USE ONLY:			
Lab Sample # / Comments:			

Container Preservative Type **

Lab Project Manager:

**** Preservative Types:** (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End	Res CI	# of Ctns	Type of Ice Used:			Wet	Blue	Dry	None	SHORT HOLDS PRESENT (<72 hours):	Y	N	N/A	Lab Sample Temperature Info:
			Date	Time				Date	Time	Temp Blank Received:									
Influent 20230116	WW	Comp	1/16/23	0:00	1/16/23 23:59		3												Temp Blank Received: Y N NA
Effluent 20230117	WW	Comp	1/17/23	0:00	1/17/23 23:59		3												Therm ID#: _____ °C
																			Cooler 1 Temp Upon Receipt: _____ °C
																			Cooler 1 Therm Corr. Factor: _____ °C
																			Cooler 1 Corrected Temp: _____ °C
																			Comments:

Customer Remarks / Special Conditions / Possible Hazards:
 For Influent Sample follow EPA 19-001 (WZ PFA's method expectations) section 11.3 procedure for particulate in aqueous samples + conf. page 15 20230116

Relinquished by/Company: (Signature) *Jennifer Faust* **Date/Time:** 1/15/23

Received by/Company: (Signature) _____ **Date/Time:** _____

Lab Tracking #: 2855109

Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info: Temp Blank Received: Y N NA

Therm ID#: _____ °C

Cooler 1 Temp Upon Receipt: _____ °C

Cooler 1 Therm Corr. Factor: _____ °C

Cooler 1 Corrected Temp: _____ °C

Comments:

February 2023

April 15, 2023

Mike Ursin
TRC Environmental
708 Heartland Trail
Madison, WI 53717

RE: Project: MMSD PFAS-Revised Report
Pace Project No.: 10643312

Dear Mike Ursin:

Enclosed are the analytical results for sample(s) received by the laboratory on February 16, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

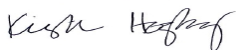
The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Minneapolis

This report was revised April 15, 2023, to update the sample collection times.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kirsten Hogberg
kirsten.hogberg@pacelabs.com
(612)607-1700
Project Manager

Enclosures

cc: Lydia Auner, TRC
Peggy Popp, TRC Solutions
Jeff Ramey, TRC



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

Pace Analytical Services, LLC - Minneapolis MN

1700 Elm Street SE, Minneapolis, MN 55414
1800 Elm Street SE, Minneapolis, MN 55414--Satellite Air Lab

A2LA Certification #: 2926.01*
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009*
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014*
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8 Tribal Water Systems+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605*
Georgia Certification #: 959
GMP+ Certification #: GMP050884
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: AI-03086*
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064*
Maryland Certification #: 322
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137*
Minnesota Dept of Ag Approval: via MN 027-053-137
Minnesota Petrofund Registration #: 1240*
Mississippi Certification #: MN00064

Missouri Certification #: 10100
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081*
New Jersey Certification #: MN002
New York Certification #: 11647*
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification (A2LA) #: R-036
North Dakota Certification (MN) #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification (1700) #: CL101
Ohio VAP Certification (1800) #: CL110*
Oklahoma Certification #: 9507*
Oregon Primary Certification #: MN300001
Oregon Secondary Certification #: MN200001*
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #: 74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192*
Utah Certification #: MN00064*
Vermont Certification #: VT-027053137
Virginia Certification #: 460163*
Washington Certification #: C486*
West Virginia DEP Certification #: 382
West Virginia DW Certification #: 9952 C
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01
USDA Permit #: P330-19-00208
Please Note: Applicable air certifications are denoted with an asterisk ().

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10643312001	Influent 20230213	Water	02/13/23 23:59	02/16/23 08:50
10643312002	Effluent 20230214	Water	02/14/23 23:59	02/16/23 08:50

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: MMSD PFAS-Revised Report
Pace Project No.: 10643312

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10643312001	Influent 20230213	ENV-SOP-MIN4-0178	NF1	57
		SM 2540D	RM3	1
10643312002	Effluent 20230214	ENV-SOP-MIN4-0178	MM4	58
		SM 2540D	RM3	1

PASI-M = Pace Analytical Services - Minneapolis

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

Method: ENV-SOP-MIN4-0178

Description: WI ID NPW

Client: TRC-WI

Date: April 15, 2023

General Information:

2 samples were analyzed for ENV-SOP-MIN4-0178 by Pace Analytical Services Minneapolis. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

H2: Extraction or preparation was conducted outside of the recognized method holding time.

- Influent 20230213 (Lab ID: 10643312001)

Sample Preparation:

The samples were prepared in accordance with ENV-SOP-MIN4-0178 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

QC Batch: 870323

S0: Surrogate recovery outside laboratory control limits.

- DUP (Lab ID: 4590408)
 - d3-NMeFOSA (S)
 - d5-NEtFOSA (S)

QC Batch: 871182

S0: Surrogate recovery outside laboratory control limits.

- Influent 20230213 (Lab ID: 10643312001)
 - 13C26:2FTS (S)
 - d7-NMeFOSE (S)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 870323

B: Analyte was detected in the associated method blank.

- BLANK for HBN 870323 [PFAS/165 (Lab ID: 4590399)
 - Perfluorobutanesulfonic acid

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

Method: ENV-SOP-MIN4-0178

Description: WI ID NPW

Client: TRC-WI

Date: April 15, 2023

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 870323

L1: Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.

- LCSD (Lab ID: 4590406)
 - Perfluorobutanesulfonic acid
 - Perfluorooctanoic acid

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 870323

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10643312002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 4590407)
 - 11Cl-PF3OUdS
 - 4:2 FTS
 - 8:2 FTS
 - 9Cl-PF3ONS
 - ADONA
 - HFPO-DA
 - NEtFOSA
 - NEtFOSAA
 - NEtFOSE
 - NMeFOSA
 - NMeFOSAA
 - NMeFOSE
 - PFBA
 - PFDS
 - PFDoS
 - PFHpS
 - PFNS
 - PFPeA
 - PFPeS
 - Perfluorobutanesulfonic acid
 - Perfluorodecanoic acid
 - Perfluorododecanoic acid
 - Perfluoroheptanoic acid
 - Perfluorohexanesulfonic acid
 - Perfluorohexanoic acid
 - Perfluorononanoic acid
 - Perfluorooctanesulfonic acid
 - Perfluorooctanoic acid
 - Perfluorotetradecanoic acid

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

Method: ENV-SOP-MIN4-0178

Description: WI ID NPW

Client: TRC-WI

Date: April 15, 2023

QC Batch: 870323

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10643312002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- Perfluorotridecanoic acid
- Perfluoroundecanoic acid

QC Batch: 871182

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10641076001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 4594657)
 - Perfluorobutanesulfonic acid
 - Perfluorooctanoic acid

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: 870323

D6: The precision between the sample and sample duplicate exceeded laboratory control limits.

- DUP (Lab ID: 4590408)
 - Perfluorooctanesulfonic acid

Additional Comments:

Analyte Comments:

QC Batch: 870323

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 4590399)
 - 11CI-PF3OUdS
 - 4:2 FTS
 - 6:2 FTS
 - 8:2 FTS
 - 9CI-PF3ONS
 - ADONA
 - HFPO-DA
 - NEtFOSA
 - NEtFOSAA
 - NEtFOSE
 - NMeFOSA
 - NMeFOSAA
 - NMeFOSE
 - PFBA
 - Perfluorobutanesulfonic acid
 - Perfluorodecanoic acid
 - PFDS
 - Perfluorododecanoic acid

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

Method: ENV-SOP-MIN4-0178

Description: WI ID NPW

Client: TRC-WI

Date: April 15, 2023

Analyte Comments:

QC Batch: 870323

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 4590399)
 - PFDoS
 - Perfluoroheptanoic acid
 - PFHpS
 - Perfluorohexanoic acid
 - Perfluorohexanesulfonic acid
 - Perfluorononanoic acid
 - PFNS
 - Perfluorooctanoic acid
 - Perfluorooctanesulfonic acid
 - PFOSA
 - PFPeA
 - PFPeS
 - Perfluorotetradecanoic acid
 - Perfluorotridecanoic acid
 - Perfluoroundecanoic acid
- DUP (Lab ID: 4590408)
 - 11Cl-PF3OUdS
 - 4:2 FTS
 - 6:2 FTS
 - 8:2 FTS
 - 9Cl-PF3ONS
 - ADONA
 - HFPO-DA
 - NEtFOSA
 - NEtFOSAA
 - NEtFOSE
 - NMeFOSA
 - NMeFOSAA
 - NMeFOSE
 - PFBA
 - Perfluorobutanesulfonic acid
 - Perfluorodecanoic acid
 - PFDS
 - Perfluorododecanoic acid
 - PFDoS
 - Perfluoroheptanoic acid
 - PFHpS
 - Perfluorohexanoic acid
 - Perfluorohexanesulfonic acid
 - Perfluorononanoic acid
 - PFNS

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PROJECT NARRATIVE

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

Method: ENV-SOP-MIN4-0178

Description: WI ID NPW

Client: TRC-WI

Date: April 15, 2023

Analyte Comments:

QC Batch: 870323

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- DUP (Lab ID: 4590408)
 - Perfluorooctanoic acid
 - Perfluorooctanesulfonic acid
 - PFOSA
 - PFPeA
 - PFPeS
 - Perfluorotetradecanoic acid
 - Perfluorotridecanoic acid
 - Perfluoroundecanoic acid
- Effluent 20230214 (Lab ID: 10643312002)
 - 11CI-PF3OUdS
 - 4:2 FTS
 - 6:2 FTS
 - 8:2 FTS
 - 9CI-PF3ONS
 - ADONA
 - HFPO-DA
 - NEtFOSA
 - NEtFOSAA
 - NEtFOSE
 - NMeFOSA
 - NMeFOSAA
 - NMeFOSE
 - PFBA
 - Perfluorobutanesulfonic acid
 - Perfluorodecanoic acid
 - PFDS
 - Perfluorododecanoic acid
 - PFDoS
 - Perfluoroheptanoic acid
 - PFHpS
 - Perfluorohexanoic acid
 - Perfluorohexanesulfonic acid
 - Perfluorononanoic acid
 - PFNS
 - Perfluorooctanoic acid
 - Perfluorooctanesulfonic acid
 - PFOSA
 - PFPeA
 - PFPeS
 - Perfluorotetradecanoic acid
 - Perfluorotridecanoic acid

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PROJECT NARRATIVE

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

Method: ENV-SOP-MIN4-0178

Description: WI ID NPW

Client: TRC-WI

Date: April 15, 2023

Analyte Comments:

QC Batch: 870323

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- Effluent 20230214 (Lab ID: 10643312002)

- Perfluoroundecanoic acid

- LCS (Lab ID: 4590400)

- 11Cl-PF3OUdS

- 4:2 FTS

- 6:2 FTS

- 8:2 FTS

- 9Cl-PF3ONS

- ADONA

- HFPO-DA

- NEtFOSA

- NEtFOSAA

- NEtFOSE

- NMeFOSA

- NMeFOSAA

- NMeFOSE

- PFBA

- Perfluorobutanesulfonic acid

- Perfluorodecanoic acid

- PFDS

- Perfluorododecanoic acid

- PFDoS

- Perfluoroheptanoic acid

- PFHpS

- Perfluorohexanoic acid

- Perfluorohexanesulfonic acid

- Perfluorononanoic acid

- PFNS

- Perfluorooctanoic acid

- Perfluorooctanesulfonic acid

- PFOSA

- PFPeA

- PFPeS

- Perfluorotetradecanoic acid

- Perfluorotridecanoic acid

- Perfluoroundecanoic acid

- LCSD (Lab ID: 4590406)

- 11Cl-PF3OUdS

- 4:2 FTS

- 6:2 FTS

- 8:2 FTS

- 9Cl-PF3ONS

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PROJECT NARRATIVE

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

Method: ENV-SOP-MIN4-0178

Description: WI ID NPW

Client: TRC-WI

Date: April 15, 2023

Analyte Comments:

QC Batch: 870323

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- LCSD (Lab ID: 4590406)
 - ADONA
 - HFPO-DA
 - NEtFOSA
 - NEtFOSAA
 - NEtFOSE
 - NMeFOSA
 - NMeFOSAA
 - NMeFOSE
 - PFBA
 - Perfluorobutanesulfonic acid
 - Perfluorodecanoic acid
 - PFDS
 - Perfluorododecanoic acid
 - PFDoS
 - Perfluoroheptanoic acid
 - PFHpS
 - Perfluorohexanoic acid
 - Perfluorohexanesulfonic acid
 - Perfluorononanoic acid
 - PFNS
 - Perfluorooctanoic acid
 - Perfluorooctanesulfonic acid
 - PFOSA
 - PFPeA
 - PFPeS
 - Perfluorotetradecanoic acid
 - Perfluorotridecanoic acid
 - Perfluoroundecanoic acid
- MS (Lab ID: 4590407)
 - 11Cl-PF3OUdS
 - 4:2 FTS
 - 6:2 FTS
 - 8:2 FTS
 - 9Cl-PF3ONS
 - ADONA
 - HFPO-DA
 - NEtFOSA
 - NEtFOSAA
 - NEtFOSE
 - NMeFOSA
 - NMeFOSAA

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PROJECT NARRATIVE

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

Method: ENV-SOP-MIN4-0178

Description: WI ID NPW

Client: TRC-WI

Date: April 15, 2023

Analyte Comments:

QC Batch: 870323

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- MS (Lab ID: 4590407)
 - NMeFOSE
 - PFBA
 - Perfluorobutanesulfonic acid
 - Perfluorodecanoic acid
 - PFDS
 - Perfluorododecanoic acid
 - PFDoS
 - Perfluoroheptanoic acid
 - PFHpS
 - Perfluorohexanoic acid
 - Perfluorohexanesulfonic acid
 - Perfluorononanoic acid
 - PFNS
 - Perfluorooctanoic acid
 - Perfluorooctanesulfonic acid
 - PFOSA
 - PFPeA
 - PFPeS
 - Perfluorotetradecanoic acid
 - Perfluorotridecanoic acid
 - Perfluoroundecanoic acid

QC Batch: 871182

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 4594631)
 - 11CI-PF3OUdS
 - 4:2 FTS
 - 6:2 FTS
 - 8:2 FTS
 - 9CI-PF3ONS
 - ADONA
 - HFPO-DA
 - NEtFOSA
 - NEtFOSAA
 - NEtFOSE
 - NMeFOSA
 - NMeFOSAA
 - NMeFOSE
 - PFBA
 - Perfluorobutanesulfonic acid

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PROJECT NARRATIVE

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

Method: ENV-SOP-MIN4-0178

Description: WI ID NPW

Client: TRC-WI

Date: April 15, 2023

Analyte Comments:

QC Batch: 871182

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 4594631)
 - Perfluorodecanoic acid
 - PFDS
 - Perfluorododecanoic acid
 - PFDoS
 - Perfluoroheptanoic acid
 - PFHpS
 - Perfluorohexanoic acid
 - Perfluorohexanesulfonic acid
 - Perfluorononanoic acid
 - PFNS
 - Perfluorooctanoic acid
 - Perfluorooctanesulfonic acid
 - PFOSA
 - PFPeA
 - PFPeS
 - Perfluorotetradecanoic acid
 - Perfluorotridecanoic acid
 - Perfluoroundecanoic acid
- Influent 20230213 (Lab ID: 10643312001)
 - 11CI-PF3OUdS
 - 4:2 FTS
 - 6:2 FTS
 - 8:2 FTS
 - 9CI-PF3ONS
 - ADONA
 - HFPO-DA
 - NEtFOSA
 - NEtFOSAA
 - NEtFOSE
 - NMeFOSA
 - NMeFOSAA
 - NMeFOSE
 - PFBA
 - Perfluorobutanesulfonic acid
 - Perfluorodecanoic acid
 - PFDS
 - Perfluorododecanoic acid
 - PFDoS
 - Perfluoroheptanoic acid
 - PFHpS
 - Perfluorohexanoic acid

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PROJECT NARRATIVE

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

Method: ENV-SOP-MIN4-0178

Description: WI ID NPW

Client: TRC-WI

Date: April 15, 2023

Analyte Comments:

QC Batch: 871182

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- Influent 20230213 (Lab ID: 10643312001)

- Perfluorohexanesulfonic acid
- Perfluorononanoic acid
- PFNS
- Perfluorooctanoic acid
- Perfluorooctanesulfonic acid
- PFOSA
- PFPeA
- PFPeS
- Perfluorotetradecanoic acid
- Perfluorotridecanoic acid
- Perfluoroundecanoic acid

- LCS (Lab ID: 4594632)

- 11Cl-PF3OUdS
- 4:2 FTS
- 6:2 FTS
- 8:2 FTS
- 9Cl-PF3ONS
- ADONA
- HFPO-DA
- NEtFOSA
- NEtFOSAA
- NEtFOSE
- NMeFOSA
- NMeFOSAA
- NMeFOSE
- PFBA
- Perfluorobutanesulfonic acid
- Perfluorodecanoic acid
- PFDS
- Perfluorododecanoic acid
- PFDoS
- Perfluoroheptanoic acid
- PFHpS
- Perfluorohexanoic acid
- Perfluorohexanesulfonic acid
- Perfluorononanoic acid
- PFNS
- Perfluorooctanoic acid
- Perfluorooctanesulfonic acid
- PFOSA
- PFPeA

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PROJECT NARRATIVE

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

Method: ENV-SOP-MIN4-0178

Description: WI ID NPW

Client: TRC-WI

Date: April 15, 2023

Analyte Comments:

QC Batch: 871182

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- LCS (Lab ID: 4594632)
 - PFPeS
 - Perfluorotetradecanoic acid
 - Perfluorotridecanoic acid
 - Perfluoroundecanoic acid
- MS (Lab ID: 4594657)
 - 11Cl-PF3OUdS
 - 4:2 FTS
 - 6:2 FTS
 - 8:2 FTS
 - 9Cl-PF3ONS
 - ADONA
 - HFPO-DA
 - NEtFOSA
 - NEtFOSAA
 - NEtFOSE
 - NMeFOSA
 - NMeFOSAA
 - NMeFOSE
 - PFBA
 - Perfluorobutanesulfonic acid
 - Perfluorodecanoic acid
 - PFDS
 - Perfluorododecanoic acid
 - PFDoS
 - Perfluoroheptanoic acid
 - PFHpS
 - Perfluorohexanoic acid
 - Perfluorohexanesulfonic acid
 - Perfluorononanoic acid
 - PFNS
 - Perfluorooctanoic acid
 - Perfluorooctanesulfonic acid
 - PFOSA
 - PFPeA
 - PFPeS
 - Perfluorotetradecanoic acid
 - Perfluorotridecanoic acid
 - Perfluoroundecanoic acid
- MSD (Lab ID: 4594658)
 - 11Cl-PF3OUdS
 - 4:2 FTS

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PROJECT NARRATIVE

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

Method: ENV-SOP-MIN4-0178

Description: WI ID NPW

Client: TRC-WI

Date: April 15, 2023

Analyte Comments:

QC Batch: 871182

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- MSD (Lab ID: 4594658)
 - 6:2 FTS
 - 8:2 FTS
 - 9CI-PF3ONS
 - ADONA
 - HFPO-DA
 - NEtFOSA
 - NEtFOSAA
 - NEtFOSE
 - NMeFOSA
 - NMeFOSAA
 - NMeFOSE
 - PFBA
 - Perfluorobutanesulfonic acid
 - Perfluorodecanoic acid
 - PFDS
 - Perfluorododecanoic acid
 - PFDoS
 - Perfluoroheptanoic acid
 - PFHpS
 - Perfluorohexanoic acid
 - Perfluorohexanesulfonic acid
 - Perfluorononanoic acid
 - PFNS
 - Perfluorooctanoic acid
 - Perfluorooctanesulfonic acid
 - PFOSA
 - PFPeA
 - PFPeS
 - Perfluorotetradecanoic acid
 - Perfluorotridecanoic acid
 - Perfluoroundecanoic acid

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PROJECT NARRATIVE

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

Method: SM 2540D

Description: 2540D Total Suspended Solids

Client: TRC-WI

Date: April 15, 2023

General Information:

2 samples were analyzed for SM 2540D by Pace Analytical Services Minneapolis. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

Sample: Influent 20230213 **Lab ID: 10643312001** Collected: 02/13/23 23:59 Received: 02/16/23 08:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
11CI-PF3OUdS	<0.55	ng/L	1.9	0.55	1	03/15/23 11:40	03/20/23 12:29	763051-92-9	H2,N2
4:2 FTS	<0.46	ng/L	1.9	0.46	1	03/15/23 11:40	03/20/23 12:29	757124-72-4	H2,N2
6:2 FTS	19.1	ng/L	1.9	0.67	1	03/15/23 11:40	03/20/23 12:29	27619-97-2	H2,N2
8:2 FTS	<0.50	ng/L	1.9	0.50	1	03/15/23 11:40	03/20/23 12:29	39108-34-4	H2,N2
9CI-PF3ONS	<0.47	ng/L	1.9	0.47	1	03/15/23 11:40	03/20/23 12:29	756426-58-1	H2,N2
ADONA	<0.91	ng/L	1.9	0.91	1	03/15/23 11:40	03/20/23 12:29	919005-14-4	H2,N2
HFPO-DA	<0.49	ng/L	2.0	0.49	1	03/15/23 11:40	03/20/23 12:29	13252-13-6	H2,N2
NEtFOSAA	2.1	ng/L	2.0	0.81	1	03/15/23 11:40	03/20/23 12:29	2991-50-6	H2,N2
NEtFOSA	<0.57	ng/L	2.0	0.57	1	03/15/23 11:40	03/20/23 12:29	4151-50-2	H2,N2
NEtFOSE	<0.89	ng/L	2.0	0.89	1	03/15/23 11:40	03/20/23 12:29	1691-99-2	H2,N2
NMeFOSAA	1.3J	ng/L	2.0	0.69	1	03/15/23 11:40	03/20/23 12:29	2355-31-9	H2,N2
NMeFOSA	<0.55	ng/L	2.0	0.55	1	03/15/23 11:40	03/20/23 12:29	31506-32-8	H2,N2
NMeFOSE	18.9	ng/L	2.0	0.52	1	03/15/23 11:40	03/20/23 12:29	24448-09-7	H2,N2
Perfluorobutanesulfonic acid	6.5	ng/L	1.8	0.48	1	03/15/23 11:40	03/20/23 12:29	375-73-5	H2,N2
Perfluorodecanoic acid	<0.61	ng/L	2.0	0.61	1	03/15/23 11:40	03/20/23 12:29	335-76-2	H2,N2
Perfluorohexanoic acid	10.2	ng/L	2.0	0.91	1	03/15/23 11:40	03/20/23 12:29	307-24-4	H2,N2
PFBA	9.0	ng/L	2.0	0.50	1	03/15/23 11:40	03/20/23 12:29	375-22-4	H2,N2
PFDS	1.9J	ng/L	1.9	0.64	1	03/15/23 11:40	03/20/23 12:29	335-77-3	H2,N2
PFDoS	<0.59	ng/L	1.9	0.59	1	03/15/23 11:40	03/20/23 12:29	79780-39-5	H2,N2
PFHpS	<0.67	ng/L	1.9	0.67	1	03/15/23 11:40	03/20/23 12:29	375-92-8	H2,N2
PFNS	<0.58	ng/L	1.9	0.58	1	03/15/23 11:40	03/20/23 12:29	68259-12-1	H2,N2
PFOSA	<0.71	ng/L	2.0	0.71	1	03/15/23 11:40	03/20/23 12:29	754-91-6	H2,N2
PFPeA	7.3	ng/L	2.0	0.82	1	03/15/23 11:40	03/20/23 12:29	2706-90-3	H2,N2
PFPeS	1.3J	ng/L	1.9	0.60	1	03/15/23 11:40	03/20/23 12:29	2706-91-4	H2,N2
Perfluorododecanoic acid	<0.48	ng/L	2.0	0.48	1	03/15/23 11:40	03/20/23 12:29	307-55-1	H2,N2
Perfluoroheptanoic acid	2.7	ng/L	2.0	0.69	1	03/15/23 11:40	03/20/23 12:29	375-85-9	H2,N2
Perfluorohexanesulfonic acid	9.4	ng/L	1.8	0.53	1	03/15/23 11:40	03/20/23 12:29	355-46-4	H2,N2
Perfluorononanoic acid	<0.79	ng/L	2.0	0.79	1	03/15/23 11:40	03/20/23 12:29	375-95-1	H2,N2
Perfluorooctanesulfonic acid	7.9	ng/L	1.8	0.66	1	03/15/23 11:40	03/20/23 12:29	1763-23-1	H2,N2
Perfluorooctanoic acid	6.3	ng/L	2.0	0.86	1	03/15/23 11:40	03/20/23 12:29	335-67-1	H2,N2
Perfluorotetradecanoic acid	<0.60	ng/L	2.0	0.60	1	03/15/23 11:40	03/20/23 12:29	376-06-7	H2,N2
Perfluorotridecanoic acid	<0.62	ng/L	2.0	0.62	1	03/15/23 11:40	03/20/23 12:29	72629-94-8	H2,N2
Perfluoroundecanoic acid	<0.48	ng/L	2.0	0.48	1	03/15/23 11:40	03/20/23 12:29	2058-94-8	H2,N2
Surrogates									
13C4-PFBA (S)	45	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
13C5-PFPeA (S)	55	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
13C3-PFBS (S)	60	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
13C24:2FTS (S)	108	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
13C3HFPO-DA (S)	63	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
13C4-PFHpA (S)	66	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
13C3-PFHxS (S)	64	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
13C26:2FTS (S)	161	%	25-150		1	03/15/23 11:40	03/20/23 12:29		S0
13C8-PFOA (S)	60	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
13C8-PFOS (S)	30	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
13C9-PFNA (S)	55	%	25-150		1	03/15/23 11:40	03/20/23 12:29		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

Sample: Influent 20230213 **Lab ID: 10643312001** Collected: 02/13/23 23:59 Received: 02/16/23 08:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
Surrogates									
13C6-PFDA (S)	42	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
13C28:2FTS (S)	111	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
d3-MeFOSAA (S)	25	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
13C7-PFUdA (S)	38	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
13C8-PFOA (S)	46	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
d5-EtFOSAA (S)	33	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
13C2-PFDoA (S)	29	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
d3-NMeFOSA (S)	30	%	10-150		1	03/15/23 11:40	03/20/23 12:29		
d7-NMeFOSE (S)	7	%	10-150		1	03/15/23 11:40	03/20/23 12:29		S0
13C2-PFTA (S)	48	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
d9-NEtFOSE (S)	10	%	10-150		1	03/15/23 11:40	03/20/23 12:29		
d5-NEtFOSA (S)	20	%	10-150		1	03/15/23 11:40	03/20/23 12:29		
13C5-PFHxA (S)	59	%	25-150		1	03/15/23 11:40	03/20/23 12:29		

2540D Total Suspended Solids

Analytical Method: SM 2540D

Pace Analytical Services - Minneapolis

Total Suspended Solids	236	mg/L	14.3	7.1	1		02/20/23 12:21		
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Sample: Effluent 20230214 **Lab ID: 10643312002** Collected: 02/14/23 23:59 Received: 02/16/23 08:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
11CI-PF3OUdS	<0.52	ng/L	1.8	0.52	1	03/08/23 17:17	03/10/23 20:11	763051-92-9	M1,N2
4:2 FTS	<0.44	ng/L	1.7	0.44	1	03/08/23 17:17	03/10/23 20:11	757124-72-4	M1,N2
6:2 FTS	28.0	ng/L	1.8	0.63	1	03/08/23 17:17	03/10/23 20:11	27619-97-2	N2
8:2 FTS	<0.47	ng/L	1.8	0.47	1	03/08/23 17:17	03/10/23 20:11	39108-34-4	M1,N2
9CI-PF3ONS	<0.44	ng/L	1.7	0.44	1	03/08/23 17:17	03/10/23 20:11	756426-58-1	M1,N2
ADONA	<0.86	ng/L	1.8	0.86	1	03/08/23 17:17	03/10/23 20:11	919005-14-4	M1,N2
HFPO-DA	<0.46	ng/L	1.9	0.46	1	03/08/23 17:17	03/10/23 20:11	13252-13-6	M1,N2
NEtFOSAA	1.2J	ng/L	1.9	0.76	1	03/08/23 17:17	03/10/23 20:11	2991-50-6	M1,N2
NEtFOSA	<0.54	ng/L	1.9	0.54	1	03/08/23 17:17	03/10/23 20:11	4151-50-2	M1,N2
NEtFOSE	<0.83	ng/L	1.9	0.83	1	03/08/23 17:17	03/10/23 20:11	1691-99-2	M1,N2
NMeFOSAA	2.1	ng/L	1.9	0.65	1	03/08/23 17:17	03/10/23 20:11	2355-31-9	M1,N2
NMeFOSA	<0.52	ng/L	1.9	0.52	1	03/08/23 17:17	03/10/23 20:11	31506-32-8	M1,N2
NMeFOSE	<0.49	ng/L	1.9	0.49	1	03/08/23 17:17	03/10/23 20:11	24448-09-7	M1,N2
Perfluorobutanesulfonic acid	4.5	ng/L	1.7	0.45	1	03/08/23 17:17	03/10/23 20:11	375-73-5	B,L1, M1,N2
Perfluorodecanoic acid	0.81J	ng/L	1.9	0.57	1	03/08/23 17:17	03/10/23 20:11	335-76-2	M1,N2
Perfluorohexanoic acid	30.7	ng/L	1.9	0.85	1	03/08/23 17:17	03/10/23 20:11	307-24-4	M1,N2
PFBA	10.9	ng/L	1.9	0.47	1	03/08/23 17:17	03/10/23 20:11	375-22-4	M1,N2
PFDS	<0.60	ng/L	1.8	0.60	1	03/08/23 17:17	03/10/23 20:11	335-77-3	M1,N2

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

Sample: Effluent 20230214 **Lab ID: 10643312002** Collected: 02/14/23 23:59 Received: 02/16/23 08:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
PFDoS	<0.55	ng/L	1.8	0.55	1	03/08/23 17:17	03/10/23 20:11	79780-39-5	M1,N2
PFHpS	<0.62	ng/L	1.8	0.62	1	03/08/23 17:17	03/10/23 20:11	375-92-8	M1,N2
PFNS	<0.55	ng/L	1.8	0.55	1	03/08/23 17:17	03/10/23 20:11	68259-12-1	M1,N2
PFOSA	2.6	ng/L	1.9	0.67	1	03/08/23 17:17	03/10/23 20:11	754-91-6	N2
PFPeA	27.1	ng/L	1.9	0.77	1	03/08/23 17:17	03/10/23 20:11	2706-90-3	M1,N2
PFPeS	0.71J	ng/L	1.8	0.56	1	03/08/23 17:17	03/10/23 20:11	2706-91-4	M1,N2
Perfluorododecanoic acid	<0.45	ng/L	1.9	0.45	1	03/08/23 17:17	03/10/23 20:11	307-55-1	M1,N2
Perfluoroheptanoic acid	2.8	ng/L	1.9	0.64	1	03/08/23 17:17	03/10/23 20:11	375-85-9	M1,N2
Perfluorohexanesulfonic acid	7.7	ng/L	1.7	0.50	1	03/08/23 17:17	03/10/23 20:11	355-46-4	M1,N2
Perfluorononanoic acid	<0.74	ng/L	1.9	0.74	1	03/08/23 17:17	03/10/23 20:11	375-95-1	M1,N2
Perfluorooctanesulfonic acid	5.6	ng/L	1.7	0.62	1	03/08/23 17:17	03/10/23 20:11	1763-23-1	M1,N2
Perfluorooctanoic acid	8.6	ng/L	1.9	0.80	1	03/08/23 17:17	03/10/23 20:11	335-67-1	L1,M1, N2
Perfluorotetradecanoic acid	<0.56	ng/L	1.9	0.56	1	03/08/23 17:17	03/10/23 20:11	376-06-7	M1,N2
Perfluorotridecanoic acid	<0.58	ng/L	1.9	0.58	1	03/08/23 17:17	03/10/23 20:11	72629-94-8	M1,N2
Perfluoroundecanoic acid	<0.45	ng/L	1.9	0.45	1	03/08/23 17:17	03/10/23 20:11	2058-94-8	M1,N2
Surrogates									
13C4-PFBA (S)	63	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C5-PFPeA (S)	67	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C3-PFBS (S)	75	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C24:2FTS (S)	131	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C3HFPO-DA (S)	71	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C4-PFHpA (S)	82	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C3-PFHxS (S)	74	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C26:2FTS (S)	126	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C8-PFOA (S)	75	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C8-PFOS (S)	75	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C9-PFNA (S)	75	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C6-PFDA (S)	75	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C28:2FTS (S)	115	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
d3-MeFOSAA (S)	79	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C7-PFUdA (S)	83	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C8-PFOSA (S)	54	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
d5-EtFOSAA (S)	76	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C2-PFDoA (S)	86	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
d3-NMeFOSA (S)	37	%	10-150		1	03/08/23 17:17	03/10/23 20:11		
d7-NMeFOSE (S)	67	%	10-150		1	03/08/23 17:17	03/10/23 20:11		
13C2-PFTA (S)	65	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
d9-NEtFOSE (S)	54	%	10-150		1	03/08/23 17:17	03/10/23 20:11		
d5-NEtFOSA (S)	35	%	10-150		1	03/08/23 17:17	03/10/23 20:11		
13C2PFHxDA (S)	71	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C5-PFHxA (S)	73	%	25-150		1	03/08/23 17:17	03/10/23 20:11		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

Sample: Effluent 20230214 **Lab ID: 10643312002** Collected: 02/14/23 23:59 Received: 02/16/23 08:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
2540D Total Suspended Solids	Analytical Method: SM 2540D Pace Analytical Services - Minneapolis								
Total Suspended Solids	<5.0	mg/L	10.0	5.0	1		02/21/23 16:46		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

QC Batch: 870323

Analysis Method: ENV-SOP-MIN4-0178

QC Batch Method: ENV-SOP-MIN4-0178

Analysis Description: WI ID NPW

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10643312002

METHOD BLANK: 4590399

Matrix: Water

Associated Lab Samples: 10643312002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
11CI-PF3OUdS	ng/L	<0.55	1.9	03/10/23 18:50	N2
4:2 FTS	ng/L	<0.46	1.9	03/10/23 18:50	N2
6:2 FTS	ng/L	<0.67	1.9	03/10/23 18:50	N2
8:2 FTS	ng/L	<0.50	1.9	03/10/23 18:50	N2
9CI-PF3ONS	ng/L	<0.47	1.8	03/10/23 18:50	N2
ADONA	ng/L	<0.91	1.9	03/10/23 18:50	N2
HFPO-DA	ng/L	<0.49	2.0	03/10/23 18:50	N2
NEtFOSA	ng/L	<0.57	2.0	03/10/23 18:50	N2
NEtFOSAA	ng/L	<0.81	2.0	03/10/23 18:50	N2
NEtFOSE	ng/L	<0.88	2.0	03/10/23 18:50	N2
NMeFOSA	ng/L	<0.55	2.0	03/10/23 18:50	N2
NMeFOSAA	ng/L	<0.69	2.0	03/10/23 18:50	N2
NMeFOSE	ng/L	<0.52	2.0	03/10/23 18:50	N2
Perfluorobutanesulfonic acid	ng/L	0.76J	1.8	03/10/23 18:50	N2
Perfluorodecanoic acid	ng/L	<0.60	2.0	03/10/23 18:50	N2
Perfluorododecanoic acid	ng/L	<0.48	2.0	03/10/23 18:50	N2
Perfluoroheptanoic acid	ng/L	<0.68	2.0	03/10/23 18:50	N2
Perfluorohexanesulfonic acid	ng/L	<0.53	1.8	03/10/23 18:50	N2
Perfluorohexanoic acid	ng/L	<0.90	2.0	03/10/23 18:50	N2
Perfluorononanoic acid	ng/L	<0.79	2.0	03/10/23 18:50	N2
Perfluorooctanesulfonic acid	ng/L	<0.66	1.8	03/10/23 18:50	N2
Perfluorooctanoic acid	ng/L	<0.85	2.0	03/10/23 18:50	N2
Perfluorotetradecanoic acid	ng/L	<0.59	2.0	03/10/23 18:50	N2
Perfluorotridecanoic acid	ng/L	<0.62	2.0	03/10/23 18:50	N2
Perfluoroundecanoic acid	ng/L	<0.48	2.0	03/10/23 18:50	N2
PFBA	ng/L	<0.49	2.0	03/10/23 18:50	N2
PFDoS	ng/L	<0.59	1.9	03/10/23 18:50	N2
PFDS	ng/L	<0.64	1.9	03/10/23 18:50	N2
PFHpS	ng/L	<0.66	1.9	03/10/23 18:50	N2
PFNS	ng/L	<0.58	1.9	03/10/23 18:50	N2
PFOSA	ng/L	<0.71	2.0	03/10/23 18:50	N2
PFPeA	ng/L	<0.81	2.0	03/10/23 18:50	N2
PFPeS	ng/L	<0.60	1.9	03/10/23 18:50	N2
13C2-PFDoA (S)	%	99	25-150	03/10/23 18:50	
13C2-PFTA (S)	%	101	25-150	03/10/23 18:50	
13C24:2FTS (S)	%	94	25-150	03/10/23 18:50	
13C26:2FTS (S)	%	90	25-150	03/10/23 18:50	
13C28:2FTS (S)	%	96	25-150	03/10/23 18:50	
13C2PFHxDA (S)	%	122	25-150	03/10/23 18:50	
13C3-PFBS (S)	%	82	25-150	03/10/23 18:50	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

METHOD BLANK: 4590399

Matrix: Water

Associated Lab Samples: 10643312002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
13C3-PFHxS (S)	%	81	25-150	03/10/23 18:50	
13C3HFPO-DA (S)	%	81	25-150	03/10/23 18:50	
13C4-PFBA (S)	%	78	25-150	03/10/23 18:50	
13C4-PFHpA (S)	%	87	25-150	03/10/23 18:50	
13C5-PFHxA (S)	%	80	25-150	03/10/23 18:50	
13C5-PFPeA (S)	%	80	25-150	03/10/23 18:50	
13C6-PFDA (S)	%	85	25-150	03/10/23 18:50	
13C7-PFUdA (S)	%	93	25-150	03/10/23 18:50	
13C8-PFOA (S)	%	80	25-150	03/10/23 18:50	
13C8-PFOS (S)	%	86	25-150	03/10/23 18:50	
13C8-PFOSA (S)	%	68	25-150	03/10/23 18:50	
13C9-PFNA (S)	%	80	25-150	03/10/23 18:50	
d3-MeFOSAA (S)	%	89	25-150	03/10/23 18:50	
d3-NMeFOSA (S)	%	63	20-150	03/10/23 18:50	
d5-EtFOSAA (S)	%	88	25-150	03/10/23 18:50	
d5-NEtFOSA (S)	%	71	20-150	03/10/23 18:50	
d7-NMeFOSE (S)	%	96	20-150	03/10/23 18:50	
d9-NEtFOSE (S)	%	90	20-150	03/10/23 18:50	

LABORATORY CONTROL SAMPLE & LCSD: 4590400

4590406

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
11CI-PF3OUdS	ng/L	3.6	4.9	5.0	134	139	50-150	3	30	N2
4:2 FTS	ng/L	3.6	4.3	5.3	121	148	50-150	20	30	N2
6:2 FTS	ng/L	3.6	3.7	4.4	103	121	50-150	15	30	N2
8:2 FTS	ng/L	3.7	4.4	5.0	119	136	50-150	13	30	N2
9CI-PF3ONS	ng/L	3.6	4.4	4.5	123	126	50-150	2	30	N2
ADONA	ng/L	3.6	4.2	5.2	117	144	50-150	20	30	N2
HFPO-DA	ng/L	3.8	4.4	5.4	115	141	50-150	20	30	N2
NEtFOSA	ng/L	3.8	3.8	4.7	100	123	50-150	20	30	N2
NEtFOSAA	ng/L	3.8	4.5	5.0	117	130	50-150	10	30	N2
NEtFOSE	ng/L	3.8	4.5	5.1	118	133	50-150	12	30	N2
NMeFOSA	ng/L	3.8	4.3	4.5	112	118	50-150	5	30	N2
NMeFOSAA	ng/L	3.8	3.9	5.0	102	132	50-150	25	30	N2
NMeFOSE	ng/L	3.8	3.9	4.3	103	112	50-150	9	30	N2
Perfluorobutanesulfonic acid	ng/L	3.4	4.6	5.6	136	166	50-150	20	30	L1,N2
Perfluorodecanoic acid	ng/L	3.8	4.6	5.5	121	145	50-150	18	30	N2
Perfluorododecanoic acid	ng/L	3.8	4.4	5.4	115	141	50-150	20	30	N2
Perfluoroheptanoic acid	ng/L	3.8	4.5	5.1	116	134	50-150	14	30	N2
Perfluorohexanesulfonic acid	ng/L	3.5	4.2	4.0	119	114	50-150	5	30	N2
Perfluorohexanoic acid	ng/L	3.8	5.0	5.7	131	149	50-150	12	30	N2
Perfluorononanoic acid	ng/L	3.8	4.7	5.4	123	143	50-150	14	30	N2
Perfluorooctanesulfonic acid	ng/L	3.6	4.1	4.9	114	138	50-150	19	30	N2
Perfluorooctanoic acid	ng/L	3.8	4.9	6.1	129	161	50-150	22	30	L1,N2

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

LABORATORY CONTROL SAMPLE & LCSD: 4590400		4590406								
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Perfluorotetradecanoic acid	ng/L	3.8	4.6	5.6	120	146	50-150	19	30	N2
Perfluorotridecanoic acid	ng/L	3.8	4.4	5.3	116	140	50-150	18	30	N2
Perfluoroundecanoic acid	ng/L	3.8	4.6	5.3	120	138	50-150	14	30	N2
PFBA	ng/L	3.8	4.7	5.6	124	147	50-150	17	30	N2
PFDoS	ng/L	3.7	5.2	5.1	141	136	50-150	4	30	N2
PFDS	ng/L	3.7	4.7	5.2	127	141	50-150	10	30	N2
PFHpS	ng/L	3.7	4.3	4.4	118	121	50-150	2	30	N2
PFNS	ng/L	3.7	4.6	5.3	125	146	50-150	15	30	N2
PFOSA	ng/L	3.8	4.6	5.7	121	148	50-150	20	30	N2
PFPeA	ng/L	3.8	4.6	5.6	120	146	50-150	20	30	N2
PFPeS	ng/L	3.6	4.3	5.1	119	141	50-150	16	30	N2
13C2-PFDoA (S)	%				92	86	25-150			
13C2-PFTA (S)	%				92	76	25-150			
13C24:2FTS (S)	%				80	93	25-150			
13C26:2FTS (S)	%				83	89	25-150			
13C28:2FTS (S)	%				84	81	25-150			
13C2PFHxDA (S)	%				113	73	25-150			
13C3-PFBS (S)	%				74	74	25-150			
13C3-PFHxS (S)	%				72	74	25-150			
13C3HFPO-DA (S)	%				74	70	25-150			
13C4-PFBA (S)	%				72	66	25-150			
13C4-PFHpA (S)	%				80	78	25-150			
13C5-PFHxA (S)	%				74	68	25-150			
13C5-PFPeA (S)	%				74	68	25-150			
13C6-PFDA (S)	%				78	78	25-150			
13C7-PFUdA (S)	%				83	81	25-150			
13C8-PFOA (S)	%				74	71	25-150			
13C8-PFOS (S)	%				75	82	25-150			
13C8-PFOSA (S)	%				61	56	25-150			
13C9-PFNA (S)	%				71	77	25-150			
d3-MeFOSAA (S)	%				82	76	25-150			
d3-NMeFOSA (S)	%				55	53	20-150			
d5-EtFOSAA (S)	%				76	78	25-150			
d5-NEtFOSA (S)	%				63	56	20-150			
d7-NMeFOSE (S)	%				83	73	20-150			
d9-NEtFOSE (S)	%				80	61	20-150			

MATRIX SPIKE SAMPLE: 4590407		10643312002		Spike		MS		% Rec		Qualifiers	
Parameter	Units	Result	Conc.	Result	% Rec	Result	% Rec	Limits			
11CI-PF3OUdS	ng/L	<0.52	3.6	7.0	193	50-150	M1,N2				
4:2 FTS	ng/L	<0.44	3.6	7.9	220	50-150	M1,N2				
6:2 FTS	ng/L	28.0	3.6	31.5	95	50-150	N2				
8:2 FTS	ng/L	<0.47	3.7	6.8	183	50-150	M1,N2				
9CI-PF3ONS	ng/L	<0.44	3.6	6.9	194	50-150	M1,N2				

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QUALITY CONTROL DATA

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

MATRIX SPIKE SAMPLE: 4590407		10643312002	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
ADONA	ng/L	<0.86	3.6	7.3	203	50-150	M1,N2
HFPO-DA	ng/L	<0.46	3.8	7.8	201	50-150	M1,N2
NEtFOSA	ng/L	<0.54	3.8	7.0	184	50-150	M1,N2
NEtFOSAA	ng/L	1.2J	3.8	8.9	200	50-150	M1,N2
NEtFOSE	ng/L	<0.83	3.8	7.3	193	50-150	M1,N2
NMeFOSA	ng/L	<0.52	3.8	7.1	184	50-150	M1,N2
NMeFOSAA	ng/L	2.1	3.8	8.7	173	50-150	M1,N2
NMeFOSE	ng/L	<0.49	3.8	6.5	166	50-150	M1,N2
Perfluorobutanesulfonic acid	ng/L	4.5	3.4	11.6	211	50-150	M1,N2
Perfluorodecanoic acid	ng/L	0.81J	3.8	8.8	210	50-150	M1,N2
Perfluorododecanoic acid	ng/L	<0.45	3.8	7.9	206	50-150	M1,N2
Perfluoroheptanoic acid	ng/L	2.8	3.8	10.7	207	50-150	M1,N2
Perfluorohexanesulfonic acid	ng/L	7.7	3.5	13.9	177	50-150	M1,N2
Perfluorohexanoic acid	ng/L	30.7	3.8	37.1	167	50-150	M1,N2
Perfluorononanoic acid	ng/L	<0.74	3.8	8.6	214	50-150	M1,N2
Perfluorooctanesulfonic acid	ng/L	5.6	3.5	11.0	153	50-150	M1,N2
Perfluorooctanoic acid	ng/L	8.6	3.8	15.4	178	50-150	M1,N2
Perfluorotetradecanoic acid	ng/L	<0.56	3.8	7.5	198	50-150	M1,N2
Perfluorotridecanoic acid	ng/L	<0.58	3.8	6.8	178	50-150	M1,N2
Perfluoroundecanoic acid	ng/L	<0.45	3.8	8.3	215	50-150	M1,N2
PFBA	ng/L	10.9	3.8	17.6	176	50-150	M1,N2
PFDoS	ng/L	<0.55	3.7	6.8	183	50-150	M1,N2
PFDS	ng/L	<0.60	3.7	7.1	190	50-150	M1,N2
PFHpS	ng/L	<0.62	3.6	7.5	203	50-150	M1,N2
PFNS	ng/L	<0.55	3.7	7.6	206	50-150	M1,N2
PFOSA	ng/L	2.6	3.8	8.2	148	50-150	N2
PFPeA	ng/L	27.1	3.8	33.7	173	50-150	M1,N2
PFPeS	ng/L	0.71J	3.6	8.2	208	50-150	M1,N2
13C2-PFDoA (S)	%				88	25-150	
13C2-PFTA (S)	%				72	25-150	
13C24:2FTS (S)	%				143	25-150	
13C26:2FTS (S)	%				140	25-150	
13C28:2FTS (S)	%				112	25-150	
13C2PFHxDA (S)	%				77	25-150	
13C3-PFBS (S)	%				76	25-150	
13C3-PFHxS (S)	%				81	25-150	
13C3HFPO-DA (S)	%				80	25-150	
13C4-PFBA (S)	%				67	25-150	
13C4-PFHpA (S)	%				85	25-150	
13C5-PFHxA (S)	%				76	25-150	
13C5-PFPeA (S)	%				70	25-150	
13C6-PFDA (S)	%				82	25-150	
13C7-PFUdA (S)	%				83	25-150	
13C8-PFOA (S)	%				79	25-150	
13C8-PFOS (S)	%				77	25-150	
13C8-PFOSA (S)	%				55	25-150	
13C9-PFNA (S)	%				78	25-150	

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QUALITY CONTROL DATA

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

MATRIX SPIKE SAMPLE: 4590407		10643312002	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
d3-MeFOSAA (S)	%.				78	25-150	
d3-NMeFOSA (S)	%.				44	10-150	
d5-EtFOSAA (S)	%.				83	25-150	
d5-NEtFOSA (S)	%.				43	10-150	
d7-NMeFOSE (S)	%.				69	10-150	
d9-NEtFOSE (S)	%.				58	10-150	

SAMPLE DUPLICATE: 4590408

Parameter	Units	40258905001	Dup	RPD	Max	Qualifiers
		Result	Result		RPD	
11CI-PF3OUdS	ng/L	<0.56	<0.57			30 N2
4:2 FTS	ng/L	<0.47	<0.48			30 N2
6:2 FTS	ng/L	0.91J	0.76J			30 N2
8:2 FTS	ng/L	<0.51	<0.51			30 N2
9CI-PF3ONS	ng/L	<0.47	<0.48			30 N2
ADONA	ng/L	<0.92	<0.94			30 N2
HFPO-DA	ng/L	<0.50	<0.50			30 N2
NEtFOSA	ng/L	<0.58	<0.59			30 N2
NEtFOSAA	ng/L	<0.82	<0.83			30 N2
NEtFOSE	ng/L	<0.89	<0.91			30 N2
NMeFOSA	ng/L	<0.56	<0.56			30 N2
NMeFOSAA	ng/L	<0.70	<0.71			30 N2
NMeFOSE	ng/L	<0.52	<0.53			30 N2
Perfluorobutanesulfonic acid	ng/L	6.9	6.7	2		30 N2
Perfluorodecanoic acid	ng/L	<0.61	<0.62			30 N2
Perfluorododecanoic acid	ng/L	<0.48	<0.49			30 N2
Perfluoroheptanoic acid	ng/L	40.1	42.3	5		30 N2
Perfluorohexanesulfonic acid	ng/L	4.8	4.6	6		30 N2
Perfluorohexanoic acid	ng/L	61.3	62.5	2		30 N2
Perfluorononanoic acid	ng/L	<0.80	<0.81			30 N2
Perfluorooctanesulfonic acid	ng/L	2.9	4.6	46		30 D6,N2
Perfluorooctanoic acid	ng/L	21.9	20.8	5		30 N2
Perfluorotetradecanoic acid	ng/L	<0.60	<0.61			30 N2
Perfluorotridecanoic acid	ng/L	<0.63	<0.63			30 N2
Perfluoroundecanoic acid	ng/L	<0.49	<0.50			30 N2
PFBA	ng/L	35.4	36.1	2		30 N2
PFDoS	ng/L	<0.59	<0.60			30 N2
PFDS	ng/L	<0.64	<0.65			30 N2
PFHpS	ng/L	<0.67	<0.68			30 N2
PFNS	ng/L	<0.59	<0.60			30 N2
PFOSA	ng/L	<0.72	<0.73			30 N2
PFPeA	ng/L	61.1	61.5	1		30 N2
PFPeS	ng/L	1.1J	1.1J			30 N2
13C2-PFDoA (S)	%.	84	84			
13C2-PFTA (S)	%.	76	82			

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QUALITY CONTROL DATA

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

SAMPLE DUPLICATE: 4590408

Parameter	Units	40258905001 Result	Dup Result	RPD	Max RPD	Qualifiers
13C24:2FTS (S)	%.	96	110			
13C26:2FTS (S)	%.	91	90			
13C28:2FTS (S)	%.	81	87			
13C2PFHxDA (S)	%.	79	92			
13C3-PFBS (S)	%.	74	76			
13C3-PFHxS (S)	%.	72	79			
13C3HFPO-DA (S)	%.	77	81			
13C4-PFBA (S)	%.	74	77			
13C4-PFHpA (S)	%.	80	82			
13C5-PFHxA (S)	%.	75	80			
13C5-PFPeA (S)	%.	72	76			
13C6-PFDA (S)	%.	81	88			
13C7-PFUdA (S)	%.	76	82			
13C8-PFOA (S)	%.	73	80			
13C8-PFOS (S)	%.	71	83			
13C8-PFOSA (S)	%.	58	52			
13C9-PFNA (S)	%.	74	78			
d3-MeFOSAA (S)	%.	72	69			
d3-NMeFOSA (S)	%.	4	2			S0
d5-EtFOSAA (S)	%.	71	62			
d5-NEtFOSA (S)	%.	3	2			S0
d7-NMeFOSE (S)	%.	40	37			
d9-NEtFOSE (S)	%.	31	31			

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QUALITY CONTROL DATA

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

QC Batch: 871182

Analysis Method: ENV-SOP-MIN4-0178

QC Batch Method: ENV-SOP-MIN4-0178

Analysis Description: WI ID NPW

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10643312001

METHOD BLANK: 4594631

Matrix: Water

Associated Lab Samples: 10643312001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
11CI-PF3OUdS	ng/L	<0.53	1.8	03/18/23 01:46	N2
4:2 FTS	ng/L	<0.45	1.8	03/18/23 01:46	N2
6:2 FTS	ng/L	<0.65	1.8	03/18/23 01:46	N2
8:2 FTS	ng/L	<0.48	1.8	03/18/23 01:46	N2
9CI-PF3ONS	ng/L	<0.45	1.8	03/18/23 01:46	N2
ADONA	ng/L	<0.88	1.8	03/18/23 01:46	N2
HFPO-DA	ng/L	<0.47	1.9	03/18/23 01:46	N2
NEtFOSA	ng/L	<0.55	1.9	03/18/23 01:46	N2
NEtFOSAA	ng/L	<0.78	1.9	03/18/23 01:46	N2
NEtFOSE	ng/L	<0.85	1.9	03/18/23 01:46	N2
NMeFOSA	ng/L	<0.53	1.9	03/18/23 01:46	N2
NMeFOSAA	ng/L	<0.66	1.9	03/18/23 01:46	N2
NMeFOSE	ng/L	<0.50	1.9	03/18/23 01:46	N2
Perfluorobutanesulfonic acid	ng/L	<0.46	1.7	03/18/23 01:46	N2
Perfluorodecanoic acid	ng/L	<0.58	1.9	03/18/23 01:46	N2
Perfluorododecanoic acid	ng/L	<0.46	1.9	03/18/23 01:46	N2
Perfluoroheptanoic acid	ng/L	<0.66	1.9	03/18/23 01:46	N2
Perfluorohexanesulfonic acid	ng/L	<0.51	1.7	03/18/23 01:46	N2
Perfluorohexanoic acid	ng/L	<0.87	1.9	03/18/23 01:46	N2
Perfluorononanoic acid	ng/L	<0.76	1.9	03/18/23 01:46	N2
Perfluorooctanesulfonic acid	ng/L	<0.64	1.8	03/18/23 01:46	N2
Perfluorooctanoic acid	ng/L	<0.82	1.9	03/18/23 01:46	N2
Perfluorotetradecanoic acid	ng/L	<0.57	1.9	03/18/23 01:46	N2
Perfluorotridecanoic acid	ng/L	<0.60	1.9	03/18/23 01:46	N2
Perfluoroundecanoic acid	ng/L	<0.47	1.9	03/18/23 01:46	N2
PFBA	ng/L	<0.48	1.9	03/18/23 01:46	N2
PFDoS	ng/L	<0.57	1.9	03/18/23 01:46	N2
PFDS	ng/L	<0.61	1.8	03/18/23 01:46	N2
PFHpS	ng/L	<0.64	1.8	03/18/23 01:46	N2
PFNS	ng/L	<0.56	1.8	03/18/23 01:46	N2
PFOSA	ng/L	<0.69	1.9	03/18/23 01:46	N2
PFPeA	ng/L	<0.79	1.9	03/18/23 01:46	N2
PFPeS	ng/L	<0.58	1.8	03/18/23 01:46	N2
13C2-PFDoA (S)	%	94	25-150	03/18/23 01:46	
13C2-PFTA (S)	%	89	25-150	03/18/23 01:46	
13C24:2FTS (S)	%	87	25-150	03/18/23 01:46	
13C26:2FTS (S)	%	94	25-150	03/18/23 01:46	
13C28:2FTS (S)	%	89	25-150	03/18/23 01:46	
13C2PFHxDA (S)	%	88	25-150	03/18/23 01:46	
13C3-PFBS (S)	%	95	25-150	03/18/23 01:46	

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QUALITY CONTROL DATA

Project: MMSD PFAS-Revised Report
Pace Project No.: 10643312

METHOD BLANK: 4594631 Matrix: Water
Associated Lab Samples: 10643312001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
13C3-PFHxS (S)	%	90	25-150	03/18/23 01:46	
13C3HFPO-DA (S)	%	100	25-150	03/18/23 01:46	
13C4-PFBA (S)	%	94	25-150	03/18/23 01:46	
13C4-PFHpA (S)	%	92	25-150	03/18/23 01:46	
13C5-PFHxA (S)	%	92	25-150	03/18/23 01:46	
13C5-PFPeA (S)	%	96	25-150	03/18/23 01:46	
13C6-PFDA (S)	%	95	25-150	03/18/23 01:46	
13C7-PFUdA (S)	%	91	25-150	03/18/23 01:46	
13C8-PFOA (S)	%	95	25-150	03/18/23 01:46	
13C8-PFOS (S)	%	91	25-150	03/18/23 01:46	
13C8-PFOSA (S)	%	74	25-150	03/18/23 01:46	
13C9-PFNA (S)	%	88	25-150	03/18/23 01:46	
d3-MeFOSAA (S)	%	80	25-150	03/18/23 01:46	
d3-NMeFOSA (S)	%	66	20-150	03/18/23 01:46	
d5-EtFOSAA (S)	%	81	25-150	03/18/23 01:46	
d5-NEtFOSA (S)	%	68	20-150	03/18/23 01:46	
d7-NMeFOSE (S)	%	79	20-150	03/18/23 01:46	
d9-NEtFOSE (S)	%	77	20-150	03/18/23 01:46	

LABORATORY CONTROL SAMPLE: 4594632

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
11CI-PF3OUdS	ng/L	3.6	3.8	106	50-150	N2
4:2 FTS	ng/L	3.6	4.1	116	50-150	N2
6:2 FTS	ng/L	3.6	3.8	106	50-150	N2
8:2 FTS	ng/L	3.7	3.5	96	50-150	N2
9CI-PF3ONS	ng/L	3.6	3.8	107	50-150	N2
ADONA	ng/L	3.6	4.1	113	50-150	N2
HFPO-DA	ng/L	3.8	4.0	104	50-150	N2
NEtFOSA	ng/L	3.8	3.7	97	50-150	N2
NEtFOSAA	ng/L	3.8	4.3	112	50-150	N2
NEtFOSE	ng/L	3.8	3.8	101	50-150	N2
NMeFOSA	ng/L	3.8	4.1	107	50-150	N2
NMeFOSAA	ng/L	3.8	4.3	113	50-150	N2
NMeFOSE	ng/L	3.8	4.0	106	50-150	N2
Perfluorobutanesulfonic acid	ng/L	3.4	4.0	119	50-150	N2
Perfluorodecanoic acid	ng/L	3.8	4.0	104	50-150	N2
Perfluorododecanoic acid	ng/L	3.8	4.1	107	50-150	N2
Perfluoroheptanoic acid	ng/L	3.8	4.8	126	50-150	N2
Perfluorohexanesulfonic acid	ng/L	3.5	3.7	106	50-150	N2
Perfluorohexanoic acid	ng/L	3.8	4.5	117	50-150	N2
Perfluorononanoic acid	ng/L	3.8	4.1	109	50-150	N2
Perfluorooctanesulfonic acid	ng/L	3.6	4.1	116	50-150	N2
Perfluorooctanoic acid	ng/L	3.8	4.3	112	50-150	N2

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QUALITY CONTROL DATA

Project: MMSD PFAS-Revised Report
Pace Project No.: 10643312

LABORATORY CONTROL SAMPLE: 4594632

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Perfluorotetradecanoic acid	ng/L	3.8	3.3	86	50-150	N2
Perfluorotridecanoic acid	ng/L	3.8	4.1	108	50-150	N2
Perfluoroundecanoic acid	ng/L	3.8	4.2	109	50-150	N2
PFBA	ng/L	3.8	4.2	111	50-150	N2
PFDoS	ng/L	3.7	3.5	96	50-150	N2
PFDS	ng/L	3.7	3.9	107	50-150	N2
PFHpS	ng/L	3.7	4.0	109	50-150	N2
PFNS	ng/L	3.7	3.7	102	50-150	N2
PFOSA	ng/L	3.8	4.4	116	50-150	N2
PFPeA	ng/L	3.8	4.1	107	50-150	N2
PFPeS	ng/L	3.6	4.3	118	50-150	N2
13C2-PFDoA (S)	%			79	25-150	
13C2-PFTA (S)	%			76	25-150	
13C24:2FTS (S)	%			70	25-150	
13C26:2FTS (S)	%			79	25-150	
13C28:2FTS (S)	%			81	25-150	
13C2PFHxDA (S)	%			72	25-150	
13C3-PFBS (S)	%			75	25-150	
13C3-PFHxS (S)	%			71	25-150	
13C3HFPO-DA (S)	%			88	25-150	
13C4-PFBA (S)	%			79	25-150	
13C4-PFHpA (S)	%			73	25-150	
13C5-PFHxA (S)	%			78	25-150	
13C5-PFPeA (S)	%			79	25-150	
13C6-PFDA (S)	%			83	25-150	
13C7-PFUdA (S)	%			76	25-150	
13C8-PFOA (S)	%			80	25-150	
13C8-PFOS (S)	%			70	25-150	
13C8-PFOSA (S)	%			59	25-150	
13C9-PFNA (S)	%			77	25-150	
d3-MeFOSAA (S)	%			61	25-150	
d3-NMeFOSA (S)	%			53	20-150	
d5-EtFOSAA (S)	%			66	25-150	
d5-NEtFOSA (S)	%			56	20-150	
d7-NMeFOSE (S)	%			64	20-150	
d9-NEtFOSE (S)	%			61	20-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4594657 4594658

Parameter	Units	10641076001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
11Cl-PF3OUdS	ng/L	ND	3860	3870	3600	3270	93	84	50-150	10	30	N2	
4:2 FTS	ng/L	ND	3830	3840	4090	3900	107	102	50-150	5	30	N2	
6:2 FTS	ng/L	ND	3880	3900	4340	3380	109	84	50-150	25	30	N2	
8:2 FTS	ng/L	ND	3920	3940	3940	4270	100	109	50-150	8	30	N2	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4594657 4594658													
Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		10641076001 Result	Spike Conc.	Spike Conc.	MS Result								
9CI-PF3ONS	ng/L	ND	3830	3840	3780	3470	99	91	50-150	8	30	N2	
ADONA	ng/L	ND	3860	3870	4990	4590	129	119	50-150	8	30	N2	
HFPO-DA	ng/L	ND	4090	4100	4000	4120	97	99	50-150	3	30	N2	
NEtFOSA	ng/L	ND	4090	4100	4040	4020	99	98	50-150	1	30	N2	
NEtFOSAA	ng/L	ND	4090	4100	4380	4400	107	107	50-150	0	30	N2	
NEtFOSE	ng/L	ND	4090	4100	4160	4020	102	98	50-150	3	30	N2	
NMeFOSA	ng/L	ND	4090	4100	4130	3860	101	94	50-150	7	30	N2	
NMeFOSAA	ng/L	ND	4090	4100	4570	3730	112	91	50-150	20	30	N2	
NMeFOSE	ng/L	ND	4090	4100	4540	4290	111	105	50-150	6	30	N2	
Perfluorobutanesulfonic acid	ng/L	36300	3610	3620	37800	39900	42	99	50-150	5	30	M1,N2	
Perfluorodecanoic acid	ng/L	ND	4090	4100	4540	4240	111	103	50-150	7	30	N2	
Perfluorododecanoic acid	ng/L	ND	4090	4100	4270	4140	104	101	50-150	3	30	N2	
Perfluoroheptanoic acid	ng/L	12900	4090	4100	18100	17000	127	100	50-150	6	30	N2	
Perfluorohexanesulfonic acid	ng/L	ND	3740	3760	4260	3840	109	97	50-150	10	30	N2	
Perfluorohexanoic acid	ng/L	15600	4090	4100	18900	19900	82	106	50-150	5	30	N2	
Perfluorononanoic acid	ng/L	ND	4090	4100	5140	4730	119	109	50-150	8	30	N2	
Perfluorooctanesulfonic acid	ng/L	ND	3800	3810	3870	3550	94	86	50-150	9	30	N2	
Perfluorooctanoic acid	ng/L	731000	4090	4100	680000	736000	-1260	116	50-150	8	30	M1,N2	
Perfluorotetradecanoic acid	ng/L	ND	4090	4100	3390	3510	83	86	50-150	3	30	N2	
Perfluorotridecanoic acid	ng/L	ND	4090	4100	4110	4080	101	100	50-150	1	30	N2	
Perfluoroundecanoic acid	ng/L	ND	4090	4100	4350	4080	106	100	50-150	6	30	N2	
PFBA	ng/L	8300	4090	4100	12700	12700	107	107	50-150	0	30	N2	
PFDoS	ng/L	ND	3970	3980	3250	3130	82	79	50-150	4	30	N2	
PFDS	ng/L	ND	3940	3950	3590	3590	91	91	50-150	0	30	N2	
PFHpS	ng/L	ND	3910	3920	3920	3780	99	96	50-150	4	30	N2	
PFNS	ng/L	ND	3920	3940	3630	3280	93	83	50-150	10	30	N2	
PFOSA	ng/L	ND	4090	4100	4400	4220	106	101	50-150	4	30	N2	
PFPeA	ng/L	16500	4090	4100	20400	20200	94	90	50-150	1	30	N2	
PFPeS	ng/L	ND	3840	3850	4730	4340	115	105	50-150	8	30	N2	
13C2-PFDoA (S)	%						76	75	25-150				
13C2-PFTA (S)	%						71	69	25-150				
13C24:2FTS (S)	%						71	67	25-150				
13C26:2FTS (S)	%						68	76	25-150				
13C28:2FTS (S)	%						71	64	25-150				
13C2PFHxDA (S)	%						69	68	25-150				
13C3-PFBS (S)	%						78	73	25-150				
13C3-PFHxS (S)	%						70	66	25-150				
13C3HFPO-DA (S)	%						78	77	25-150				
13C4-PFBA (S)	%						71	67	25-150				
13C4-PFHpA (S)	%						66	67	25-150				
13C5-PFHxA (S)	%						74	67	25-150				
13C5-PFPeA (S)	%						70	72	25-150				
13C6-PFDA (S)	%						74	73	25-150				

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

Parameter	Units	4594657		4594658		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10641076001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
13C7-PFUdA (S)	%.					72	75	25-150			
13C8-PFOA (S)	%.					85	83	25-150			
13C8-PFOS (S)	%.					74	75	25-150			
13C8-PFOSA (S)	%.					57	53	25-150			
13C9-PFNA (S)	%.					68	70	25-150			
d3-MeFOSAA (S)	%.					62	67	25-150			
d3-NMeFOSA (S)	%.					47	44	10-150			
d5-EtFOSAA (S)	%.					66	63	25-150			
d5-NEtFOSA (S)	%.					51	47	10-150			
d7-NMeFOSE (S)	%.					58	55	10-150			
d9-NEtFOSE (S)	%.					58	52	10-150			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

QC Batch: 868091

Analysis Method: SM 2540D

QC Batch Method: SM 2540D

Analysis Description: 2540D Total Suspended Solids

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10643312001

METHOD BLANK: 4580279

Matrix: Water

Associated Lab Samples: 10643312001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<5.0	10.0	02/20/23 12:21	

LABORATORY CONTROL SAMPLE: 4580280

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	100	109	109	80-120	

SAMPLE DUPLICATE: 4580281

Parameter	Units	10642710005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	ND	<5.0		5	

SAMPLE DUPLICATE: 4580282

Parameter	Units	10642710006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	ND	<5.0		5	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

QC Batch: 868411

Analysis Method: SM 2540D

QC Batch Method: SM 2540D

Analysis Description: 2540D Total Suspended Solids

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10643312002

METHOD BLANK: 4581689

Matrix: Water

Associated Lab Samples: 10643312002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<5.0	10.0	02/21/23 16:46	

LABORATORY CONTROL SAMPLE: 4581690

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	100	84.0	84	80-120	

SAMPLE DUPLICATE: 4581691

Parameter	Units	10642956001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	13.2	13.4	2	5	

SAMPLE DUPLICATE: 4581692

Parameter	Units	10642966001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	<5.0	<5.0		5	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.

H2 Extraction or preparation was conducted outside of the recognized method holding time.

L1 Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

S0 Surrogate recovery outside laboratory control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MMSD PFAS-Revised Report

Pace Project No.: 10643312

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10643312001	Influent 20230213	ENV-SOP-MIN4-0178	871182	ENV-SOP-MIN4-0178	871960
10643312002	Effluent 20230214	ENV-SOP-MIN4-0178	870323	ENV-SOP-MIN4-0178	870950
10643312001	Influent 20230213	SM 2540D	868091		
10643312002	Effluent 20230214	SM 2540D	868411		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

Billing Information:

Company: TRC
Address: 708 Heartland Trail, Suite 2000
Madison, WI 53717

Bill to: MMSD

Report To: Mike Ursin

Copy To: Lydia Auer, Jeff Ramsey

Customer Project Name/Number: MMSD PFAS

Site/Facility ID #: W1 Madison

Compliance Monitoring? [] Yes [X] No

Collected By (print): Jennifer Faust

Collected By (signature): *Jennifer Faust*

Sample Disposal: [X] Dispose as appropriate [] Return

[] Archive: [] Hold:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Res Cl	# of Ctns
			Date	Time		
Influent 20230213	WW	Comp	2/13/23	0:00		3
Effluent 20230214	WW	Comp	2/14/23	0:00		3

LAB USE ONLY - Affix Workorder #
ALL SHADE
Container Preservative Type
10643312

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Lab Profile/Line: 73476
Lab Sample Receipt Checklist:

- Custody Seals Present/Intact Y N NA
- Custody Signatures Present Y N NA
- Collector Signatures Present Y N NA
- Bottles Intact Y N NA
- Correct Bottles Y N NA
- Sufficient Volume Y N NA
- Samples Received on Ice Y N NA
- VOA - Headspace Acceptable Y N NA
- USDA Regulated Soils Y N NA
- Samples in Holding Time Y N NA
- Residual Chlorine Present Y N NA
- Cl Strips: Y N NA
- Sample pH Acceptable Y N NA
- pH Strips: Y N NA
- Sulfide Present Y N NA
- Lead Acetate Strips: Y N NA
- LAB USE ONLY: Y N NA
- Lab Sample # / Comments:

PFA5 WI 33-list
TSS
Analysis:

Customer Remarks / Special Conditions / Possible Hazards: For influent sample follow EPA 19-001 (WI PFAS method expectations) Sec VI.3 procedure for particulate in aqueous samples + contr. page if needed.	Type of Ice Used: Wet Blue Dry None	SHORT HOLDS PRESENT (<72 hours): Y N N/A
Lab Sample Temperature Info: Temp Blank Received: Y N NA Therm ID#: 17 Cooler 1 Temp Upon Receipt: ___ °C Cooler 1 Therm Corr. Factor: ___ °C Cooler 1 Corrected Temp: ___ °C Comments: 3.5	Lab Tracking #: 2848331	
Relinquished by/Company: (Signature) <i>Jennifer Faust</i>	Samples received via: FEDEX UPS Client Courier Pace Courier	
Relinquished by/Company: (Signature) 37	Date/Time: 2/15/23 06:25	
Relinquished by/Company: (Signature)	Date/Time: 2/16/23	
Relinquished by/Company: (Signature)	Date/Time: _____	

Effective Date:

Sample Condition Upon Receipt: Client Name: TRC

Project #: WO#: 10643312 PM: KNH Due Date: 03/09/23 CLIENT: TRC-WI

Courier: [X] FedEx [] UPS [] USPS [] Client [] Pace [] Speedee [] Commercial

Tracking Number: S923 7144 0310 See Exceptions ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present? [X] Yes [] No Seals Intact? [X] Yes [] No Biological Tissue Frozen? [] Yes [] No [X] N/A Packing Material: [X] Bubble Wrap [] Bubble Bags [] None [] Other Temp Blank? [] Yes [X] No Thermometer: [] T1 (0461) [] T2 (1336) [] T3 (0459) [] T4 (0254) [] T5 (0178) Type of Ice: [X] Wet [] Blue [] Dry [X] None [] T6 (0235) [X] T7 (0042) [] T8 (0775) [] T9(0727) [] 01339252/1710 [] Melted

Did Samples Originate in West Virginia? [] Yes [X] No Were All Container Temps Taken? [] Yes [] No [] N/A Temp should be above freezing to 6 °C Cooler temp Read w/Temp Blank: °C Average Corrected Temp (no temp blank only): 3.5 °C Correction Factor: +.1 Cooler Temp Corrected w/temp blank: °C [] See Exceptions ENV-FRM-MIN4-0142 [] 1 Container

USDA Regulated Soil: [X] N/A, water sample/other: Date/Initials of Person Examining Contents: 2/17/23 mg Did samples originate in a quarantine zone within the United States: AL, AR, AZ CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check maps)? [] Yes [] No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? [] Yes [] No

If Yes to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.

Table with 2 columns: Location (Check one) and COMMENTS. Rows include Chain of Custody Present and Filled Out?, Chain of Custody Relinquished?, Sampler Name and/or Signature on COC?, Samples Arrived within Hold Time?, Short Hold Time Analysis (<72 hr)?, Rush Turn Around Time Requested?, Sufficient Sample Volume?, Correct Containers Used?, -Pace Containers Used?, Containers Intact?, Field Filtered Volume Received for Dissolved Tests?, Is sufficient information available to reconcile the samples to the COC?, All containers needing acid/base preservation have been checked?, All containers needing preservation are found to be in compliance with EPA recommendation?, Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxins (PFAS), Headspace in Methyl Mercury Container?, Extra labels present on soil VOA or WIDRO containers?, Headspace in VOA Vials (greater than 6mm)?, 3 Trip Blanks Present?, Trip Blank Custody Seals Present?

CLIENT NOTIFICATION/RESOLUTION Person Contacted: Date/Time: Comments/Resolution: Project Manager Review: Kirsten Hogberg Date: 2/20/2023 Field Data Required? [] Yes [] No

NOTE: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers). Labeled By: NE Line: 3



DC#_ Title: ENV-FRM-MIN4-0142 v02_Sample Condition Upon Receipt
(SCUR) Exception Form

Effective Date: 09/22/2022

Workorder #: 10643312

No Temp Blank		
Read Temp	Corrected Temp	Average temp
3.8	3.9	3.5
2.6	2.7	
3.7	3.8	
3.6	3.7	

PM Notified of Out of Temp Cooler? Yes No

If yes, indicate who was contacted, date and time.
If no, indicate reason why.

Multiple Cooler Project? Yes No

If anything is OVER 6.0° C, you **MUST** document containers in this section **HERE**



Tracking Number	Temperature

Out of Temp Sample ID	Container Type	# of Containers

pH Adjustment Log for Preserved Samples

Sample ID	Type Of Preserve	pH Upon Receipt	Date Adjusted	Time Adjusted	Amount Added (mL)	Lot # Added	pH After	In Compliance After Addition?		Initials
								<input type="checkbox"/> Yes	<input type="checkbox"/> No	
								<input type="checkbox"/> Yes	<input type="checkbox"/> No	
								<input type="checkbox"/> Yes	<input type="checkbox"/> No	
								<input type="checkbox"/> Yes	<input type="checkbox"/> No	
								<input type="checkbox"/> Yes	<input type="checkbox"/> No	
								<input type="checkbox"/> Yes	<input type="checkbox"/> No	
								<input type="checkbox"/> Yes	<input type="checkbox"/> No	
								<input type="checkbox"/> Yes	<input type="checkbox"/> No	

Comments:

March 2023

 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Julie Maas
Madison Metropolitan Sewerage District
1610 Moorland Road
Madison, Wisconsin 53713-3398

Generated 7/14/2023 12:38:29 PM Revision 3

JOB DESCRIPTION

MMSD PFAS

JOB NUMBER

320-98088-1

Eurofins Sacramento

Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

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 Northern California, LLC Project Manager.

Authorization



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Revision 3

Authorized for release by
Micah Smith, Project Manager II
Micah.Smith@et.eurofinsus.com
(916)374-4302



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Definitions/Glossary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
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.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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

Case Narrative

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Job ID: 320-98088-1

Laboratory: Eurofins Sacramento

Narrative

Job Narrative 320-98088-1

Comments

No additional comments.

Revision

The report being provided is a revision of the original report sent on 4/21/2023. The report (revision 3) is being revised to remove the Total PFCA (treatment Difference), Total PFCA (Summary) - Pre-Treatment, and Total PFCA (Summary) - Post-Treatment sections, as requested.

Report revision history

Revision 1 - 5/10/2023 - Reason - The report (revision 1) was revised to report to the MDL, to remove the "H" flags and holding time violation narrations, to report only one set of data, to add a narration explaining the homogenization of the biosolid samples, and to add a narration explaining how the particulate was handled for the water samples.

Revision 2 - 5/15/2023 - Reason - The report (revision 2) was revised to correctly report the data to the MDL and to remove and remove the *1 qualifier to EtFOSE in the post-TOP aliquots of samples BioA-22-20230321 (320-98088-8) and BioB-20230321 (320-98088-9).

Receipt

The samples were received on 3/23/2023 9:40 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 0.7° C and 0.9° C.

LCMS

Method 537 (modified): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following samples: BioA-22-20230321 (320-98088-8) and BioB-20230321 (320-98088-9). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method 537 (modified): The labeled analyte M2-4:2FTS is converted to PFBA during the oxidation step of the TOP assay. The PFBA result in the Post-Treatment Method Blank (MB) (MB 320-663938/1-A) indicates how much of a field sample's Post-Treatment PFBA result is contributed by the Reverse Surrogate, when adjusted for dilution factors.

Method 537 (modified): The labeled analyte M2-4:2FTS is employed in this analysis as a "Reverse Surrogate". It is used to monitor the oxidation efficiency of the TOP assay. This analyte is fortified into all sample fractions prior to any processing. The recovery of this analyte should be 0% in Post-Treatment fractions, indicating complete oxidation of the sample. The following sample are associated with this narration: BioA-22-20230321 (320-98088-8), BioB-20230321 (320-98088-9), (LCS 320-663938/2-A), (LCSD 320-663938/3-A) and (MB 320-663938/1-A).

Method 537 (modified): Zero percent recovery of precursor analytes (such as 4:2 FTS, 6:2 FTS, 8:2 FTS, FOSA, NMeFOSAA, NEtFOSAA, etc.) and enhanced recoveries of PFCA is observed in the Post-Treatment Laboratory Control Sample (LCS) and Post-Treatment Laboratory Control Sample Duplicate (LCSD) associated with these samples, consistent with the expected oxidation of precursor analytes. The existing LCS control limits are based upon our historical performance for a set of 24-36 analytes in the LCS solution. We have recently expanded to 70+ analytes. As the LCS solution now contains new/additional precursor analytes we are seeing enhanced recoveries for some PFCA vs. the historical limits as a result. The LCS results are flagged as being high and outside of the established limits for some analytes; however, this is a function of the new analytes in the LCS solution and not indicative of an "out of control" process. The following sample are associated with this narration: BioA-22-20230321 (320-98088-8), BioB-20230321 (320-98088-9), (LCS 320-663938/2-A), (LCSD 320-663938/3-A) and (MB 320-663938/1-A).

Method 537 (modified): The labeled analyte M2-4:2FTS is employed in this analysis as a "Reverse Surrogate". It is used to monitor the oxidation efficiency of the TOP assay. This analyte is fortified into all sample fractions prior to any processing. The recovery of this analyte should be 0% in Post-Treatment fractions, indicating complete oxidation of the sample. The following sample are associated with this narration: Inf-02-20230320 (320-98088-1), Inf-07-20230320 (320-98088-2), Inf-08-20230320 (320-98088-3), Inf-11-20230320 (320-98088-4), Inf-18-20230320 (320-98088-5), Eff-20230321 (320-98088-7), (LCS 320-663934/2-A), (LCS 320-663935/2-A), (LCSD 320-663934/3-A), (LCSD 320-663935/3-A), (MB 320-663934/1-A) and (MB 320-663935/1-A).

Method 537 (modified): Zero percent recovery of precursor analytes (such as 4:2 FTS, 6:2 FTS, 8:2 FTS, FOSA, NMeFOSAA, NEtFOSAA,

Case Narrative

Client: Madison Metropolitan Sewerage District
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etc.) and enhanced recoveries of PFCA is observed in the Post-Treatment Laboratory Control Sample (LCS) and Post-Treatment Laboratory Control Sample Duplicate (LCSD) associated with these samples, consistent with the expected oxidation of precursor analytes. The existing LCS control limits are based upon our historical performance for a set of 24-36 analytes in the LCS solution. We have recently expanded to 70+ analytes. As the LCS solution now contains new/additional precursor analytes we are seeing enhanced recoveries for some PFCA vs. the historical limits as a result. The LCS results are flagged as being high and outside of the established limits for some analytes; however, this is a function of the new analytes in the LCS solution and not indicative of an "out of control" process. The following sample are associated with this narration: (LCS 320-663935/2-A) and (LCSD 320-663935/3-A).

Method 537 (modified): The labeled analyte M2-4:2FTS is employed in this analysis as a "Reverse Surrogate". It is used to monitor the oxidation efficiency of the TOP assay. This analyte is fortified into all sample fractions prior to any processing. The recovery of this analyte should be 0% in Post-Treatment fractions, indicating complete oxidation of the sample. The following sample are associated with this narration: Inf-02-20230320 (320-98088-1), Inf-07-20230320 (320-98088-2), Inf-08-20230320 (320-98088-3), Inf-11-20230320 (320-98088-4), Inf-18-20230320 (320-98088-5), Eff-20230321 (320-98088-7), BioA-22-20230321 (320-98088-8), BioB-20230321 (320-98088-9), (LCS 320-667340/2-A), (LCS 320-667343/2-A), (LCSD 320-667340/3-A), (LCSD 320-667343/3-A), (MB 320-667340/1-A) and (MB 320-667343/1-A).

Method 537 (modified): The following analyte recovered outside control limits for the LCS associated with preparation batch 320-667343 and analytical batch 320-668004: NEtFOSA. This is not indicative of a systematic control problem because this is a random marginal exceedances. Qualified results have been reported.

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

Organic Prep

Method TOP Pre - Prep/Method TOP Post Prep: The following sample were homogenized prior to analysis: BioA-22-20230321 (320-98088-8) and BioB-20230321 (320-98088-9). The samples were agitated prior to aliquoting, a 1g aliquot is immediately pulled for extraction after agitation.

Method TOP Post Prep: The following samples in preparation batch 320-663935 were observed to have floating particulates present in the sample bottle: Inf-02-20230320 (320-98088-1), Inf-07-20230320 (320-98088-2), Inf-08-20230320 (320-98088-3), Inf-11-20230320 (320-98088-4) and Inf-18-20230320 (320-98088-5). The full 100 ml aliquot passed through the SPE column.

Method TOP Pre - Prep: The following samples in preparation batch 320-663934 were observed to have floating particulates present in the sample bottle: Inf-02-20230320 (320-98088-1), Inf-07-20230320 (320-98088-2), Inf-08-20230320 (320-98088-3), Inf-11-20230320 (320-98088-4) and Inf-18-20230320 (320-98088-5). The full 100 ml aliquot passed through the SPE column.

Method TOP Pre - Prep: The following samples in preparation batch 320-667343 were observed to have floating particulates present in the sample bottle: Inf-02-20230320 (320-98088-1), Inf-07-20230320 (320-98088-2), Inf-08-20230320 (320-98088-3), Inf-11-20230320 (320-98088-4) and Inf-18-20230320 (320-98088-5). The full 100 ml aliquot passed through the SPE column.

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

VOA Prep

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

Detection Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-02-20230320

Lab Sample ID: 320-98088-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPA)	3.9	J	5.0	1.2	ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanoic acid (PFHxA)	5.2		5.0	1.4	ng/L	1		537 (modified)	Pre-Treatment
Perfluoroheptanoic acid (PFHpA)	1.3	J	5.0	0.63	ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanoic acid (PFOA)	3.2	J	5.0	2.1	ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanesulfonic acid (PFBS)	3.0	J	5.0	0.50	ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanesulfonic acid (PFHxS)	4.2	J	5.0	0.43	ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanesulfonic acid (PFOS)	4.0	J	5.0	0.80	ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	24	*+	13	6.0	ng/L	1		537 (modified)	Post-Treatment
Perfluoropentanoic acid (PFPA)	19	*+	5.0	1.2	ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanoic acid (PFHxA)	17	*+	5.0	1.4	ng/L	1		537 (modified)	Post-Treatment
Perfluoroheptanoic acid (PFHpA)	6.1	*+	5.0	0.63	ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanoic acid (PFOA)	6.2		5.0	2.1	ng/L	1		537 (modified)	Post-Treatment
Perfluorononanoic acid (PFNA)	1.1	J*+	5.0	0.68	ng/L	1		537 (modified)	Post-Treatment
Perfluorodecanoic acid (PFDA)	0.89	J*+	5.0	0.78	ng/L	1		537 (modified)	Post-Treatment
Perfluorobutanesulfonic acid (PFBS)	2.9	J	5.0	0.50	ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanesulfonic acid (PFHxS)	3.8	J	5.0	0.43	ng/L	1		537 (modified)	Post-Treatment

Client Sample ID: Inf-07-20230320

Lab Sample ID: 320-98088-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	14		13	6.0	ng/L	1		537 (modified)	Pre-Treatment
Perfluoropentanoic acid (PFPA)	8.0		5.0	1.2	ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanoic acid (PFHxA)	16		5.0	1.4	ng/L	1		537 (modified)	Pre-Treatment
Perfluoroheptanoic acid (PFHpA)	3.4	J	5.0	0.63	ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanoic acid (PFOA)	8.7		5.0	2.1	ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanesulfonic acid (PFBS)	6.3		5.0	0.50	ng/L	1		537 (modified)	Pre-Treatment
Perfluoropentanesulfonic acid (PFPeS)	1.0	J	5.0	0.75	ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanesulfonic acid (PFHxS)	14		5.0	0.43	ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanesulfonic acid (PFOS)	8.5		5.0	0.80	ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	52	*+	13	6.0	ng/L	1		537 (modified)	Post-Treatment
Perfluoropentanoic acid (PFPA)	36	*+	5.0	1.2	ng/L	1		537 (modified)	Post-Treatment

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-07-20230320 (Continued)

Lab Sample ID: 320-98088-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	35	*+	5.0	1.4	ng/L	1		537 (modified)	Post-Treatment
Perfluoroheptanoic acid (PFHpA)	10	*+	5.0	0.63	ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanoic acid (PFOA)	13		5.0	2.1	ng/L	1		537 (modified)	Post-Treatment
Perfluorononanoic acid (PFNA)	2.0	J*+	5.0	0.68	ng/L	1		537 (modified)	Post-Treatment
Perfluorodecanoic acid (PFDA)	1.5	J*+	5.0	0.78	ng/L	1		537 (modified)	Post-Treatment
Perfluorobutanesulfonic acid (PFBS)	5.8		5.0	0.50	ng/L	1		537 (modified)	Post-Treatment
Perfluoropentanesulfonic acid (PFPeS)	0.96	J	5.0	0.75	ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanesulfonic acid (PFHxS)	11		5.0	0.43	ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanesulfonic acid (PFOS)	5.4		5.0	0.80	ng/L	1		537 (modified)	Post-Treatment

Client Sample ID: Inf-08-20230320

Lab Sample ID: 320-98088-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPA)	8.6		5.0	1.2	ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanoic acid (PFHxA)	6.3		5.0	1.4	ng/L	1		537 (modified)	Pre-Treatment
Perfluoroheptanoic acid (PFHpA)	0.92	J	5.0	0.63	ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanesulfonic acid (PFBS)	1.4	J	5.0	0.50	ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanesulfonic acid (PFHxS)	2.3	J I	5.0	0.43	ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	39	*+	13	6.0	ng/L	1		537 (modified)	Post-Treatment
Perfluoropentanoic acid (PFPA)	41	*+	5.0	1.2	ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanoic acid (PFHxA)	25	*+	5.0	1.4	ng/L	1		537 (modified)	Post-Treatment
Perfluoroheptanoic acid (PFHpA)	10	*+	5.0	0.63	ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanoic acid (PFOA)	8.3		5.0	2.1	ng/L	1		537 (modified)	Post-Treatment
Perfluorononanoic acid (PFNA)	2.8	J*+	5.0	0.68	ng/L	1		537 (modified)	Post-Treatment
Perfluorodecanoic acid (PFDA)	2.2	J*+	5.0	0.78	ng/L	1		537 (modified)	Post-Treatment
Perfluorotetradecanoic acid (PFTeA)	0.74	J	5.0	0.73	ng/L	1		537 (modified)	Post-Treatment
Perfluorobutanesulfonic acid (PFBS)	1.7	J	5.0	0.50	ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanesulfonic acid (PFHxS)	2.4	J	5.0	0.43	ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanesulfonic acid (PFOS)	1.8	J	5.0	0.80	ng/L	1		537 (modified)	Post-Treatment

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-11-20230320

Lab Sample ID: 320-98088-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPA)	2.5	J	5.0	1.2	ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanoic acid (PFHxA)	3.8	J I	5.0	1.4	ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanoic acid (PFOA)	2.3	J	5.0	2.1	ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanesulfonic acid (PFBS)	1.4	J	5.0	0.50	ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanesulfonic acid (PFHxS)	2.1	J I	5.0	0.43	ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanesulfonic acid (PFOS)	3.6	J	5.0	0.80	ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	40	*+	13	6.0	ng/L	1		537 (modified)	Post-Treatment
Perfluoropentanoic acid (PFPA)	38	*+	5.0	1.2	ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanoic acid (PFHxA)	23	*+	5.0	1.4	ng/L	1		537 (modified)	Post-Treatment
Perfluoroheptanoic acid (PFHpA)	10	*+	5.0	0.63	ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanoic acid (PFOA)	9.8		5.0	2.1	ng/L	1		537 (modified)	Post-Treatment
Perfluorononanoic acid (PFNA)	2.6	J**	5.0	0.68	ng/L	1		537 (modified)	Post-Treatment
Perfluorodecanoic acid (PFDA)	1.9	J**	5.0	0.78	ng/L	1		537 (modified)	Post-Treatment
Perfluorobutanesulfonic acid (PFBS)	1.7	J	5.0	0.50	ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanesulfonic acid (PFHxS)	1.9	J	5.0	0.43	ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanesulfonic acid (PFOS)	1.9	J	5.0	0.80	ng/L	1		537 (modified)	Post-Treatment

Client Sample ID: Inf-18-20230320

Lab Sample ID: 320-98088-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	11	J	13	6.0	ng/L	1		537 (modified)	Pre-Treatment
Perfluoropentanoic acid (PFPA)	6.0		5.0	1.2	ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanoic acid (PFHxA)	10		5.0	1.4	ng/L	1		537 (modified)	Pre-Treatment
Perfluoroheptanoic acid (PFHpA)	2.7	J	5.0	0.63	ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanoic acid (PFOA)	8.8		5.0	2.1	ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanesulfonic acid (PFBS)	5.3		5.0	0.50	ng/L	1		537 (modified)	Pre-Treatment
Perfluoropentanesulfonic acid (PFPeS)	1.5	J	5.0	0.75	ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanesulfonic acid (PFHxS)	14		5.0	0.43	ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanesulfonic acid (PFOS)	7.6		5.0	0.80	ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	44	*+	13	6.0	ng/L	1		537 (modified)	Post-Treatment
Perfluoropentanoic acid (PFPA)	35	*+	5.0	1.2	ng/L	1		537 (modified)	Post-Treatment

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-18-20230320 (Continued)

Lab Sample ID: 320-98088-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	32	*+	5.0	1.4	ng/L	1		537 (modified)	Post-Treatment
Perfluoroheptanoic acid (PFHpA)	10	*+	5.0	0.63	ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanoic acid (PFOA)	14		5.0	2.1	ng/L	1		537 (modified)	Post-Treatment
Perfluorononanoic acid (PFNA)	2.0	J*+	5.0	0.68	ng/L	1		537 (modified)	Post-Treatment
Perfluorodecanoic acid (PFDA)	1.3	J*+	5.0	0.78	ng/L	1		537 (modified)	Post-Treatment
Perfluorobutanesulfonic acid (PFBS)	5.5		5.0	0.50	ng/L	1		537 (modified)	Post-Treatment
Perfluoropentanesulfonic acid (PFPeS)	1.3	J	5.0	0.75	ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanesulfonic acid (PFHxS)	14		5.0	0.43	ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanesulfonic acid (PFOS)	8.2		5.0	0.80	ng/L	1		537 (modified)	Post-Treatment

Client Sample ID: Eff-20230321

Lab Sample ID: 320-98088-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	8.7	J	13	6.0	ng/L	1		537 (modified)	Pre-Treatment
Perfluoropentanoic acid (PFPA)	12		5.0	1.2	ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanoic acid (PFHxA)	21		5.0	1.4	ng/L	1		537 (modified)	Pre-Treatment
Perfluoroheptanoic acid (PFHpA)	2.5	J	5.0	0.63	ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanoic acid (PFOA)	7.4		5.0	2.1	ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanesulfonic acid (PFBS)	3.8	J	5.0	0.50	ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanesulfonic acid (PFHxS)	6.9		5.0	0.43	ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanesulfonic acid (PFOS)	4.0	J	5.0	0.80	ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	33	*+	13	6.0	ng/L	1		537 (modified)	Post-Treatment
Perfluoropentanoic acid (PFPA)	24	*+	5.0	1.2	ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanoic acid (PFHxA)	25	*+	5.0	1.4	ng/L	1		537 (modified)	Post-Treatment
Perfluoroheptanoic acid (PFHpA)	3.2	J*+	5.0	0.63	ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanoic acid (PFOA)	8.4		5.0	2.1	ng/L	1		537 (modified)	Post-Treatment
Perfluorodecanoic acid (PFDA)	0.82	J*+	5.0	0.78	ng/L	1		537 (modified)	Post-Treatment
Perfluorobutanesulfonic acid (PFBS)	3.7	J	5.0	0.50	ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanesulfonic acid (PFHxS)	6.2		5.0	0.43	ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanesulfonic acid (PFOS)	3.4	J	5.0	0.80	ng/L	1		537 (modified)	Post-Treatment

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: BioA-22-20230321

Lab Sample ID: 320-98088-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	7.2	B	4.4	1.0	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluoropentanoic acid (PFPA)	4.3	J	4.4	0.90	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorohexanoic acid (PFHxA)	10		4.4	0.67	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorooctanoic acid (PFOA)	5.8		4.4	1.2	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorononanoic acid (PFNA)	0.80	J	4.4	0.48	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorodecanoic acid (PFDA)	7.6		4.4	1.0	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluoroundecanoic acid (PFUnA)	1.5	J	4.4	0.91	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorododecanoic acid (PFDoA)	2.9	J	4.4	0.65	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorotetradecanoic acid (PFTeA)	0.85	J	4.4	0.81	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorobutanesulfonic acid (PFBS)	3.6	J	4.4	0.83	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorohexanesulfonic acid (PFHxS)	3.7	J	4.4	0.63	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorooctanesulfonic acid (PFOS)	17		4.4	0.94	ug/Kg	1	✳	537 (modified)	Pre-Treatment
NMeFOSAA	17		4.4	0.50	ug/Kg	1	✳	537 (modified)	Pre-Treatment
NEtFOSAA	6.1		4.4	1.0	ug/Kg	1	✳	537 (modified)	Pre-Treatment
NMeFOSE	11		4.4	1.0	ug/Kg	1	✳	537 (modified)	Pre-Treatment
NEtFOSE	6.3		4.4	0.61	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	97	B	4.2	0.97	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluoropentanoic acid (PFPA)	43		4.2	0.87	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorohexanoic acid (PFHxA)	33	*+	4.2	0.65	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluoroheptanoic acid (PFHpA)	16		4.2	0.80	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorooctanoic acid (PFOA)	35		4.2	1.1	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorononanoic acid (PFNA)	8.3		4.2	0.46	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorodecanoic acid (PFDA)	10		4.2	1.0	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluoroundecanoic acid (PFUnA)	4.1	J	4.2	0.89	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorododecanoic acid (PFDoA)	5.0		4.2	0.63	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorotridecanoic acid (PFTrDA)	1.4	J	4.2	0.44	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorotetradecanoic acid (PFTeA)	1.5	J	4.2	0.78	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorobutanesulfonic acid (PFBS)	13		4.2	0.80	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorohexanesulfonic acid (PFHxS)	2.6	J	4.2	0.61	ug/Kg	1	✳	537 (modified)	Post-Treatment

This Detection Summary does not include radiochemical test results.

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Detection Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: BioA-22-20230321 (Continued)

Lab Sample ID: 320-98088-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	18		4.2	0.91	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorodecanesulfonic acid (PFDS)	1.9	J	4.2	1.1	ug/Kg	1	✳	537 (modified)	Post-Treatment

Client Sample ID: BioB-20230321

Lab Sample ID: 320-98088-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	18	B	17	3.8	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorohexanoic acid (PFHxA)	4.1	J	17	2.6	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorooctanesulfonic acid (PFOS)	14	J	17	3.6	ug/Kg	1	✳	537 (modified)	Pre-Treatment
NMeFOSE	5.8	J	17	3.9	ug/Kg	1	✳	537 (modified)	Pre-Treatment
NEtFOSE	6.8	J	17	2.3	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	97	B	16	3.7	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluoropentanoic acid (PFPA)	51		16	3.3	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorohexanoic acid (PFHxA)	28	*+	16	2.5	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluoroheptanoic acid (PFHpA)	15	J	16	3.1	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorooctanoic acid (PFOA)	21		16	4.3	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorononanoic acid (PFNA)	7.9	J	16	1.8	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorodecanoic acid (PFDA)	6.6	J	16	3.9	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluoroundecanoic acid (PFUnA)	4.1	J	16	3.4	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorododecanoic acid (PFDoA)	3.6	J	16	2.4	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorotridecanoic acid (PFTrDA)	1.7	J	16	1.7	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorobutanesulfonic acid (PFBS)	3.2	J	16	3.1	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorooctanesulfonic acid (PFOS)	11	J	16	3.5	ug/Kg	1	✳	537 (modified)	Post-Treatment

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-02-20230320

Lab Sample ID: 320-98088-1

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		13	6.0	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluoropentanoic acid (PFPA)	3.9	J	5.0	1.2	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorohexanoic acid (PFHxA)	5.2		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluoroheptanoic acid (PFHpA)	1.3	J	5.0	0.63	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorooctanoic acid (PFOA)	3.2	J	5.0	2.1	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorodecanoic acid (PFDA)	ND		5.0	0.78	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorobutanesulfonic acid (PFBS)	3.0	J	5.0	0.50	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorohexanesulfonic acid (PFHxS)	4.2	J	5.0	0.43	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorooctanesulfonic acid (PFOS)	4.0	J	5.0	0.80	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		03/28/23 21:54	04/10/23 16:40	1
NMeFOSAA	ND		13	3.0	ng/L		03/28/23 21:54	04/10/23 16:40	1
NEtFOSAA	ND		13	3.3	ng/L		03/28/23 21:54	04/10/23 16:40	1
4:2 FTS	ND		5.0	0.60	ng/L		03/28/23 21:54	04/10/23 16:40	1
6:2 FTS	ND		13	6.3	ng/L		03/28/23 21:54	04/10/23 16:40	1
8:2 FTS	ND		5.0	1.2	ng/L		03/28/23 21:54	04/10/23 16:40	1
NMeFOSE	ND		10	3.5	ng/L		03/28/23 21:54	04/10/23 16:40	1
NEtFOSE	ND		5.0	2.2	ng/L		03/28/23 21:54	04/10/23 16:40	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		03/28/23 21:54	04/10/23 16:40	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		03/28/23 21:54	04/10/23 16:40	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		03/28/23 21:54	04/10/23 16:40	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		03/28/23 21:54	04/10/23 16:40	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	90		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C4 PFBA	91		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C5 PFPeA	104		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C2 PFHxA	106		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C4 PFHpA	124		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C4 PFOA	117		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C5 PFNA	114		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C2 PFDA	111		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C2 PFUnA	98		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C2 PFDoA	82		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C2 PFTeDA	64		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C3 PFBS	94		25 - 150	03/28/23 21:54	04/10/23 16:40	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-02-20230320

Lab Sample ID: 320-98088-1

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	102		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C4 PFOS	93		25 - 150	03/28/23 21:54	04/10/23 16:40	1
d3-NMeFOSAA	88		25 - 150	03/28/23 21:54	04/10/23 16:40	1
d5-NEtFOSAA	95		25 - 150	03/28/23 21:54	04/10/23 16:40	1
M2-4:2 FTS	125		25 - 150	03/28/23 21:54	04/10/23 16:40	1
M2-6:2 FTS	183	*5+	25 - 150	03/28/23 21:54	04/10/23 16:40	1
M2-8:2 FTS	133		25 - 150	03/28/23 21:54	04/10/23 16:40	1
d7-N-MeFOSE-M	58		25 - 150	03/28/23 21:54	04/10/23 16:40	1
d9-N-EtFOSE-M	56		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C3 HFPO-DA	126		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C2 10:2 FTS	113		25 - 150	03/28/23 21:54	04/10/23 16:40	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSA	ND	*-	5.0	2.2	ng/L		04/12/23 20:59	04/13/23 23:59	1
NMeFOSA	ND		5.0	1.1	ng/L		04/12/23 20:59	04/13/23 23:59	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d-N-MeFOSA-M	35		25 - 150	04/12/23 20:59	04/13/23 23:59	1
d-N-EtFOSA-M	42		25 - 150	04/12/23 20:59	04/13/23 23:59	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	24	++	13	6.0	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluoropentanoic acid (PFPA)	19	++	5.0	1.2	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorohexanoic acid (PFHxA)	17	++	5.0	1.4	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluoroheptanoic acid (PFHpA)	6.1	++	5.0	0.63	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorooctanoic acid (PFOA)	6.2		5.0	2.1	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorononanoic acid (PFNA)	1.1	J ++	5.0	0.68	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorodecanoic acid (PFDA)	0.89	J ++	5.0	0.78	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorotridecanoic acid (PFTTrDA)	ND		5.0	3.2	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorobutanesulfonic acid (PFBS)	2.9	J	5.0	0.50	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorohexanesulfonic acid (PFHxS)	3.8	J	5.0	0.43	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.0	0.80	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		03/28/23 22:07	04/10/23 18:22	1
NMeFOSAA	ND		13	3.0	ng/L		03/28/23 22:07	04/10/23 18:22	1
NEtFOSAA	ND		13	3.3	ng/L		03/28/23 22:07	04/10/23 18:22	1
4:2 FTS	ND		5.0	0.60	ng/L		03/28/23 22:07	04/10/23 18:22	1
6:2 FTS	ND		13	6.3	ng/L		03/28/23 22:07	04/10/23 18:22	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-02-20230320

Lab Sample ID: 320-98088-1

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
8:2 FTS	ND		5.0	1.2	ng/L		03/28/23 22:07	04/10/23 18:22	1
NEtFOSA	ND		5.0	2.2	ng/L		03/28/23 22:07	04/10/23 18:22	1
NMeFOSA	ND		5.0	1.1	ng/L		03/28/23 22:07	04/10/23 18:22	1
NMeFOSE	ND		10	3.5	ng/L		03/28/23 22:07	04/10/23 18:22	1
NEtFOSE	ND		5.0	2.2	ng/L		03/28/23 22:07	04/10/23 18:22	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		03/28/23 22:07	04/10/23 18:22	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		03/28/23 22:07	04/10/23 18:22	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		03/28/23 22:07	04/10/23 18:22	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		03/28/23 22:07	04/10/23 18:22	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	93		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C4 PFBA	109		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C5 PFPeA	110		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C2 PFHxA	109		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C4 PFHpA	117		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C4 PFOA	108		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C5 PFNA	108		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C2 PFDA	106		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C2 PFUnA	99		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C2 PFDaA	105		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C2 PFTeDA	115		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C3 PFBS	100		25 - 150	03/28/23 22:07	04/10/23 18:22	1
18O2 PFHxS	106		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C4 PFOS	92		25 - 150	03/28/23 22:07	04/10/23 18:22	1
d3-NMeFOSAA	98		25 - 150	03/28/23 22:07	04/10/23 18:22	1
d5-NEtFOSAA	100		25 - 150	03/28/23 22:07	04/10/23 18:22	1
M2-4:2 FTS	0		0 - 10	03/28/23 22:07	04/10/23 18:22	1
M2-6:2 FTS	98		25 - 150	03/28/23 22:07	04/10/23 18:22	1
M2-8:2 FTS	95		25 - 150	03/28/23 22:07	04/10/23 18:22	1
d-N-MeFOSA-M	63		25 - 150	03/28/23 22:07	04/10/23 18:22	1
d-N-EtFOSA-M	55		25 - 150	03/28/23 22:07	04/10/23 18:22	1
d7-N-MeFOSE-M	54		25 - 150	03/28/23 22:07	04/10/23 18:22	1
d9-N-EtFOSE-M	48		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C3 HFPO-DA	128		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C2 10:2 FTS	117		25 - 150	03/28/23 22:07	04/10/23 18:22	1

Client Sample ID: Inf-07-20230320

Lab Sample ID: 320-98088-2

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	14		13	6.0	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluoropentanoic acid (PFPA)	8.0		5.0	1.2	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorohexanoic acid (PFHxA)	16		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluoroheptanoic acid (PFHpA)	3.4	J	5.0	0.63	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorooctanoic acid (PFOA)	8.7		5.0	2.1	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorodecanoic acid (PFDA)	ND		5.0	0.78	ng/L		03/28/23 21:54	04/10/23 16:50	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-07-20230320

Lab Sample ID: 320-98088-2

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorobutanesulfonic acid (PFBS)	6.3		5.0	0.50	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluoropentanesulfonic acid (PFPeS)	1.0	J	5.0	0.75	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorohexanesulfonic acid (PFHxS)	14		5.0	0.43	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorooctanesulfonic acid (PFOS)	8.5		5.0	0.80	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		03/28/23 21:54	04/10/23 16:50	1
NMeFOSAA	ND		13	3.0	ng/L		03/28/23 21:54	04/10/23 16:50	1
NEtFOSAA	ND		13	3.3	ng/L		03/28/23 21:54	04/10/23 16:50	1
4:2 FTS	ND		5.0	0.60	ng/L		03/28/23 21:54	04/10/23 16:50	1
6:2 FTS	ND		13	6.3	ng/L		03/28/23 21:54	04/10/23 16:50	1
8:2 FTS	ND		5.0	1.2	ng/L		03/28/23 21:54	04/10/23 16:50	1
NMeFOSE	ND		10	3.5	ng/L		03/28/23 21:54	04/10/23 16:50	1
NEtFOSE	ND		5.0	2.2	ng/L		03/28/23 21:54	04/10/23 16:50	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		03/28/23 21:54	04/10/23 16:50	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		03/28/23 21:54	04/10/23 16:50	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		03/28/23 21:54	04/10/23 16:50	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		03/28/23 21:54	04/10/23 16:50	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C8 FOSA	78		25 - 150				03/28/23 21:54	04/10/23 16:50	1
13C4 PFBA	85		25 - 150				03/28/23 21:54	04/10/23 16:50	1
13C5 PFPeA	103		25 - 150				03/28/23 21:54	04/10/23 16:50	1
13C2 PFHxA	98		25 - 150				03/28/23 21:54	04/10/23 16:50	1
13C4 PFHpA	115		25 - 150				03/28/23 21:54	04/10/23 16:50	1
13C4 PFOA	114		25 - 150				03/28/23 21:54	04/10/23 16:50	1
13C5 PFNA	110		25 - 150				03/28/23 21:54	04/10/23 16:50	1
13C2 PFDA	108		25 - 150				03/28/23 21:54	04/10/23 16:50	1
13C2 PFUnA	88		25 - 150				03/28/23 21:54	04/10/23 16:50	1
13C2 PFDoA	67		25 - 150				03/28/23 21:54	04/10/23 16:50	1
13C2 PFTeDA	55		25 - 150				03/28/23 21:54	04/10/23 16:50	1
13C3 PFBS	92		25 - 150				03/28/23 21:54	04/10/23 16:50	1
18O2 PFHxS	97		25 - 150				03/28/23 21:54	04/10/23 16:50	1
13C4 PFOS	87		25 - 150				03/28/23 21:54	04/10/23 16:50	1
d3-NMeFOSAA	72		25 - 150				03/28/23 21:54	04/10/23 16:50	1
d5-NEtFOSAA	77		25 - 150				03/28/23 21:54	04/10/23 16:50	1
M2-4:2 FTS	116		25 - 150				03/28/23 21:54	04/10/23 16:50	1
M2-6:2 FTS	181	*5+	25 - 150				03/28/23 21:54	04/10/23 16:50	1
M2-8:2 FTS	123		25 - 150				03/28/23 21:54	04/10/23 16:50	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-07-20230320

Lab Sample ID: 320-98088-2

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d7-N-MeFOSE-M	52		25 - 150	03/28/23 21:54	04/10/23 16:50	1
d9-N-EtFOSE-M	57		25 - 150	03/28/23 21:54	04/10/23 16:50	1
13C3 HFPO-DA	121		25 - 150	03/28/23 21:54	04/10/23 16:50	1
13C2 10:2 FTS	91		25 - 150	03/28/23 21:54	04/10/23 16:50	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSA	ND	*	5.0	2.2	ng/L		04/12/23 20:59	04/14/23 00:10	1
NMeFOSA	ND		5.0	1.1	ng/L		04/12/23 20:59	04/14/23 00:10	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d-N-MeFOSA-M	36		25 - 150	04/12/23 20:59	04/14/23 00:10	1
d-N-EtFOSA-M	42		25 - 150	04/12/23 20:59	04/14/23 00:10	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	52	++	13	6.0	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluoropentanoic acid (PFPA)	36	++	5.0	1.2	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorohexanoic acid (PFHxA)	35	++	5.0	1.4	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluoroheptanoic acid (PFHpA)	10	++	5.0	0.63	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorooctanoic acid (PFOA)	13		5.0	2.1	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorononanoic acid (PFNA)	2.0	J **	5.0	0.68	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorodecanoic acid (PFDA)	1.5	J **	5.0	0.78	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorobutanesulfonic acid (PFBS)	5.8		5.0	0.50	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluoropentanesulfonic acid (PFPeS)	0.96	J	5.0	0.75	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorohexanesulfonic acid (PFHxS)	11		5.0	0.43	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorooctanesulfonic acid (PFOS)	5.4		5.0	0.80	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		03/28/23 22:07	04/10/23 18:32	1
NMeFOSAA	ND		13	3.0	ng/L		03/28/23 22:07	04/10/23 18:32	1
NEtFOSAA	ND		13	3.3	ng/L		03/28/23 22:07	04/10/23 18:32	1
4:2 FTS	ND		5.0	0.60	ng/L		03/28/23 22:07	04/10/23 18:32	1
6:2 FTS	ND		13	6.3	ng/L		03/28/23 22:07	04/10/23 18:32	1
8:2 FTS	ND		5.0	1.2	ng/L		03/28/23 22:07	04/10/23 18:32	1
NEtFOSA	ND		5.0	2.2	ng/L		03/28/23 22:07	04/10/23 18:32	1
NMeFOSA	ND		5.0	1.1	ng/L		03/28/23 22:07	04/10/23 18:32	1
NMeFOSE	ND		10	3.5	ng/L		03/28/23 22:07	04/10/23 18:32	1
NEtFOSE	ND		5.0	2.2	ng/L		03/28/23 22:07	04/10/23 18:32	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		03/28/23 22:07	04/10/23 18:32	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-07-20230320

Lab Sample ID: 320-98088-2

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
9CI-PF3ONS	ND		5.0	0.60	ng/L		03/28/23 22:07	04/10/23 18:32	1
11CI-PF3OUdS	ND		5.0	0.80	ng/L		03/28/23 22:07	04/10/23 18:32	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		03/28/23 22:07	04/10/23 18:32	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	96		25 - 150				03/28/23 22:07	04/10/23 18:32	1
13C4 PFBA	109		25 - 150				03/28/23 22:07	04/10/23 18:32	1
13C5 PFPeA	113		25 - 150				03/28/23 22:07	04/10/23 18:32	1
13C2 PFHxA	110		25 - 150				03/28/23 22:07	04/10/23 18:32	1
13C4 PFHpA	123		25 - 150				03/28/23 22:07	04/10/23 18:32	1
13C4 PFOA	114		25 - 150				03/28/23 22:07	04/10/23 18:32	1
13C5 PFNA	114		25 - 150				03/28/23 22:07	04/10/23 18:32	1
13C2 PFDA	112		25 - 150				03/28/23 22:07	04/10/23 18:32	1
13C2 PFUnA	106		25 - 150				03/28/23 22:07	04/10/23 18:32	1
13C2 PFDoA	118		25 - 150				03/28/23 22:07	04/10/23 18:32	1
13C2 PFTeDA	122		25 - 150				03/28/23 22:07	04/10/23 18:32	1
13C3 PFBS	107		25 - 150				03/28/23 22:07	04/10/23 18:32	1
18O2 PFHxS	112		25 - 150				03/28/23 22:07	04/10/23 18:32	1
13C4 PFOS	103		25 - 150				03/28/23 22:07	04/10/23 18:32	1
d3-NMeFOSAA	102		25 - 150				03/28/23 22:07	04/10/23 18:32	1
d5-NEtFOSAA	106		25 - 150				03/28/23 22:07	04/10/23 18:32	1
M2-4:2 FTS	0		0 - 10				03/28/23 22:07	04/10/23 18:32	1
M2-6:2 FTS	103		25 - 150				03/28/23 22:07	04/10/23 18:32	1
M2-8:2 FTS	98		25 - 150				03/28/23 22:07	04/10/23 18:32	1
d-N-MeFOSA-M	85		25 - 150				03/28/23 22:07	04/10/23 18:32	1
d-N-EtFOSA-M	79		25 - 150				03/28/23 22:07	04/10/23 18:32	1
d7-N-MeFOSE-M	85		25 - 150				03/28/23 22:07	04/10/23 18:32	1
d9-N-EtFOSE-M	81		25 - 150				03/28/23 22:07	04/10/23 18:32	1
13C3 HFPO-DA	133		25 - 150				03/28/23 22:07	04/10/23 18:32	1
13C2 10:2 FTS	121		25 - 150				03/28/23 22:07	04/10/23 18:32	1

Client Sample ID: Inf-08-20230320

Lab Sample ID: 320-98088-3

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		13	6.0	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluoropentanoic acid (PFPA)	8.6		5.0	1.2	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorohexanoic acid (PFHxA)	6.3		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluoroheptanoic acid (PFHpA)	0.92	J	5.0	0.63	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorooctanoic acid (PFOA)	ND		5.0	2.1	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorodecanoic acid (PFDA)	ND		5.0	0.78	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorotridecanoic acid (PFTTrDA)	ND		5.0	3.2	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorobutanesulfonic acid (PFBS)	1.4	J	5.0	0.50	ng/L		03/28/23 21:54	04/10/23 17:01	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-08-20230320

Lab Sample ID: 320-98088-3

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorohexanesulfonic acid (PFHxS)	2.3	J I	5.0	0.43	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.0	0.80	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		03/28/23 21:54	04/10/23 17:01	1
NMeFOSAA	ND		13	3.0	ng/L		03/28/23 21:54	04/10/23 17:01	1
NEtFOSAA	ND		13	3.3	ng/L		03/28/23 21:54	04/10/23 17:01	1
4:2 FTS	ND		5.0	0.60	ng/L		03/28/23 21:54	04/10/23 17:01	1
6:2 FTS	ND		13	6.3	ng/L		03/28/23 21:54	04/10/23 17:01	1
8:2 FTS	ND		5.0	1.2	ng/L		03/28/23 21:54	04/10/23 17:01	1
NMeFOSE	ND		10	3.5	ng/L		03/28/23 21:54	04/10/23 17:01	1
NEtFOSE	ND		5.0	2.2	ng/L		03/28/23 21:54	04/10/23 17:01	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		03/28/23 21:54	04/10/23 17:01	1
9CI-PF3ONS	ND		5.0	0.60	ng/L		03/28/23 21:54	04/10/23 17:01	1
11CI-PF3OUdS	ND		5.0	0.80	ng/L		03/28/23 21:54	04/10/23 17:01	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		03/28/23 21:54	04/10/23 17:01	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	77		25 - 150	03/28/23 21:54	04/10/23 17:01	1
13C4 PFBA	86		25 - 150	03/28/23 21:54	04/10/23 17:01	1
13C5 PFPeA	102		25 - 150	03/28/23 21:54	04/10/23 17:01	1
13C2 PFHxA	104		25 - 150	03/28/23 21:54	04/10/23 17:01	1
13C4 PFHpA	118		25 - 150	03/28/23 21:54	04/10/23 17:01	1
13C4 PFOA	115		25 - 150	03/28/23 21:54	04/10/23 17:01	1
13C5 PFNA	111		25 - 150	03/28/23 21:54	04/10/23 17:01	1
13C2 PFDA	109		25 - 150	03/28/23 21:54	04/10/23 17:01	1
13C2 PFUnA	93		25 - 150	03/28/23 21:54	04/10/23 17:01	1
13C2 PFDoA	67		25 - 150	03/28/23 21:54	04/10/23 17:01	1
13C2 PFTeDA	46		25 - 150	03/28/23 21:54	04/10/23 17:01	1
13C3 PFBS	92		25 - 150	03/28/23 21:54	04/10/23 17:01	1
18O2 PFHxS	96		25 - 150	03/28/23 21:54	04/10/23 17:01	1
13C4 PFOS	82		25 - 150	03/28/23 21:54	04/10/23 17:01	1
d3-NMeFOSAA	76		25 - 150	03/28/23 21:54	04/10/23 17:01	1
d5-NEtFOSAA	87		25 - 150	03/28/23 21:54	04/10/23 17:01	1
M2-4:2 FTS	122		25 - 150	03/28/23 21:54	04/10/23 17:01	1
M2-6:2 FTS	184	*5+	25 - 150	03/28/23 21:54	04/10/23 17:01	1
M2-8:2 FTS	122		25 - 150	03/28/23 21:54	04/10/23 17:01	1
d7-N-MeFOSE-M	53		25 - 150	03/28/23 21:54	04/10/23 17:01	1
d9-N-EtFOSE-M	52		25 - 150	03/28/23 21:54	04/10/23 17:01	1
13C3 HFPO-DA	120		25 - 150	03/28/23 21:54	04/10/23 17:01	1
13C2 10:2 FTS	91		25 - 150	03/28/23 21:54	04/10/23 17:01	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-08-20230320

Lab Sample ID: 320-98088-3

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSA	ND	*-	5.0	2.2	ng/L		04/12/23 20:59	04/14/23 00:22	1
NMeFOSA	ND		5.0	1.1	ng/L		04/12/23 20:59	04/14/23 00:22	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>d</i> -N-MeFOSA-M	36		25 - 150				04/12/23 20:59	04/14/23 00:22	1
<i>d</i> -N-EtFOSA-M	43		25 - 150				04/12/23 20:59	04/14/23 00:22	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	39	++	13	6.0	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluoropentanoic acid (PFPA)	41	++	5.0	1.2	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorohexanoic acid (PFHxA)	25	++	5.0	1.4	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluoroheptanoic acid (PFHpA)	10	++	5.0	0.63	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorooctanoic acid (PFOA)	8.3		5.0	2.1	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorononanoic acid (PFNA)	2.8	J ++	5.0	0.68	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorodecanoic acid (PFDA)	2.2	J ++	5.0	0.78	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorotridecanoic acid (PFTTrDA)	ND		5.0	3.2	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorotetradecanoic acid (PFTeA)	0.74	J	5.0	0.73	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorobutanesulfonic acid (PFBS)	1.7	J	5.0	0.50	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorohexanesulfonic acid (PFHxS)	2.4	J	5.0	0.43	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorooctanesulfonic acid (PFOS)	1.8	J	5.0	0.80	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		03/28/23 22:07	04/10/23 18:42	1
NMeFOSAA	ND		13	3.0	ng/L		03/28/23 22:07	04/10/23 18:42	1
NEtFOSAA	ND		13	3.3	ng/L		03/28/23 22:07	04/10/23 18:42	1
4:2 FTS	ND		5.0	0.60	ng/L		03/28/23 22:07	04/10/23 18:42	1
6:2 FTS	ND		13	6.3	ng/L		03/28/23 22:07	04/10/23 18:42	1
8:2 FTS	ND		5.0	1.2	ng/L		03/28/23 22:07	04/10/23 18:42	1
NEtFOSA	ND		5.0	2.2	ng/L		03/28/23 22:07	04/10/23 18:42	1
NMeFOSA	ND		5.0	1.1	ng/L		03/28/23 22:07	04/10/23 18:42	1
NMeFOSE	ND		10	3.5	ng/L		03/28/23 22:07	04/10/23 18:42	1
NEtFOSE	ND		5.0	2.2	ng/L		03/28/23 22:07	04/10/23 18:42	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		03/28/23 22:07	04/10/23 18:42	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		03/28/23 22:07	04/10/23 18:42	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		03/28/23 22:07	04/10/23 18:42	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		03/28/23 22:07	04/10/23 18:42	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	97		25 - 150				03/28/23 22:07	04/10/23 18:42	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-08-20230320

Lab Sample ID: 320-98088-3

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	109		25 - 150	03/28/23 22:07	04/10/23 18:42	1
13C5 PFPeA	115		25 - 150	03/28/23 22:07	04/10/23 18:42	1
13C2 PFHxA	107		25 - 150	03/28/23 22:07	04/10/23 18:42	1
13C4 PFHpA	121		25 - 150	03/28/23 22:07	04/10/23 18:42	1
13C4 PFOA	116		25 - 150	03/28/23 22:07	04/10/23 18:42	1
13C5 PFNA	115		25 - 150	03/28/23 22:07	04/10/23 18:42	1
13C2 PFDA	108		25 - 150	03/28/23 22:07	04/10/23 18:42	1
13C2 PFUnA	106		25 - 150	03/28/23 22:07	04/10/23 18:42	1
13C2 PFDoA	112		25 - 150	03/28/23 22:07	04/10/23 18:42	1
13C2 PFTeDA	120		25 - 150	03/28/23 22:07	04/10/23 18:42	1
13C3 PFBS	108		25 - 150	03/28/23 22:07	04/10/23 18:42	1
18O2 PFHxS	113		25 - 150	03/28/23 22:07	04/10/23 18:42	1
13C4 PFOS	103		25 - 150	03/28/23 22:07	04/10/23 18:42	1
d3-NMeFOSAA	103		25 - 150	03/28/23 22:07	04/10/23 18:42	1
d5-NEtFOSAA	110		25 - 150	03/28/23 22:07	04/10/23 18:42	1
M2-4:2 FTS	0		0 - 10	03/28/23 22:07	04/10/23 18:42	1
M2-6:2 FTS	97		25 - 150	03/28/23 22:07	04/10/23 18:42	1
M2-8:2 FTS	89		25 - 150	03/28/23 22:07	04/10/23 18:42	1
d-N-MeFOSA-M	55		25 - 150	03/28/23 22:07	04/10/23 18:42	1
d-N-EtFOSA-M	47		25 - 150	03/28/23 22:07	04/10/23 18:42	1
d7-N-MeFOSE-M	46		25 - 150	03/28/23 22:07	04/10/23 18:42	1
d9-N-EtFOSE-M	43		25 - 150	03/28/23 22:07	04/10/23 18:42	1
13C3 HFPO-DA	128		25 - 150	03/28/23 22:07	04/10/23 18:42	1
13C2 10:2 FTS	113		25 - 150	03/28/23 22:07	04/10/23 18:42	1

Client Sample ID: Inf-11-20230320

Lab Sample ID: 320-98088-4

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		13	6.0	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluoropentanoic acid (PFPA)	2.5	J	5.0	1.2	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluorohexanoic acid (PFHxA)	3.8	J I	5.0	1.4	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluoroheptanoic acid (PFHpA)	ND		5.0	0.63	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluorooctanoic acid (PFOA)	2.3	J	5.0	2.1	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluorodecanoic acid (PFDA)	ND		5.0	0.78	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluorotridecanoic acid (PFTTrDA)	ND		5.0	3.2	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluorobutanesulfonic acid (PFBS)	1.4	J	5.0	0.50	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluorohexanesulfonic acid (PFHxS)	2.1	J I	5.0	0.43	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		03/28/23 21:54	04/10/23 17:11	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-11-20230320

Lab Sample ID: 320-98088-4

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	3.6	J	5.0	0.80	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		03/28/23 21:54	04/10/23 17:11	1
NMeFOSAA	ND		13	3.0	ng/L		03/28/23 21:54	04/10/23 17:11	1
NEtFOSAA	ND		13	3.3	ng/L		03/28/23 21:54	04/10/23 17:11	1
4:2 FTS	ND		5.0	0.60	ng/L		03/28/23 21:54	04/10/23 17:11	1
6:2 FTS	ND		13	6.3	ng/L		03/28/23 21:54	04/10/23 17:11	1
8:2 FTS	ND		5.0	1.2	ng/L		03/28/23 21:54	04/10/23 17:11	1
NMeFOSE	ND		10	3.5	ng/L		03/28/23 21:54	04/10/23 17:11	1
NEtFOSE	ND		5.0	2.2	ng/L		03/28/23 21:54	04/10/23 17:11	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		03/28/23 21:54	04/10/23 17:11	1
9CI-PF3ONS	ND		5.0	0.60	ng/L		03/28/23 21:54	04/10/23 17:11	1
11CI-PF3OUdS	ND		5.0	0.80	ng/L		03/28/23 21:54	04/10/23 17:11	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		03/28/23 21:54	04/10/23 17:11	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	73		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C4 PFBA	85		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C5 PFPeA	102		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C2 PFHxA	104		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C4 PFHpA	121		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C4 PFOA	114		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C5 PFNA	113		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C2 PFDA	105		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C2 PFUnA	85		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C2 PFDoA	56		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C2 PFTeDA	36		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C3 PFBS	90		25 - 150	03/28/23 21:54	04/10/23 17:11	1
18O2 PFHxS	97		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C4 PFOS	84		25 - 150	03/28/23 21:54	04/10/23 17:11	1
d3-NMeFOSAA	66		25 - 150	03/28/23 21:54	04/10/23 17:11	1
d5-NEtFOSAA	71		25 - 150	03/28/23 21:54	04/10/23 17:11	1
M2-4:2 FTS	137		25 - 150	03/28/23 21:54	04/10/23 17:11	1
M2-6:2 FTS	185	*5+	25 - 150	03/28/23 21:54	04/10/23 17:11	1
M2-8:2 FTS	115		25 - 150	03/28/23 21:54	04/10/23 17:11	1
d7-N-MeFOSE-M	49		25 - 150	03/28/23 21:54	04/10/23 17:11	1
d9-N-EtFOSE-M	51		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C3 HFPO-DA	125		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C2 10:2 FTS	71		25 - 150	03/28/23 21:54	04/10/23 17:11	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSA	ND	*	5.0	2.2	ng/L		04/12/23 20:59	04/14/23 00:33	1
NMeFOSA	ND		5.0	1.1	ng/L		04/12/23 20:59	04/14/23 00:33	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
d-N-MeFOSA-M	36		25 - 150	04/12/23 20:59	04/14/23 00:33	1			

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-11-20230320

Lab Sample ID: 320-98088-4

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RE (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d-N-EtFOSA-M	39		25 - 150	04/12/23 20:59	04/14/23 00:33	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	40	*+	13	6.0	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluoropentanoic acid (PFPA)	38	*+	5.0	1.2	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorohexanoic acid (PFHxA)	23	*+	5.0	1.4	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluoroheptanoic acid (PFHpA)	10	*+	5.0	0.63	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorooctanoic acid (PFOA)	9.8		5.0	2.1	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorononanoic acid (PFNA)	2.6	J**	5.0	0.68	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorodecanoic acid (PFDA)	1.9	J**	5.0	0.78	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorobutanesulfonic acid (PFBS)	1.7	J	5.0	0.50	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorohexanesulfonic acid (PFHxS)	1.9	J	5.0	0.43	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorooctanesulfonic acid (PFOS)	1.9	J	5.0	0.80	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		03/28/23 22:07	04/10/23 18:52	1
NMeFOSAA	ND		13	3.0	ng/L		03/28/23 22:07	04/10/23 18:52	1
NEtFOSAA	ND		13	3.3	ng/L		03/28/23 22:07	04/10/23 18:52	1
4:2 FTS	ND		5.0	0.60	ng/L		03/28/23 22:07	04/10/23 18:52	1
6:2 FTS	ND		13	6.3	ng/L		03/28/23 22:07	04/10/23 18:52	1
8:2 FTS	ND		5.0	1.2	ng/L		03/28/23 22:07	04/10/23 18:52	1
NEtFOSA	ND		5.0	2.2	ng/L		03/28/23 22:07	04/10/23 18:52	1
NMeFOSA	ND		5.0	1.1	ng/L		03/28/23 22:07	04/10/23 18:52	1
NMeFOSE	ND		10	3.5	ng/L		03/28/23 22:07	04/10/23 18:52	1
NEtFOSE	ND		5.0	2.2	ng/L		03/28/23 22:07	04/10/23 18:52	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		03/28/23 22:07	04/10/23 18:52	1
9CI-PF3ONS	ND		5.0	0.60	ng/L		03/28/23 22:07	04/10/23 18:52	1
11CI-PF3OUdS	ND		5.0	0.80	ng/L		03/28/23 22:07	04/10/23 18:52	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		03/28/23 22:07	04/10/23 18:52	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C8 FOSA	98		25 - 150	03/28/23 22:07	04/10/23 18:52	1			
13C4 PFBA	108		25 - 150	03/28/23 22:07	04/10/23 18:52	1			
13C5 PFPeA	109		25 - 150	03/28/23 22:07	04/10/23 18:52	1			
13C2 PFHxA	110		25 - 150	03/28/23 22:07	04/10/23 18:52	1			
13C4 PFHpA	119		25 - 150	03/28/23 22:07	04/10/23 18:52	1			
13C4 PFOA	112		25 - 150	03/28/23 22:07	04/10/23 18:52	1			

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-11-20230320

Lab Sample ID: 320-98088-4

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFNA	111		25 - 150	03/28/23 22:07	04/10/23 18:52	1
13C2 PFDA	109		25 - 150	03/28/23 22:07	04/10/23 18:52	1
13C2 PFUnA	104		25 - 150	03/28/23 22:07	04/10/23 18:52	1
13C2 PFDoA	113		25 - 150	03/28/23 22:07	04/10/23 18:52	1
13C2 PFTeDA	123		25 - 150	03/28/23 22:07	04/10/23 18:52	1
13C3 PFBS	106		25 - 150	03/28/23 22:07	04/10/23 18:52	1
18O2 PFHxS	113		25 - 150	03/28/23 22:07	04/10/23 18:52	1
13C4 PFOS	101		25 - 150	03/28/23 22:07	04/10/23 18:52	1
d3-NMeFOSAA	101		25 - 150	03/28/23 22:07	04/10/23 18:52	1
d5-NEtFOSAA	110		25 - 150	03/28/23 22:07	04/10/23 18:52	1
M2-4:2 FTS	0		0 - 10	03/28/23 22:07	04/10/23 18:52	1
M2-6:2 FTS	97		25 - 150	03/28/23 22:07	04/10/23 18:52	1
M2-8:2 FTS	95		25 - 150	03/28/23 22:07	04/10/23 18:52	1
d-N-MeFOSA-M	85		25 - 150	03/28/23 22:07	04/10/23 18:52	1
d-N-EtFOSA-M	80		25 - 150	03/28/23 22:07	04/10/23 18:52	1
d7-N-MeFOSE-M	83		25 - 150	03/28/23 22:07	04/10/23 18:52	1
d9-N-EtFOSE-M	84		25 - 150	03/28/23 22:07	04/10/23 18:52	1
13C3 HFPO-DA	131		25 - 150	03/28/23 22:07	04/10/23 18:52	1
13C2 10:2 FTS	117		25 - 150	03/28/23 22:07	04/10/23 18:52	1

Client Sample ID: Inf-18-20230320

Lab Sample ID: 320-98088-5

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	11	J	13	6.0	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluoropentanoic acid (PFPA)	6.0		5.0	1.2	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluorohexanoic acid (PFHxA)	10		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluoroheptanoic acid (PFHpA)	2.7	J	5.0	0.63	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluorooctanoic acid (PFOA)	8.8		5.0	2.1	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluorodecanoic acid (PFDA)	ND		5.0	0.78	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluorobutanesulfonic acid (PFBS)	5.3		5.0	0.50	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluoropentanesulfonic acid (PFPeS)	1.5	J	5.0	0.75	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluorohexanesulfonic acid (PFHxS)	14		5.0	0.43	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluorooctanesulfonic acid (PFOS)	7.6		5.0	0.80	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		03/28/23 21:54	04/10/23 17:21	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-18-20230320

Lab Sample ID: 320-98088-5

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		03/28/23 21:54	04/10/23 17:21	1
NMeFOSAA	ND		13	3.0	ng/L		03/28/23 21:54	04/10/23 17:21	1
NEtFOSAA	ND		13	3.3	ng/L		03/28/23 21:54	04/10/23 17:21	1
4:2 FTS	ND		5.0	0.60	ng/L		03/28/23 21:54	04/10/23 17:21	1
6:2 FTS	ND		13	6.3	ng/L		03/28/23 21:54	04/10/23 17:21	1
8:2 FTS	ND		5.0	1.2	ng/L		03/28/23 21:54	04/10/23 17:21	1
NMeFOSE	ND		10	3.5	ng/L		03/28/23 21:54	04/10/23 17:21	1
NEtFOSE	ND		5.0	2.2	ng/L		03/28/23 21:54	04/10/23 17:21	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		03/28/23 21:54	04/10/23 17:21	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		03/28/23 21:54	04/10/23 17:21	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		03/28/23 21:54	04/10/23 17:21	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		03/28/23 21:54	04/10/23 17:21	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	79		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C4 PFBA	91		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C5 PFPeA	103		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C2 PFHxA	99		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C4 PFHpA	119		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C4 PFOA	115		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C5 PFNA	111		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C2 PFDA	109		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C2 PFUnA	90		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C2 PFDoA	68		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C2 PFTeDA	58		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C3 PFBS	93		25 - 150	03/28/23 21:54	04/10/23 17:21	1
18O2 PFHxS	99		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C4 PFOS	85		25 - 150	03/28/23 21:54	04/10/23 17:21	1
d3-NMeFOSAA	71		25 - 150	03/28/23 21:54	04/10/23 17:21	1
d5-NEtFOSAA	75		25 - 150	03/28/23 21:54	04/10/23 17:21	1
M2-4:2 FTS	113		25 - 150	03/28/23 21:54	04/10/23 17:21	1
M2-6:2 FTS	193	*5+	25 - 150	03/28/23 21:54	04/10/23 17:21	1
M2-8:2 FTS	124		25 - 150	03/28/23 21:54	04/10/23 17:21	1
d7-N-MeFOSE-M	64		25 - 150	03/28/23 21:54	04/10/23 17:21	1
d9-N-EtFOSE-M	66		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C3 HFPO-DA	122		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C2 10:2 FTS	85		25 - 150	03/28/23 21:54	04/10/23 17:21	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSA	ND	*-	5.0	2.2	ng/L		04/12/23 20:59	04/14/23 00:44	1
NMeFOSA	ND		5.0	1.1	ng/L		04/12/23 20:59	04/14/23 00:44	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d-N-MeFOSA-M	37		25 - 150	04/12/23 20:59	04/14/23 00:44	1
d-N-EtFOSA-M	51		25 - 150	04/12/23 20:59	04/14/23 00:44	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	44	+	13	6.0	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluoropentanoic acid (PFPA)	35	+	5.0	1.2	ng/L		03/28/23 22:07	04/10/23 19:02	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-18-20230320

Lab Sample ID: 320-98088-5

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	32	*+	5.0	1.4	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluoroheptanoic acid (PFHpA)	10	*+	5.0	0.63	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluorooctanoic acid (PFOA)	14		5.0	2.1	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluorononanoic acid (PFNA)	2.0	J**	5.0	0.68	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluorodecanoic acid (PFDA)	1.3	J**	5.0	0.78	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluorobutanesulfonic acid (PFBS)	5.5		5.0	0.50	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluoropentanesulfonic acid (PFPeS)	1.3	J	5.0	0.75	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluorohexanesulfonic acid (PFHxS)	14		5.0	0.43	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluorooctanesulfonic acid (PFOS)	8.2		5.0	0.80	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		03/28/23 22:07	04/10/23 19:02	1
NMeFOSAA	ND		13	3.0	ng/L		03/28/23 22:07	04/10/23 19:02	1
NEtFOSAA	ND		13	3.3	ng/L		03/28/23 22:07	04/10/23 19:02	1
4:2 FTS	ND		5.0	0.60	ng/L		03/28/23 22:07	04/10/23 19:02	1
6:2 FTS	ND		13	6.3	ng/L		03/28/23 22:07	04/10/23 19:02	1
8:2 FTS	ND		5.0	1.2	ng/L		03/28/23 22:07	04/10/23 19:02	1
NEtFOSA	ND		5.0	2.2	ng/L		03/28/23 22:07	04/10/23 19:02	1
NMeFOSA	ND		5.0	1.1	ng/L		03/28/23 22:07	04/10/23 19:02	1
NMeFOSE	ND		10	3.5	ng/L		03/28/23 22:07	04/10/23 19:02	1
NEtFOSE	ND		5.0	2.2	ng/L		03/28/23 22:07	04/10/23 19:02	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		03/28/23 22:07	04/10/23 19:02	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		03/28/23 22:07	04/10/23 19:02	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		03/28/23 22:07	04/10/23 19:02	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		03/28/23 22:07	04/10/23 19:02	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	96		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C4 PFBA	111		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C5 PFPeA	109		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C2 PFHxA	111		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C4 PFHpA	118		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C4 PFOA	113		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C5 PFNA	117		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C2 PFDA	109		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C2 PFUnA	109		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C2 PFDoA	114		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C2 PFTeDA	118		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C3 PFBS	105		25 - 150	03/28/23 22:07	04/10/23 19:02	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-18-20230320

Lab Sample ID: 320-98088-5

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	111		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C4 PFOS	99		25 - 150	03/28/23 22:07	04/10/23 19:02	1
d3-NMeFOSAA	100		25 - 150	03/28/23 22:07	04/10/23 19:02	1
d5-NEtFOSAA	108		25 - 150	03/28/23 22:07	04/10/23 19:02	1
M2-4:2 FTS	0.6		0 - 10	03/28/23 22:07	04/10/23 19:02	1
M2-6:2 FTS	94		25 - 150	03/28/23 22:07	04/10/23 19:02	1
M2-8:2 FTS	92		25 - 150	03/28/23 22:07	04/10/23 19:02	1
d-N-MeFOSA-M	47		25 - 150	03/28/23 22:07	04/10/23 19:02	1
d-N-EtFOSA-M	43		25 - 150	03/28/23 22:07	04/10/23 19:02	1
d7-N-MeFOSE-M	48		25 - 150	03/28/23 22:07	04/10/23 19:02	1
d9-N-EtFOSE-M	47		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C3 HFPO-DA	130		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C2 10:2 FTS	117		25 - 150	03/28/23 22:07	04/10/23 19:02	1

Client Sample ID: Eff-20230321

Lab Sample ID: 320-98088-7

Date Collected: 03/21/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	8.7	J	13	6.0	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluoropentanoic acid (PFPA)	12		5.0	1.2	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorohexanoic acid (PFHxA)	21		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluoroheptanoic acid (PFHpA)	2.5	J	5.0	0.63	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorooctanoic acid (PFOA)	7.4		5.0	2.1	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorodecanoic acid (PFDA)	ND		5.0	0.78	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorobutanesulfonic acid (PFBS)	3.8	J	5.0	0.50	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorohexanesulfonic acid (PFHxS)	6.9		5.0	0.43	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorooctanesulfonic acid (PFOS)	4.0	J	5.0	0.80	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		03/28/23 21:54	04/10/23 17:31	1
NMeFOSAA	ND		13	3.0	ng/L		03/28/23 21:54	04/10/23 17:31	1
NEtFOSAA	ND		13	3.3	ng/L		03/28/23 21:54	04/10/23 17:31	1
4:2 FTS	ND		5.0	0.60	ng/L		03/28/23 21:54	04/10/23 17:31	1
6:2 FTS	ND		13	6.3	ng/L		03/28/23 21:54	04/10/23 17:31	1
8:2 FTS	ND		5.0	1.2	ng/L		03/28/23 21:54	04/10/23 17:31	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Eff-20230321

Lab Sample ID: 320-98088-7

Date Collected: 03/21/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NMeFOSE	ND		10	3.5	ng/L		03/28/23 21:54	04/10/23 17:31	1
NEtFOSE	ND		5.0	2.2	ng/L		03/28/23 21:54	04/10/23 17:31	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		03/28/23 21:54	04/10/23 17:31	1
9CI-PF3ONS	ND		5.0	0.60	ng/L		03/28/23 21:54	04/10/23 17:31	1
11CI-PF3OUdS	ND		5.0	0.80	ng/L		03/28/23 21:54	04/10/23 17:31	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		03/28/23 21:54	04/10/23 17:31	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	96		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C4 PFBA	97		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C5 PFPeA	113		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C2 PFHxA	118		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C4 PFHpA	122		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C4 PFOA	116		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C5 PFNA	117		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C2 PFDA	111		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C2 PFUnA	108		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C2 PFDoA	113		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C2 PFTeDA	85		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C3 PFBS	104		25 - 150	03/28/23 21:54	04/10/23 17:31	1
18O2 PFHxS	110		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C4 PFOS	102		25 - 150	03/28/23 21:54	04/10/23 17:31	1
d3-NMeFOSAA	102		25 - 150	03/28/23 21:54	04/10/23 17:31	1
d5-NEtFOSAA	107		25 - 150	03/28/23 21:54	04/10/23 17:31	1
M2-4:2 FTS	130		25 - 150	03/28/23 21:54	04/10/23 17:31	1
M2-6:2 FTS	125		25 - 150	03/28/23 21:54	04/10/23 17:31	1
M2-8:2 FTS	112		25 - 150	03/28/23 21:54	04/10/23 17:31	1
d7-N-MeFOSE-M	55		25 - 150	03/28/23 21:54	04/10/23 17:31	1
d9-N-EtFOSE-M	52		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C3 HFPO-DA	129		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C2 10:2 FTS	120		25 - 150	03/28/23 21:54	04/10/23 17:31	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSA	ND	*	5.0	2.2	ng/L		04/12/23 20:59	04/14/23 00:55	1
NMeFOSA	ND		5.0	1.1	ng/L		04/12/23 20:59	04/14/23 00:55	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d-N-MeFOSA-M	105		25 - 150	04/12/23 20:59	04/14/23 00:55	1
d-N-EtFOSA-M	98		25 - 150	04/12/23 20:59	04/14/23 00:55	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	33	++	13	6.0	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluoropentanoic acid (PFPA)	24	++	5.0	1.2	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluorohexanoic acid (PFHxA)	25	++	5.0	1.4	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluoroheptanoic acid (PFHpA)	3.2	J ++	5.0	0.63	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluorooctanoic acid (PFOA)	8.4		5.0	2.1	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluorononanoic acid (PFNA)	ND	+	5.0	0.68	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluorodecanoic acid (PFDA)	0.82	J ++	5.0	0.78	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		03/28/23 22:07	04/10/23 19:12	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Eff-20230321

Lab Sample ID: 320-98088-7

Date Collected: 03/21/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluorobutanesulfonic acid (PFBS)	3.7	J	5.0	0.50	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluorohexanesulfonic acid (PFHxS)	6.2		5.0	0.43	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluorooctanesulfonic acid (PFOS)	3.4	J	5.0	0.80	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		03/28/23 22:07	04/10/23 19:12	1
NMeFOSAA	ND		13	3.0	ng/L		03/28/23 22:07	04/10/23 19:12	1
NEtFOSAA	ND		13	3.3	ng/L		03/28/23 22:07	04/10/23 19:12	1
4:2 FTS	ND		5.0	0.60	ng/L		03/28/23 22:07	04/10/23 19:12	1
6:2 FTS	ND		13	6.3	ng/L		03/28/23 22:07	04/10/23 19:12	1
8:2 FTS	ND		5.0	1.2	ng/L		03/28/23 22:07	04/10/23 19:12	1
NEtFOSA	ND		5.0	2.2	ng/L		03/28/23 22:07	04/10/23 19:12	1
NMeFOSA	ND		5.0	1.1	ng/L		03/28/23 22:07	04/10/23 19:12	1
NMeFOSE	ND		10	3.5	ng/L		03/28/23 22:07	04/10/23 19:12	1
NEtFOSE	ND		5.0	2.2	ng/L		03/28/23 22:07	04/10/23 19:12	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		03/28/23 22:07	04/10/23 19:12	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		03/28/23 22:07	04/10/23 19:12	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		03/28/23 22:07	04/10/23 19:12	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		03/28/23 22:07	04/10/23 19:12	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	97		25 - 150	03/28/23 22:07	04/10/23 19:12	1
13C4 PFBA	110		25 - 150	03/28/23 22:07	04/10/23 19:12	1
13C5 PFPeA	115		25 - 150	03/28/23 22:07	04/10/23 19:12	1
13C2 PFHxA	115		25 - 150	03/28/23 22:07	04/10/23 19:12	1
13C4 PFHpA	122		25 - 150	03/28/23 22:07	04/10/23 19:12	1
13C4 PFOA	113		25 - 150	03/28/23 22:07	04/10/23 19:12	1
13C5 PFNA	114		25 - 150	03/28/23 22:07	04/10/23 19:12	1
13C2 PFDA	112		25 - 150	03/28/23 22:07	04/10/23 19:12	1
13C2 PFUnA	104		25 - 150	03/28/23 22:07	04/10/23 19:12	1
13C2 PFDoA	117		25 - 150	03/28/23 22:07	04/10/23 19:12	1
13C2 PFTeDA	122		25 - 150	03/28/23 22:07	04/10/23 19:12	1
13C3 PFBS	111		25 - 150	03/28/23 22:07	04/10/23 19:12	1
18O2 PFHxS	110		25 - 150	03/28/23 22:07	04/10/23 19:12	1
13C4 PFOS	102		25 - 150	03/28/23 22:07	04/10/23 19:12	1
d3-NMeFOSAA	102		25 - 150	03/28/23 22:07	04/10/23 19:12	1
d5-NEtFOSAA	109		25 - 150	03/28/23 22:07	04/10/23 19:12	1
M2-4:2 FTS	0		0 - 10	03/28/23 22:07	04/10/23 19:12	1
M2-6:2 FTS	90		25 - 150	03/28/23 22:07	04/10/23 19:12	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Eff-20230321

Lab Sample ID: 320-98088-7

Date Collected: 03/21/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-8:2 FTS	95		25 - 150	03/28/23 22:07	04/10/23 19:12	1
d-N-MeFOSA-M	53		25 - 150	03/28/23 22:07	04/10/23 19:12	1
d-N-EtFOSA-M	47		25 - 150	03/28/23 22:07	04/10/23 19:12	1
d7-N-MeFOSE-M	58		25 - 150	03/28/23 22:07	04/10/23 19:12	1
d9-N-EtFOSE-M	52		25 - 150	03/28/23 22:07	04/10/23 19:12	1
13C3 HFPO-DA	137		25 - 150	03/28/23 22:07	04/10/23 19:12	1
13C2 10:2 FTS	108		25 - 150	03/28/23 22:07	04/10/23 19:12	1

Client Sample ID: BioA-22-20230321

Lab Sample ID: 320-98088-8

Date Collected: 03/21/23 14:00

Matrix: Solid

Date Received: 03/23/23 09:40

Percent Solids: 23.2

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	7.2	B	4.4	1.0	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
Perfluoropentanoic acid (PFPA)	4.3	J	4.4	0.90	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
Perfluorohexanoic acid (PFHxA)	10		4.4	0.67	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
Perfluoroheptanoic acid (PFHpA)	ND		4.4	0.83	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
Perfluorooctanoic acid (PFOA)	5.8		4.4	1.2	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
Perfluorononanoic acid (PFNA)	0.80	J	4.4	0.48	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
Perfluorodecanoic acid (PFDA)	7.6		4.4	1.0	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
Perfluoroundecanoic acid (PFUnA)	1.5	J	4.4	0.91	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
Perfluorododecanoic acid (PFDoA)	2.9	J	4.4	0.65	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
Perfluorotridecanoic acid (PFTrDA)	ND		4.4	0.46	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
Perfluorotetradecanoic acid (PFTeA)	0.85	J	4.4	0.81	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
Perfluorobutanesulfonic acid (PFBS)	3.6	J	4.4	0.83	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
Perfluoropentanesulfonic acid (PFPeS)	ND		4.4	0.81	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
Perfluorohexanesulfonic acid (PFHxS)	3.7	J	4.4	0.63	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		4.4	1.1	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
Perfluorooctanesulfonic acid (PFOS)	17		4.4	0.94	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
Perfluorononanesulfonic acid (PFNS)	ND		4.4	0.63	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
Perfluorodecanesulfonic acid (PFDS)	ND		4.4	1.1	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
Perfluorododecanesulfonic acid (PFDoS)	ND		4.4	1.0	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
Perfluorooctanesulfonamide (FOSA)	ND		4.4	0.72	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
NMeFOSAA	17		4.4	0.50	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
NEtFOSAA	6.1		4.4	1.0	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
NMeFOSE	11		4.4	1.0	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
NEtFOSE	6.3		4.4	0.61	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
4:2 FTS	ND		4.4	1.1	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
6:2 FTS	ND		4.4	0.59	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
8:2 FTS	ND		4.4	0.76	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
HFPO-DA (GenX)	ND		4.4	0.90	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1
9CI-PF3ONS	ND		4.4	0.76	ug/Kg	✱	03/28/23 23:20	04/07/23 17:35	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: BioA-22-20230321

Lab Sample ID: 320-98088-8

Date Collected: 03/21/23 14:00

Matrix: Solid

Date Received: 03/23/23 09:40

Percent Solids: 23.2

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
11CI-PF3OUdS	ND		4.4	0.67	ug/Kg	☼	03/28/23 23:20	04/07/23 17:35	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		4.4	0.85	ug/Kg	☼	03/28/23 23:20	04/07/23 17:35	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	109		25 - 150				03/28/23 23:20	04/07/23 17:35	1
13C5 PFPeA	117		25 - 150				03/28/23 23:20	04/07/23 17:35	1
13C2 PFHxA	110		25 - 150				03/28/23 23:20	04/07/23 17:35	1
13C4 PFHpA	121		25 - 150				03/28/23 23:20	04/07/23 17:35	1
13C4 PFOA	117		25 - 150				03/28/23 23:20	04/07/23 17:35	1
13C5 PFNA	119		25 - 150				03/28/23 23:20	04/07/23 17:35	1
13C2 PFDA	119		25 - 150				03/28/23 23:20	04/07/23 17:35	1
13C2 PFUnA	112		25 - 150				03/28/23 23:20	04/07/23 17:35	1
13C2 PFDoA	96		25 - 150				03/28/23 23:20	04/07/23 17:35	1
13C2 PFTeDA	53		25 - 150				03/28/23 23:20	04/07/23 17:35	1
13C3 PFBS	104		25 - 150				03/28/23 23:20	04/07/23 17:35	1
18O2 PFHxS	112		25 - 150				03/28/23 23:20	04/07/23 17:35	1
13C4 PFOS	103		25 - 150				03/28/23 23:20	04/07/23 17:35	1
13C8 FOSA	93		25 - 150				03/28/23 23:20	04/07/23 17:35	1
M2-4:2 FTS	117		25 - 150				03/28/23 23:20	04/07/23 17:35	1
M2-6:2 FTS	152	*5+	25 - 150				03/28/23 23:20	04/07/23 17:35	1
M2-8:2 FTS	148		25 - 150				03/28/23 23:20	04/07/23 17:35	1
13C2 10:2 FTS	146		25 - 150				03/28/23 23:20	04/07/23 17:35	1
13C3 HFPO-DA	126		25 - 150				03/28/23 23:20	04/07/23 17:35	1
d3-NMeFOSAA	105		25 - 150				03/28/23 23:20	04/07/23 17:35	1
d5-NEtFOSAA	121		25 - 150				03/28/23 23:20	04/07/23 17:35	1
d7-N-MeFOSE-M	49		25 - 150				03/28/23 23:20	04/07/23 17:35	1
d9-N-EtFOSE-M	48		25 - 150				03/28/23 23:20	04/07/23 17:35	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NMeFOSA	ND		4.2	1.0	ug/Kg	☼	04/12/23 20:20	04/14/23 01:50	1
NEtFOSA	ND		4.2	0.99	ug/Kg	☼	04/12/23 20:20	04/14/23 01:50	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
d-N-MeFOSA-M	55		25 - 150				04/12/23 20:20	04/14/23 01:50	1
d-N-EtFOSA-M	53		25 - 150				04/12/23 20:20	04/14/23 01:50	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	97	B	4.2	0.97	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluoropentanoic acid (PFPA)	43		4.2	0.87	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluorohexanoic acid (PFHxA)	33	*+	4.2	0.65	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluoroheptanoic acid (PFHpA)	16		4.2	0.80	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluorooctanoic acid (PFOA)	35		4.2	1.1	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluorononanoic acid (PFNA)	8.3		4.2	0.46	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluorodecanoic acid (PFDA)	10		4.2	1.0	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluoroundecanoic acid (PFUnA)	4.1	J	4.2	0.89	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluorododecanoic acid (PFDoA)	5.0		4.2	0.63	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: BioA-22-20230321

Lab Sample ID: 320-98088-8

Date Collected: 03/21/23 14:00

Matrix: Solid

Date Received: 03/23/23 09:40

Percent Solids: 23.2

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorotridecanoic acid (PFTrDA)	1.4	J	4.2	0.44	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluorotetradecanoic acid (PFTeA)	1.5	J	4.2	0.78	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluorobutanesulfonic acid (PFBS)	13		4.2	0.80	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluoropentanesulfonic acid (PFPeS)	ND		4.2	0.78	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluorohexanesulfonic acid (PFHxS)	2.6	J	4.2	0.61	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		4.2	1.0	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluorooctanesulfonic acid (PFOS)	18		4.2	0.91	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluorononanesulfonic acid (PFNS)	ND		4.2	0.61	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluorodecanesulfonic acid (PFDS)	1.9	J	4.2	1.1	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluorododecanesulfonic acid (PFDoS)	ND		4.2	1.0	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluorooctanesulfonamide (FOSA)	ND		4.2	0.70	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
NMeFOSAA	ND		4.2	0.49	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
NEtFOSAA	ND		4.2	1.0	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
4:2 FTS	ND		4.2	1.1	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
6:2 FTS	ND		4.2	0.57	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
8:2 FTS	ND		4.2	0.74	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
NEtFOSA	ND		4.2	1.0	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
NMeFOSA	ND		4.2	1.0	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
NMeFOSE	ND		4.2	1.0	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
NEtFOSE	ND		4.2	0.59	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
HFPO-DA (GenX)	ND		4.2	0.87	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
9Cl-PF3ONS	ND		4.2	0.74	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
11Cl-PF3OUdS	ND		4.2	0.65	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		4.2	0.82	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	101		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C4 PFBA	106		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C5 PFPeA	110		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C2 PFHxA	107		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C4 PFHpA	114		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C4 PFOA	108		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C5 PFNA	106		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C2 PFDA	105		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C2 PFUnA	100		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C2 PFDoA	111		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C2 PFTeDA	114		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C3 PFBS	101		25 - 150	03/28/23 23:40	04/07/23 18:25	1
18O2 PFHxS	105		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C4 PFOS	94		25 - 150	03/28/23 23:40	04/07/23 18:25	1
d3-NMeFOSAA	99		25 - 150	03/28/23 23:40	04/07/23 18:25	1
d5-NEtFOSAA	102		25 - 150	03/28/23 23:40	04/07/23 18:25	1
M2-4:2 FTS	0		0 - 10	03/28/23 23:40	04/07/23 18:25	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: BioA-22-20230321

Lab Sample ID: 320-98088-8

Date Collected: 03/21/23 14:00

Matrix: Solid

Date Received: 03/23/23 09:40

Percent Solids: 23.2

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	92		25 - 150	03/28/23 23:40	04/07/23 18:25	1
M2-8:2 FTS	81		25 - 150	03/28/23 23:40	04/07/23 18:25	1
d-N-MeFOSA-M	71		25 - 150	03/28/23 23:40	04/07/23 18:25	1
d-N-EtFOSA-M	69		25 - 150	03/28/23 23:40	04/07/23 18:25	1
d7-N-MeFOSE-M	64		25 - 150	03/28/23 23:40	04/07/23 18:25	1
d9-N-EtFOSE-M	67		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C3 HFPO-DA	130		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C2 10:2 FTS	90		25 - 150	03/28/23 23:40	04/07/23 18:25	1

Client Sample ID: BioB-20230321

Lab Sample ID: 320-98088-9

Date Collected: 03/21/23 14:21

Matrix: Solid

Date Received: 03/23/23 09:40

Percent Solids: 6.0

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	18	B	17	3.8	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
Perfluoropentanoic acid (PFPA)	ND		17	3.4	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
Perfluorohexanoic acid (PFHxA)	4.1	J	17	2.6	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
Perfluoroheptanoic acid (PFHpA)	ND		17	3.1	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
Perfluorooctanoic acid (PFOA)	ND		17	4.4	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
Perfluorononanoic acid (PFNA)	ND		17	1.8	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
Perfluorodecanoic acid (PFDA)	ND		17	4.0	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
Perfluoroundecanoic acid (PFUnA)	ND		17	3.5	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
Perfluorododecanoic acid (PFDoA)	ND		17	2.5	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
Perfluorotridecanoic acid (PFTrDA)	ND		17	1.7	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
Perfluorotetradecanoic acid (PFTeA)	ND		17	3.1	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
Perfluorobutanesulfonic acid (PFBS)	ND		17	3.1	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
Perfluoropentanesulfonic acid (PFPeS)	ND		17	3.1	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
Perfluorohexanesulfonic acid (PFHxS)	ND		17	2.4	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		17	4.1	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
Perfluorooctanesulfonic acid (PFOS)	14	J	17	3.6	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
Perfluorononanesulfonic acid (PFNS)	ND		17	2.4	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
Perfluorodecanesulfonic acid (PFDS)	ND		17	4.3	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
Perfluorododecanesulfonic acid (PFDoS)	ND		17	3.9	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
Perfluorooctanesulfonamide (FOSA)	ND		17	2.7	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
NMeFOSAA	ND		17	1.9	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
NEtFOSAA	ND		17	4.0	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
NMeFOSE	5.8	J	17	3.9	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
NEtFOSE	6.8	J	17	2.3	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
4:2 FTS	ND		17	4.2	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
6:2 FTS	ND		17	2.2	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
8:2 FTS	ND		17	2.9	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
HFPO-DA (GenX)	ND		17	3.4	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
9CI-PF3ONS	ND		17	2.9	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
11CI-PF3OUdS	ND		17	2.6	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		17	3.2	ug/Kg	☆	03/28/23 23:20	04/07/23 17:45	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: BioB-20230321

Lab Sample ID: 320-98088-9

Date Collected: 03/21/23 14:21

Matrix: Solid

Date Received: 03/23/23 09:40

Percent Solids: 6.0

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	106		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C5 PFPeA	90		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C2 PFHxA	103		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C4 PFHpA	114		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C4 PFOA	117		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C5 PFNA	118		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C2 PFDA	122		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C2 PFUnA	112		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C2 PFDoA	105		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C2 PFTeDA	79		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C3 PFBS	105		25 - 150	03/28/23 23:20	04/07/23 17:45	1
18O2 PFHxS	110		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C4 PFOS	100		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C8 FOSA	105		25 - 150	03/28/23 23:20	04/07/23 17:45	1
M2-4:2 FTS	125		25 - 150	03/28/23 23:20	04/07/23 17:45	1
M2-6:2 FTS	154	*5+	25 - 150	03/28/23 23:20	04/07/23 17:45	1
M2-8:2 FTS	142		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C2 10:2 FTS	141		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C3 HFPO-DA	116		25 - 150	03/28/23 23:20	04/07/23 17:45	1
d3-NMeFOSAA	112		25 - 150	03/28/23 23:20	04/07/23 17:45	1
d5-NEtFOSAA	115		25 - 150	03/28/23 23:20	04/07/23 17:45	1
d7-N-MeFOSE-M	70		25 - 150	03/28/23 23:20	04/07/23 17:45	1
d9-N-EtFOSE-M	72		25 - 150	03/28/23 23:20	04/07/23 17:45	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NMeFOSA	ND		16	4.0	ug/Kg	✱	04/12/23 20:20	04/14/23 02:02	1
NEtFOSA	ND		16	3.9	ug/Kg	✱	04/12/23 20:20	04/14/23 02:02	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d-N-MeFOSA-M	75		25 - 150	04/12/23 20:20	04/14/23 02:02	1
d-N-EtFOSA-M	77		25 - 150	04/12/23 20:20	04/14/23 02:02	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	97	B	16	3.7	ug/Kg	✱	03/28/23 23:40	04/07/23 18:35	1
Perfluoropentanoic acid (PFPA)	51		16	3.3	ug/Kg	✱	03/28/23 23:40	04/07/23 18:35	1
Perfluorohexanoic acid (PFHxA)	28	*+	16	2.5	ug/Kg	✱	03/28/23 23:40	04/07/23 18:35	1
Perfluoroheptanoic acid (PFHpA)	15	J	16	3.1	ug/Kg	✱	03/28/23 23:40	04/07/23 18:35	1
Perfluorooctanoic acid (PFOA)	21		16	4.3	ug/Kg	✱	03/28/23 23:40	04/07/23 18:35	1
Perfluorononanoic acid (PFNA)	7.9	J	16	1.8	ug/Kg	✱	03/28/23 23:40	04/07/23 18:35	1
Perfluorodecanoic acid (PFDA)	6.6	J	16	3.9	ug/Kg	✱	03/28/23 23:40	04/07/23 18:35	1
Perfluoroundecanoic acid (PFUnA)	4.1	J	16	3.4	ug/Kg	✱	03/28/23 23:40	04/07/23 18:35	1
Perfluorododecanoic acid (PFDoA)	3.6	J	16	2.4	ug/Kg	✱	03/28/23 23:40	04/07/23 18:35	1
Perfluorotridecanoic acid (PFTTrDA)	1.7	J	16	1.7	ug/Kg	✱	03/28/23 23:40	04/07/23 18:35	1
Perfluorotetradecanoic acid (PFTeA)	ND		16	3.0	ug/Kg	✱	03/28/23 23:40	04/07/23 18:35	1
Perfluorobutanesulfonic acid (PFBS)	3.2	J	16	3.1	ug/Kg	✱	03/28/23 23:40	04/07/23 18:35	1
Perfluoropentanesulfonic acid (PFPeS)	ND		16	3.0	ug/Kg	✱	03/28/23 23:40	04/07/23 18:35	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: BioB-20230321

Lab Sample ID: 320-98088-9

Date Collected: 03/21/23 14:21

Matrix: Solid

Date Received: 03/23/23 09:40

Percent Solids: 6.0

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanesulfonic acid (PFHxS)	ND		16	2.4	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		16	4.0	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
Perfluorooctanesulfonic acid (PFOS)	11	J	16	3.5	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
Perfluorononanesulfonic acid (PFNS)	ND		16	2.4	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
Perfluorodecanesulfonic acid (PFDS)	ND		16	4.2	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
Perfluorododecanesulfonic acid (PFDoS)	ND		16	3.8	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
Perfluorooctanesulfonamide (FOSA)	ND		16	2.7	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
NMeFOSAA	ND		16	1.9	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
NEtFOSAA	ND		16	3.9	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
4:2 FTS	ND		16	4.2	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
6:2 FTS	ND		16	2.2	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
8:2 FTS	ND		16	2.8	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
NEtFOSA	ND		16	3.8	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
NMeFOSA	ND		16	4.0	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
NMeFOSE	ND		16	3.8	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
NEtFOSE	ND		16	2.3	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
HFPO-DA (GenX)	ND		16	3.3	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
9Cl-PF3ONS	ND		16	2.8	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
11Cl-PF3OUdS	ND		16	2.5	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		16	3.2	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	101		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C4 PFBA	111		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C5 PFPeA	111		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C2 PFHxA	111		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C4 PFHpA	115		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C4 PFOA	113		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C5 PFNA	106		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C2 PFDA	107		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C2 PFUnA	100		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C2 PFDoA	106		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C2 PFTeDA	116		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C3 PFBS	108		25 - 150	03/28/23 23:40	04/07/23 18:35	1
18O2 PFHxS	110		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C4 PFOS	96		25 - 150	03/28/23 23:40	04/07/23 18:35	1
d3-NMeFOSAA	96		25 - 150	03/28/23 23:40	04/07/23 18:35	1
d5-NEtFOSAA	106		25 - 150	03/28/23 23:40	04/07/23 18:35	1
M2-4:2 FTS	0		0 - 10	03/28/23 23:40	04/07/23 18:35	1
M2-6:2 FTS	91		25 - 150	03/28/23 23:40	04/07/23 18:35	1
M2-8:2 FTS	84		25 - 150	03/28/23 23:40	04/07/23 18:35	1
d-N-MeFOSA-M	55		25 - 150	03/28/23 23:40	04/07/23 18:35	1
d-N-EtFOSA-M	49		25 - 150	03/28/23 23:40	04/07/23 18:35	1
d7-N-MeFOSE-M	58		25 - 150	03/28/23 23:40	04/07/23 18:35	1
d9-N-EtFOSE-M	55		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C3 HFPO-DA	128		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C2 10:2 FTS	95		25 - 150	03/28/23 23:40	04/07/23 18:35	1

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Total Oxidation Precursors

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

TestAmerica Job ID: 320-98088-1

Client Sample ID: Inf-02-20230320

Lab Sample ID: 320-98088-1
Matrix: Water

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference ¹	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	ND		ng/L	24		ng/L	24	ng/L
Perfluorobutanoic acid (PFBA)	ND		ng/L	24		ng/L	24	ng/L
Perfluoropentanoic acid (PFPA)	3.9	J	ng/L	19		ng/L	16	ng/L
Perfluoropentanoic acid (PFPA)	3.9	J	ng/L	19		ng/L	16	ng/L
Perfluorohexanoic acid (PFHxA)	5.2		ng/L	17		ng/L	11	ng/L
Perfluorohexanoic acid (PFHxA)	5.2		ng/L	17		ng/L	11	ng/L
Perfluoroheptanoic acid (PFHpA)	1.3	J	ng/L	6.1		ng/L	4.7	ng/L
Perfluoroheptanoic acid (PFHpA)	1.3	J	ng/L	6.1		ng/L	4.7	ng/L
Perfluorooctanoic acid (PFOA)	3.2	J	ng/L	6.2		ng/L	3.0	ng/L
Perfluorooctanoic acid (PFOA)	3.2	J	ng/L	6.2		ng/L	3.0	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	1.1	J	ng/L	1.1	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	1.1	J	ng/L	1.1	ng/L
Total Perfluoroalkyl carboxylic acid	14		ng/L	73		ng/L	60	ng/L

Client Sample ID: Inf-07-20230320

Lab Sample ID: 320-98088-2
Matrix: Water

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference ¹	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	14		ng/L	52		ng/L	37	ng/L
Perfluorobutanoic acid (PFBA)	14		ng/L	52		ng/L	37	ng/L
Perfluoropentanoic acid (PFPA)	8.0		ng/L	36		ng/L	28	ng/L
Perfluoropentanoic acid (PFPA)	8.0		ng/L	36		ng/L	28	ng/L
Perfluorohexanoic acid (PFHxA)	16		ng/L	35		ng/L	19	ng/L
Perfluorohexanoic acid (PFHxA)	16		ng/L	35		ng/L	19	ng/L
Perfluoroheptanoic acid (PFHpA)	3.4	J	ng/L	10		ng/L	6.6	ng/L
Perfluoroheptanoic acid (PFHpA)	3.4	J	ng/L	10		ng/L	6.6	ng/L
Perfluorooctanoic acid (PFOA)	8.7		ng/L	13		ng/L	4.1	ng/L
Perfluorooctanoic acid (PFOA)	8.7		ng/L	13		ng/L	4.1	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	2.0	J	ng/L	2.0	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	2.0	J	ng/L	2.0	ng/L
Total Perfluoroalkyl carboxylic acid	50		ng/L	150		ng/L	98	ng/L

¹ Difference = Post-Treatment - Pre-Treatment

Total Oxidation Precursors

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

TestAmerica Job ID: 320-98088-1

Client Sample ID: Inf-08-20230320

Lab Sample ID: 320-98088-3
Matrix: Water

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference ¹	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	ND		ng/L	39		ng/L	39	ng/L
Perfluorobutanoic acid (PFBA)	ND		ng/L	39		ng/L	39	ng/L
Perfluoropentanoic acid (PFPA)	8.6		ng/L	41		ng/L	32	ng/L
Perfluoropentanoic acid (PFPA)	8.6		ng/L	41		ng/L	32	ng/L
Perfluorohexanoic acid (PFHxA)	6.3		ng/L	25		ng/L	19	ng/L
Perfluorohexanoic acid (PFHxA)	6.3		ng/L	25		ng/L	19	ng/L
Perfluoroheptanoic acid (PFHpA)	0.92	J	ng/L	10		ng/L	9.5	ng/L
Perfluoroheptanoic acid (PFHpA)	0.92	J	ng/L	10		ng/L	9.5	ng/L
Perfluorooctanoic acid (PFOA)	ND		ng/L	8.3		ng/L	8.3	ng/L
Perfluorooctanoic acid (PFOA)	ND		ng/L	8.3		ng/L	8.3	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	2.8	J	ng/L	2.8	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	2.8	J	ng/L	2.8	ng/L
Total Perfluoroalkyl carboxylic acid	16		ng/L	130		ng/L	110	ng/L

Client Sample ID: Inf-11-20230320

Lab Sample ID: 320-98088-4
Matrix: Water

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference ¹	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	ND		ng/L	40		ng/L	40	ng/L
Perfluorobutanoic acid (PFBA)	ND		ng/L	40		ng/L	40	ng/L
Perfluoropentanoic acid (PFPA)	2.5	J	ng/L	38		ng/L	36	ng/L
Perfluoropentanoic acid (PFPA)	2.5	J	ng/L	38		ng/L	36	ng/L
Perfluorohexanoic acid (PFHxA)	3.8	J	ng/L	23		ng/L	20	ng/L
Perfluorohexanoic acid (PFHxA)	3.8	J	ng/L	23		ng/L	20	ng/L
Perfluoroheptanoic acid (PFHpA)	ND		ng/L	10		ng/L	10	ng/L
Perfluoroheptanoic acid (PFHpA)	ND		ng/L	10		ng/L	10	ng/L
Perfluorooctanoic acid (PFOA)	2.3	J	ng/L	9.8		ng/L	7.5	ng/L
Perfluorooctanoic acid (PFOA)	2.3	J	ng/L	9.8		ng/L	7.5	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	2.6	J	ng/L	2.6	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	2.6	J	ng/L	2.6	ng/L
Total Perfluoroalkyl carboxylic acid	8.6		ng/L	120		ng/L	110	ng/L

¹ Difference = Post-Treatment - Pre-Treatment

Total Oxidation Precursors

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

TestAmerica Job ID: 320-98088-1

Client Sample ID: Inf-18-20230320

Lab Sample ID: 320-98088-5
Matrix: Water

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference ¹	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	11	J	ng/L	44		ng/L	33	ng/L
Perfluorobutanoic acid (PFBA)	11	J	ng/L	44		ng/L	33	ng/L
Perfluoropentanoic acid (PFPA)	6.0		ng/L	35		ng/L	29	ng/L
Perfluoropentanoic acid (PFPA)	6.0		ng/L	35		ng/L	29	ng/L
Perfluorohexanoic acid (PFHxA)	10		ng/L	32		ng/L	22	ng/L
Perfluorohexanoic acid (PFHxA)	10		ng/L	32		ng/L	22	ng/L
Perfluoroheptanoic acid (PFHpA)	2.7	J	ng/L	10		ng/L	7.7	ng/L
Perfluoroheptanoic acid (PFHpA)	2.7	J	ng/L	10		ng/L	7.7	ng/L
Perfluorooctanoic acid (PFOA)	8.8		ng/L	14		ng/L	5.1	ng/L
Perfluorooctanoic acid (PFOA)	8.8		ng/L	14		ng/L	5.1	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	2.0	J	ng/L	2.0	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	2.0	J	ng/L	2.0	ng/L
Total Perfluoroalkyl carboxylic acid	39		ng/L	140		ng/L	99	ng/L

Client Sample ID: Eff-20230321

Lab Sample ID: 320-98088-7
Matrix: Water

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference ¹	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	8.7	J	ng/L	33		ng/L	25	ng/L
Perfluorobutanoic acid (PFBA)	8.7	J	ng/L	33		ng/L	25	ng/L
Perfluoropentanoic acid (PFPA)	12		ng/L	24		ng/L	11	ng/L
Perfluoropentanoic acid (PFPA)	12		ng/L	24		ng/L	11	ng/L
Perfluorohexanoic acid (PFHxA)	21		ng/L	25		ng/L	3.7	ng/L
Perfluorohexanoic acid (PFHxA)	21		ng/L	25		ng/L	3.7	ng/L
Perfluoroheptanoic acid (PFHpA)	2.5	J	ng/L	3.2	J	ng/L	0.65	ng/L
Perfluoroheptanoic acid (PFHpA)	2.5	J	ng/L	3.2	J	ng/L	0.65	ng/L
Perfluorooctanoic acid (PFOA)	7.4		ng/L	8.4		ng/L	0.99	ng/L
Perfluorooctanoic acid (PFOA)	7.4		ng/L	8.4		ng/L	0.99	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	ND		ng/L	0.00	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	ND		ng/L	0.00	ng/L
Total Perfluoroalkyl carboxylic acid	52		ng/L	94		ng/L	42	ng/L

Client Sample ID: BioA-22-20230321

Lab Sample ID: 320-98088-8
Matrix: Solid

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference ¹	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	7.2		ug/Kg	97		ug/Kg	89	ug/Kg
Perfluoropentanoic acid (PFPA)	4.3	J	ug/Kg	43		ug/Kg	38	ug/Kg
Perfluorohexanoic acid (PFHxA)	10		ug/Kg	33		ug/Kg	23	ug/Kg
Perfluoroheptanoic acid (PFHpA)	ND		ug/Kg	16		ug/Kg	16	ug/Kg
Perfluorooctanoic acid (PFOA)	5.8		ug/Kg	35		ug/Kg	29	ug/Kg
Perfluorononanoic acid (PFNA)	0.80	J	ug/Kg	8.3		ug/Kg	7.5	ug/Kg
Total Perfluoroalkyl carboxylic acid	28		ug/Kg	230		ug/Kg	200	ug/Kg

¹ Difference = Post-Treatment - Pre-Treatment

Total Oxidation Precursors

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

TestAmerica Job ID: 320-98088-1

Client Sample ID: BioB-20230321

Lab Sample ID: 320-98088-9
Matrix: Solid

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference ¹	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	18		ug/Kg	97		ug/Kg	80	ug/Kg
Perfluoropentanoic acid (PFPA)	ND		ug/Kg	51		ug/Kg	51	ug/Kg
Perfluorohexanoic acid (PFHxA)	4.1	J	ug/Kg	28		ug/Kg	24	ug/Kg
Perfluoroheptanoic acid (PFHpA)	ND		ug/Kg	15	J	ug/Kg	15	ug/Kg
Perfluorooctanoic acid (PFOA)	ND		ug/Kg	21		ug/Kg	21	ug/Kg
Perfluorononanoic acid (PFNA)	ND		ug/Kg	7.9	J	ug/Kg	7.9	ug/Kg
Total Perfluoroalkyl carboxylic acid	22		ug/Kg	220		ug/Kg	200	ug/Kg

¹ Difference = Post-Treatment - Pre-Treatment

Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Solid

Prep Type: Pre-Treatment

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-98088-8	BioA-22-20230321	109	117	110	121	117	119	119	112
320-98088-8 - RE	BioA-22-20230321								
320-98088-9	BioB-20230321	106	90	103	114	117	118	122	112
320-98088-9 - RE	BioB-20230321								
LCS 320-663937/2-A	Lab Control Sample	116	115	116	125	113	113	111	107
LCS 320-667340/2-A	Lab Control Sample								
LCSD 320-663937/3-A	Lab Control Sample Dup	115	112	110	119	111	106	108	104
LCSD 320-667340/3-A	Lab Control Sample Dup								
MB 320-663937/1-A	Method Blank	119	112	110	122	114	114	110	104
MB 320-667340/1-A	Method Blank								

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (25-150)	M242FTS (25-150)	M262FTS (25-150)
320-98088-8	BioA-22-20230321	96	53	104	112	103	93	117	152 *5+
320-98088-8 - RE	BioA-22-20230321								
320-98088-9	BioB-20230321	105	79	105	110	100	105	125	154 *5+
320-98088-9 - RE	BioB-20230321								
LCS 320-663937/2-A	Lab Control Sample	122	124	107	120	106	102	81	96
LCS 320-667340/2-A	Lab Control Sample								
LCSD 320-663937/3-A	Lab Control Sample Dup	110	116	109	118	102	96	79	94
LCSD 320-667340/3-A	Lab Control Sample Dup								
MB 320-663937/1-A	Method Blank	111	118	112	116	101	101	85	93
MB 320-667340/1-A	Method Blank								

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M282FTS (25-150)	M102FTS (25-150)	HFPODA (25-150)	d3NMFOS (25-150)	d5NEFOS (25-150)	dMeFOSA (25-150)	dEtFOSA (25-150)	NMFM (25-150)
320-98088-8	BioA-22-20230321	148	146	126	105	121			49
320-98088-8 - RE	BioA-22-20230321						55	53	
320-98088-9	BioB-20230321	142	141	116	112	115			70
320-98088-9 - RE	BioB-20230321						75	77	
LCS 320-663937/2-A	Lab Control Sample	92	105	137	105	107	67	57	67
LCS 320-667340/2-A	Lab Control Sample						106	97	
LCSD 320-663937/3-A	Lab Control Sample Dup	101	103	135	96	104	65	57	62
LCSD 320-667340/3-A	Lab Control Sample Dup						108	101	
MB 320-663937/1-A	Method Blank	92	99	137	103	105	53	44	60
MB 320-667340/1-A	Method Blank						103	94	

		NEFM (25-150)
Lab Sample ID	Client Sample ID	NEFM (25-150)
320-98088-8	BioA-22-20230321	48
320-98088-8 - RE	BioA-22-20230321	
320-98088-9	BioB-20230321	72
320-98088-9 - RE	BioB-20230321	
LCS 320-663937/2-A	Lab Control Sample	61
LCS 320-667340/2-A	Lab Control Sample	
LCSD 320-663937/3-A	Lab Control Sample Dup	57
LCSD 320-667340/3-A	Lab Control Sample Dup	
MB 320-663937/1-A	Method Blank	54
MB 320-667340/1-A	Method Blank	

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Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Surrogate Legend

PFBA = 13C4 PFBA
 PFPeA = 13C5 PFPeA
 PFHxA = 13C2 PFHxA
 C4PFHA = 13C4 PFHpA
 PFOA = 13C4 PFOA
 PFNA = 13C5 PFNA
 PFDA = 13C2 PFDA
 PFUnA = 13C2 PFUnA
 PFDoA = 13C2 PFDoA
 PFTDA = 13C2 PFTeDA
 C3PFBS = 13C3 PFBS
 PFHxS = 18O2 PFHxS
 PFOS = 13C4 PFOS
 PFOSA = 13C8 FOSA
 M242FTS = M2-4:2 FTS
 M262FTS = M2-6:2 FTS
 M282FTS = M2-8:2 FTS
 M102FTS = 13C2 10:2 FTS
 HFPODA = 13C3 HFPO-DA
 d3NMFOFOS = d3-NMeFOSAA
 d5NEFOS = d5-NEtFOSAA
 dMeFOSA = d-N-MeFOSA-M
 dEtFOSA = d-N-EtFOSA-M
 NMFM = d7-N-MeFOSE-M
 NEFM = d9-N-EtFOSE-M

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Solid

Prep Type: Post-Treatment

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFOSA (25-150)	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)
320-98088-8	BioA-22-20230321	101	106	110	107	114	108	106	105
320-98088-9	BioB-20230321	101	111	111	111	115	113	106	107
LCS 320-663938/2-A	Lab Control Sample	104	108	111	108	114	112	111	106
LCSD 320-663938/3-A	Lab Control Sample Dup	105	111	112	113	117	113	111	109
MB 320-663938/1-A	Method Blank	108	111	112	110	114	110	113	110

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFUnA (25-150)	PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	d3NMFOFOS (25-150)	d5NEFOS (25-150)
320-98088-8	BioA-22-20230321	100	111	114	101	105	94	99	102
320-98088-9	BioB-20230321	100	106	116	108	110	96	96	106
LCS 320-663938/2-A	Lab Control Sample	100	110	117	106	113	104	101	109
LCSD 320-663938/3-A	Lab Control Sample Dup	102	110	112	111	118	100	105	106
MB 320-663938/1-A	Method Blank	102	117	114	109	118	102	110	110

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M242FTS (0-10)	M262FTS (25-150)	M282FTS (25-150)	dMeFOSA (25-150)	dEtFOSA (25-150)	NMFM (25-150)	NEFM (25-150)	HFPODA (25-150)
320-98088-8	BioA-22-20230321	0	92	81	71	69	64	67	130
320-98088-9	BioB-20230321	0	91	84	55	49	58	55	128
LCS 320-663938/2-A	Lab Control Sample	0	87	89	55	50	59	57	129
LCSD 320-663938/3-A	Lab Control Sample Dup	0	85	84	55	49	54	52	130
MB 320-663938/1-A	Method Blank	0	94	89	57	48	59	55	136

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Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Matrix: Solid

Prep Type: Post-Treatment

Lab Sample ID	Client Sample ID	M102FTS (25-150)
320-98088-8	BioA-22-20230321	90
320-98088-9	BioB-20230321	95
LCS 320-663938/2-A	Lab Control Sample	95
LCS 320-663938/3-A	Lab Control Sample Dup	95
MB 320-663938/1-A	Method Blank	107

Surrogate Legend

PFOSA = 13C8 FOSA
 PFBA = 13C4 PFBA
 PFPeA = 13C5 PFPeA
 PFHxA = 13C2 PFHxA
 C4PFHA = 13C4 PFHpA
 PFOA = 13C4 PFOA
 PFNA = 13C5 PFNA
 PFDA = 13C2 PFDA
 PFUnA = 13C2 PFUnA
 PFDaA = 13C2 PFDaA
 PFTDA = 13C2 PFTeDA
 C3PFBS = 13C3 PFBS
 PFHxS = 18O2 PFHxS
 PFOS = 13C4 PFOS
 d3NMFOFOS = d3-NMeFOSAA
 d5NEFOS = d5-NEtFOSAA
 M242FTS = M2-4:2 FTS
 M262FTS = M2-6:2 FTS
 M282FTS = M2-8:2 FTS
 dMeFOSA = d-N-MeFOSA-M
 dEtFOSA = d-N-EtFOSA-M
 NMFM = d7-N-MeFOSE-M
 NEFM = d9-N-EtFOSE-M
 HFPODA = 13C3 HFPO-DA
 M102FTS = 13C2 10:2 FTS

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Pre-Treatment

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFOSA (25-150)	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)
320-98088-1	Inf-02-20230320	90	91	104	106	124	117	114	111
320-98088-2	Inf-07-20230320	78	85	103	98	115	114	110	108
320-98088-3	Inf-08-20230320	77	86	102	104	118	115	111	109
320-98088-4	Inf-11-20230320	73	85	102	104	121	114	113	105
320-98088-5	Inf-18-20230320	79	91	103	99	119	115	111	109
320-98088-7	Eff-20230321	96	97	113	118	122	116	117	111
LCS 320-663934/3-A	Lab Control Sample Dup	101	117	117	116	127	117	119	118
MB 320-663934/1-A	Method Blank	94	114	112	114	120	113	114	114

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFUnA (25-150)	PFDaA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	d3NMFOFOS (25-150)	d5NEFOS (25-150)
320-98088-1	Inf-02-20230320	98	82	64	94	102	93	88	95

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Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Matrix: Water

Prep Type: Pre-Treatment

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFUnA (25-150)	PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
320-98088-2	Inf-07-20230320	88	67	55	92	97	87	72	77
320-98088-3	Inf-08-20230320	93	67	46	92	96	82	76	87
320-98088-4	Inf-11-20230320	85	56	36	90	97	84	66	71
320-98088-5	Inf-18-20230320	90	68	58	93	99	85	71	75
320-98088-7	Eff-20230321	108	113	85	104	110	102	102	107
LCSD 320-663934/3-A	Lab Control Sample Dup	114	118	124	112	118	107	111	111
MB 320-663934/1-A	Method Blank	107	114	120	105	107	102	102	109

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	NMFM (25-150)	NEFM (25-150)	HFPODA (25-150)	M102FTS (25-150)
320-98088-1	Inf-02-20230320	125	183 *5+	133	58	56	126	113
320-98088-2	Inf-07-20230320	116	181 *5+	123	52	57	121	91
320-98088-3	Inf-08-20230320	122	184 *5+	122	53	52	120	91
320-98088-4	Inf-11-20230320	137	185 *5+	115	49	51	125	71
320-98088-5	Inf-18-20230320	113	193 *5+	124	64	66	122	85
320-98088-7	Eff-20230321	130	125	112	55	52	129	120
LCSD 320-663934/3-A	Lab Control Sample Dup	107	116	118	67	60	139	135
MB 320-663934/1-A	Method Blank	103	112	109	95	94	136	135

Surrogate Legend

- PFOSA = 13C8 FOSA
- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- C4PFHA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDoA = 13C2 PFDoA
- PFTDA = 13C2 PFTeDA
- C3PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- d3NMFOS = d3-NMeFOSAA
- d5NEFOS = d5-NEtFOSAA
- M242FTS = M2-4:2 FTS
- M262FTS = M2-6:2 FTS
- M282FTS = M2-8:2 FTS
- NMFM = d7-N-MeFOSE-M
- NEFM = d9-N-EtFOSE-M
- HFPODA = 13C3 HFPO-DA
- M102FTS = 13C2 10:2 FTS

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Pre-Treatment

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	dMeFOSA (25-150)	dEtFOSA (25-150)
320-98088-1 - RE	Inf-02-20230320	35	42

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Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Matrix: Water

Prep Type: Pre-Treatment

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)	
		dMeFOSA (25-150)	dEtFOSA (25-150)
320-98088-2 - RE	Inf-07-20230320	36	42
320-98088-3 - RE	Inf-08-20230320	36	43
320-98088-4 - RE	Inf-11-20230320	36	39
320-98088-5 - RE	Inf-18-20230320	37	51
320-98088-7 - RE	Eff-20230321	105	98
LCS 320-667343/2-A	Lab Control Sample	100	97
LCSD 320-667343/3-A	Lab Control Sample Dup	100	102
MB 320-667343/1-A	Method Blank	104	101

Surrogate Legend

dMeFOSA = d-N-MeFOSA-M

dEtFOSA = d-N-EtFOSA-M

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Pre-Treatment

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFOSA (25-150)	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)
LCS 320-663934/2-A	Lab Control Sample	95	116	114	112	124	114	115	117

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFUnA (25-150)	PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
LCS 320-663934/2-A	Lab Control Sample	107	117	118	110	117	104	103	99

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)						
		M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	dMeFOSA (25-150)	NMFM (25-150)	HFPODA (25-150)	M102FTS (25-150)
LCS 320-663934/2-A	Lab Control Sample	101	116	113	86	69	137	126

Surrogate Legend

PFOSA = 13C8 FOSA

PFBA = 13C4 PFBA

PFPeA = 13C5 PFPeA

PFHxA = 13C2 PFHxA

C4PFHA = 13C4 PFHpA

PFOA = 13C4 PFOA

PFNA = 13C5 PFNA

PFDA = 13C2 PFDA

PFUnA = 13C2 PFUnA

PFDoA = 13C2 PFDoA

PFTDA = 13C2 PFTeDA

C3PFBS = 13C3 PFBS

PFHxS = 18O2 PFHxS

PFOS = 13C4 PFOS

d3NMFOS = d3-NMeFOSAA

d5NEFOS = d5-NEtFOSAA

M242FTS = M2-4:2 FTS

M262FTS = M2-6:2 FTS

M282FTS = M2-8:2 FTS

dMeFOSA = d-N-MeFOSA-M

NMFM = d7-N-MeFOSE-M

Eurofins Sacramento

Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District

Job ID: 320-98088-1

Project/Site: MMSD PFAS

HFPODA = 13C3 HFPO-DA

M102FTS = 13C2 10:2 FTS

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Post-Treatment

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFOSA (25-150)	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)
320-98088-1	Inf-02-20230320	93	109	110	109	117	108	108	106
320-98088-2	Inf-07-20230320	96	109	113	110	123	114	114	112
320-98088-3	Inf-08-20230320	97	109	115	107	121	116	115	108
320-98088-4	Inf-11-20230320	98	108	109	110	119	112	111	109
320-98088-5	Inf-18-20230320	96	111	109	111	118	113	117	109
320-98088-7	Eff-20230321	97	110	115	115	122	113	114	112
LCS 320-663935/2-A	Lab Control Sample	101	111	112	114	123	109	115	114
LCSD 320-663935/3-A	Lab Control Sample Dup	102	118	118	114	125	115	120	120
MB 320-663935/1-A	Method Blank	99	113	112	111	120	116	115	114

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFUnA (25-150)	PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
320-98088-1	Inf-02-20230320	99	105	115	100	106	92	98	100
320-98088-2	Inf-07-20230320	106	118	122	107	112	103	102	106
320-98088-3	Inf-08-20230320	106	112	120	108	113	103	103	110
320-98088-4	Inf-11-20230320	104	113	123	106	113	101	101	110
320-98088-5	Inf-18-20230320	109	114	118	105	111	99	100	108
320-98088-7	Eff-20230321	104	117	122	111	110	102	102	109
LCS 320-663935/2-A	Lab Control Sample	109	119	125	108	115	105	103	109
LCSD 320-663935/3-A	Lab Control Sample Dup	109	122	126	108	112	103	108	114
MB 320-663935/1-A	Method Blank	108	115	123	112	114	108	103	108

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M242FTS (0-10)	M262FTS (25-150)	M282FTS (25-150)	dMeFOSA (25-150)	dEtFOSA (25-150)	NMFM (25-150)	NEFM (25-150)	HFPODA (25-150)
320-98088-1	Inf-02-20230320	0	98	95	63	55	54	48	128
320-98088-2	Inf-07-20230320	0	103	98	85	79	85	81	133
320-98088-3	Inf-08-20230320	0	97	89	55	47	46	43	128
320-98088-4	Inf-11-20230320	0	97	95	85	80	83	84	131
320-98088-5	Inf-18-20230320	0.6	94	92	47	43	48	47	130
320-98088-7	Eff-20230321	0	90	95	53	47	58	52	137
LCS 320-663935/2-A	Lab Control Sample	0	100	97	54	47	58	52	132
LCSD 320-663935/3-A	Lab Control Sample Dup	0	106	106	60	50	60	54	137
MB 320-663935/1-A	Method Blank	0	102	100	55	47	53	51	131

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M102FTS (25-150)
320-98088-1	Inf-02-20230320	117
320-98088-2	Inf-07-20230320	121
320-98088-3	Inf-08-20230320	113
320-98088-4	Inf-11-20230320	117
320-98088-5	Inf-18-20230320	117
320-98088-7	Eff-20230321	108
LCS 320-663935/2-A	Lab Control Sample	124
LCSD 320-663935/3-A	Lab Control Sample Dup	125
MB 320-663935/1-A	Method Blank	128

Surrogate Legend

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Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District

Job ID: 320-98088-1

Project/Site: MMSD PFAS

PFOSA = 13C8 FOSA
PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
dMeFOSA = d-N-MeFOSA-M
dEtFOSA = d-N-EtFOSA-M
NMFm = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
HFPODA = 13C3 HFPO-DA
M102FTS = 13C2 10:2 FTS

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-663934/1-A

Matrix: Water

Analysis Batch: 666636

Client Sample ID: Method Blank

Prep Type: Pre-Treatment

Prep Batch: 663934

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		13	6.0	ng/L		03/28/23 21:54	04/10/23 16:10	1
Perfluoropentanoic acid (PFPA)	ND		5.0	1.2	ng/L		03/28/23 21:54	04/10/23 16:10	1
Perfluorohexanoic acid (PFHxA)	ND		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 16:10	1
Perfluoroheptanoic acid (PFHpA)	ND		5.0	0.63	ng/L		03/28/23 21:54	04/10/23 16:10	1
Perfluorooctanoic acid (PFOA)	ND		5.0	2.1	ng/L		03/28/23 21:54	04/10/23 16:10	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		03/28/23 21:54	04/10/23 16:10	1
Perfluorodecanoic acid (PFDA)	ND		5.0	0.78	ng/L		03/28/23 21:54	04/10/23 16:10	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		03/28/23 21:54	04/10/23 16:10	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 16:10	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		03/28/23 21:54	04/10/23 16:10	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		03/28/23 21:54	04/10/23 16:10	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0	0.50	ng/L		03/28/23 21:54	04/10/23 16:10	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		03/28/23 21:54	04/10/23 16:10	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0	0.43	ng/L		03/28/23 21:54	04/10/23 16:10	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		03/28/23 21:54	04/10/23 16:10	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.0	0.80	ng/L		03/28/23 21:54	04/10/23 16:10	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		03/28/23 21:54	04/10/23 16:10	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 16:10	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		03/28/23 21:54	04/10/23 16:10	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		03/28/23 21:54	04/10/23 16:10	1
NMeFOSAA	ND		13	3.0	ng/L		03/28/23 21:54	04/10/23 16:10	1
NEtFOSAA	ND		13	3.3	ng/L		03/28/23 21:54	04/10/23 16:10	1
4:2 FTS	ND		5.0	0.60	ng/L		03/28/23 21:54	04/10/23 16:10	1
6:2 FTS	ND		13	6.3	ng/L		03/28/23 21:54	04/10/23 16:10	1
8:2 FTS	ND		5.0	1.2	ng/L		03/28/23 21:54	04/10/23 16:10	1
NMeFOSE	ND		10	3.5	ng/L		03/28/23 21:54	04/10/23 16:10	1
NEtFOSE	ND		5.0	2.2	ng/L		03/28/23 21:54	04/10/23 16:10	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		03/28/23 21:54	04/10/23 16:10	1
9CI-PF3ONS	ND		5.0	0.60	ng/L		03/28/23 21:54	04/10/23 16:10	1
11CI-PF3OUdS	ND		5.0	0.80	ng/L		03/28/23 21:54	04/10/23 16:10	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		03/28/23 21:54	04/10/23 16:10	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	114		25 - 150	03/28/23 21:54	04/10/23 16:10	1
13C5 PFPeA	112		25 - 150	03/28/23 21:54	04/10/23 16:10	1
13C2 PFHxA	114		25 - 150	03/28/23 21:54	04/10/23 16:10	1
13C4 PFHpA	120		25 - 150	03/28/23 21:54	04/10/23 16:10	1
13C4 PFOA	113		25 - 150	03/28/23 21:54	04/10/23 16:10	1
13C5 PFNA	114		25 - 150	03/28/23 21:54	04/10/23 16:10	1
13C2 PFDA	114		25 - 150	03/28/23 21:54	04/10/23 16:10	1
13C2 PFUnA	107		25 - 150	03/28/23 21:54	04/10/23 16:10	1
13C2 PFDoA	114		25 - 150	03/28/23 21:54	04/10/23 16:10	1
13C2 PFTeDA	120		25 - 150	03/28/23 21:54	04/10/23 16:10	1
13C3 PFBS	105		25 - 150	03/28/23 21:54	04/10/23 16:10	1
18O2 PFHxS	107		25 - 150	03/28/23 21:54	04/10/23 16:10	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-663934/1-A
Matrix: Water
Analysis Batch: 666636

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 663934

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C4 PFOS	102		25 - 150	03/28/23 21:54	04/10/23 16:10	1
13C8 FOSA	94		25 - 150	03/28/23 21:54	04/10/23 16:10	1
M2-4:2 FTS	103		25 - 150	03/28/23 21:54	04/10/23 16:10	1
M2-6:2 FTS	112		25 - 150	03/28/23 21:54	04/10/23 16:10	1
M2-8:2 FTS	109		25 - 150	03/28/23 21:54	04/10/23 16:10	1
d3-NMeFOSAA	102		25 - 150	03/28/23 21:54	04/10/23 16:10	1
d5-NEtFOSAA	109		25 - 150	03/28/23 21:54	04/10/23 16:10	1
13C3 HFPO-DA	136		25 - 150	03/28/23 21:54	04/10/23 16:10	1
d7-N-MeFOSE-M	95		25 - 150	03/28/23 21:54	04/10/23 16:10	1
13C2 10:2 FTS	135		25 - 150	03/28/23 21:54	04/10/23 16:10	1
d9-N-EtFOSE-M	94		25 - 150	03/28/23 21:54	04/10/23 16:10	1

Lab Sample ID: LCS 320-663934/2-A
Matrix: Water
Analysis Batch: 666636

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 663934

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	100	97.4		ng/L		97	76 - 136
Perfluoropentanoic acid (PFPA)	100	96.9		ng/L		97	71 - 131
Perfluorohexanoic acid (PFHxA)	100	98.7		ng/L		99	73 - 133
Perfluoroheptanoic acid (PFHpA)	100	96.5		ng/L		96	72 - 132
Perfluorooctanoic acid (PFOA)	100	96.7		ng/L		97	70 - 130
Perfluorononanoic acid (PFNA)	100	97.7		ng/L		98	75 - 135
Perfluorodecanoic acid (PFDA)	100	98.4		ng/L		98	76 - 136
Perfluoroundecanoic acid (PFUnA)	100	103		ng/L		103	68 - 128
Perfluorododecanoic acid (PFDoA)	100	94.1		ng/L		94	71 - 131
Perfluorotridecanoic acid (PFTrDA)	100	91.9		ng/L		92	71 - 131
Perfluorotetradecanoic acid (PFTeA)	100	83.6		ng/L		84	70 - 130
Perfluorobutanesulfonic acid (PFBS)	88.8	84.2		ng/L		95	67 - 127
Perfluoropentanesulfonic acid (PFPeS)	94.0	88.5		ng/L		94	66 - 126
Perfluorohexanesulfonic acid (PFHxS)	91.2	77.4		ng/L		85	59 - 119
Perfluoroheptanesulfonic acid (PFHpS)	95.4	96.3		ng/L		101	76 - 136
Perfluorooctanesulfonic acid (PFOS)	93.0	92.4		ng/L		99	70 - 130
Perfluorononanesulfonic acid (PFNS)	96.2	95.4		ng/L		99	75 - 135
Perfluorodecanesulfonic acid (PFDS)	96.4	95.3		ng/L		99	71 - 131
Perfluorododecanesulfonic acid (PFDoS)	97.0	82.2		ng/L		85	67 - 127
Perfluorooctanesulfonamide (FOSA)	100	84.8		ng/L		85	73 - 133
NMeFOSAA	100	96.0		ng/L		96	76 - 136
NEtFOSAA	100	97.2		ng/L		97	76 - 136

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-663934/2-A
Matrix: Water
Analysis Batch: 666636

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 663934

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
4:2 FTS	93.8	96.1		ng/L		102	79 - 139
6:2 FTS	95.2	98.5		ng/L		103	59 - 175
8:2 FTS	96.0	103		ng/L		108	75 - 135
NMeFOSE	100	74.7		ng/L		75	70 - 130
NEtFOSE	100	76.3		ng/L		76	71 - 131
HFPO-DA (GenX)	100	93.4		ng/L		93	51 - 173
9CI-PF3ONS	93.4	98.7		ng/L		106	75 - 135
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	94.4	105		ng/L		111	79 - 139

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFBA	116		25 - 150
13C5 PFPeA	114		25 - 150
13C2 PFHxA	112		25 - 150
13C4 PFHpA	124		25 - 150
13C4 PFOA	114		25 - 150
13C5 PFNA	115		25 - 150
13C2 PFDA	117		25 - 150
13C2 PFUnA	107		25 - 150
13C2 PFDaA	117		25 - 150
13C2 PFTeDA	118		25 - 150
13C3 PFBS	110		25 - 150
18O2 PFHxS	117		25 - 150
13C4 PFOS	104		25 - 150
13C8 FOSA	95		25 - 150
M2-4:2 FTS	101		25 - 150
M2-6:2 FTS	116		25 - 150
M2-8:2 FTS	113		25 - 150
d3-NMeFOSAA	103		25 - 150
d5-NEtFOSAA	99		25 - 150
d-N-MeFOSA-M	86		25 - 150
13C3 HFPO-DA	137		25 - 150
d7-N-MeFOSE-M	69		25 - 150
13C2 10:2 FTS	126		25 - 150

Lab Sample ID: LCSD 320-663934/3-A
Matrix: Water
Analysis Batch: 666636

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 663934

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	100	101		ng/L		101	76 - 136	3	30
Perfluoropentanoic acid (PFPA)	100	99.8		ng/L		100	71 - 131	3	30
Perfluorohexanoic acid (PFHxA)	100	100		ng/L		100	73 - 133	2	30
Perfluoroheptanoic acid (PFHpA)	100	99.3		ng/L		99	72 - 132	3	30
Perfluorooctanoic acid (PFOA)	100	99.6		ng/L		100	70 - 130	3	30
Perfluorononanoic acid (PFNA)	100	101		ng/L		101	75 - 135	3	30
Perfluorodecanoic acid (PFDA)	100	102		ng/L		102	76 - 136	3	30
Perfluoroundecanoic acid (PFUnA)	100	99.1		ng/L		99	68 - 128	4	30

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-663934/3-A
Matrix: Water
Analysis Batch: 666636

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 663934

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorododecanoic acid (PFDoA)	100	101		ng/L		101	71 - 131	7	30
Perfluorotridecanoic acid (PFTrDA)	100	101		ng/L		101	71 - 131	9	30
Perfluorotetradecanoic acid (PFTeA)	100	91.9		ng/L		92	70 - 130	9	30
Perfluorobutanesulfonic acid (PFBS)	88.8	88.8		ng/L		100	67 - 127	5	30
Perfluoropentanesulfonic acid (PFPeS)	94.0	96.3		ng/L		102	66 - 126	9	30
Perfluorohexanesulfonic acid (PFHxS)	91.2	81.8		ng/L		90	59 - 119	6	30
Perfluoroheptanesulfonic acid (PFHpS)	95.4	99.9		ng/L		105	76 - 136	4	30
Perfluorooctanesulfonic acid (PFOS)	93.0	94.7		ng/L		102	70 - 130	2	30
Perfluorononanesulfonic acid (PFNS)	96.2	97.7		ng/L		102	75 - 135	2	30
Perfluorodecanesulfonic acid (PFDS)	96.4	100		ng/L		104	71 - 131	5	30
Perfluorododecanesulfonic acid (PFDoS)	97.0	91.9		ng/L		95	67 - 127	11	30
Perfluorooctanesulfonamide (FOSA)	100	86.5		ng/L		86	73 - 133	2	30
NMeFOSAA	100	96.0		ng/L		96	76 - 136	0	30
NEtFOSAA	100	94.8		ng/L		95	76 - 136	3	30
4:2 FTS	93.8	97.7		ng/L		104	79 - 139	2	30
6:2 FTS	95.2	102		ng/L		107	59 - 175	4	30
8:2 FTS	96.0	100		ng/L		104	75 - 135	3	30
NMeFOSE	100	72.7		ng/L		73	70 - 130	3	30
NEtFOSE	100	71.6		ng/L		72	71 - 131	6	30
HFPO-DA (GenX)	100	93.9		ng/L		94	51 - 173	1	30
9CI-PF3ONS	93.4	102		ng/L		109	75 - 135	3	30
11CI-PF3OUdS	94.4	97.8		ng/L		104	54 - 114	5	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	94.4	107		ng/L		114	79 - 139	3	30

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C4 PFBA	117		25 - 150
13C5 PFPeA	117		25 - 150
13C2 PFHxA	116		25 - 150
13C4 PFHpA	127		25 - 150
13C4 PFOA	117		25 - 150
13C5 PFNA	119		25 - 150
13C2 PFDA	118		25 - 150
13C2 PFUnA	114		25 - 150
13C2 PFDoA	118		25 - 150
13C2 PFTeDA	124		25 - 150
13C3 PFBS	112		25 - 150
18O2 PFHxS	118		25 - 150
13C4 PFOS	107		25 - 150
13C8 FOSA	101		25 - 150

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-663934/3-A
Matrix: Water
Analysis Batch: 666636

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 663934

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>LCSD Qualifier</i>	<i>LCSD Limits</i>
M2-4:2 FTS	107		25 - 150
M2-6:2 FTS	116		25 - 150
M2-8:2 FTS	118		25 - 150
d3-NMeFOSAA	111		25 - 150
d5-NEtFOSAA	111		25 - 150
13C3 HFPO-DA	139		25 - 150
d7-N-MeFOSE-M	67		25 - 150
13C2 10:2 FTS	135		25 - 150
d9-N-EtFOSE-M	60		25 - 150

Lab Sample ID: MB 320-663937/1-A
Matrix: Solid
Analysis Batch: 666489

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 663937

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.998	J	1.0	0.23	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
Perfluoropentanoic acid (PFPA)	ND		1.0	0.21	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
Perfluorohexanoic acid (PFHxA)	ND		1.0	0.16	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
Perfluoroheptanoic acid (PFHpA)	ND		1.0	0.19	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
Perfluorooctanoic acid (PFOA)	ND		1.0	0.27	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
Perfluorononanoic acid (PFNA)	ND		1.0	0.11	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
Perfluorodecanoic acid (PFDA)	ND		1.0	0.24	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
Perfluoroundecanoic acid (PFUnA)	ND		1.0	0.21	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
Perfluorododecanoic acid (PFDoA)	ND		1.0	0.15	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.0	0.11	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.0	0.19	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.0	0.19	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.0	0.19	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.0	0.15	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.0	0.25	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.0	0.22	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
Perfluorononanesulfonic acid (PFNS)	ND		1.0	0.15	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.0	0.26	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.0	0.24	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
Perfluorooctanesulfonamide (FOSA)	ND		1.0	0.17	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
NMeFOSAA	ND		1.0	0.12	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
NEtFOSAA	ND		1.0	0.24	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
4:2 FTS	ND		1.0	0.26	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
6:2 FTS	ND		1.0	0.14	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
8:2 FTS	ND		1.0	0.18	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
NEtFOSA	ND		1.0	0.24	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
NMeFOSA	ND		1.0	0.25	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
NMeFOSE	ND		1.0	0.24	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
NEtFOSE	ND		1.0	0.14	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
HFPO-DA (GenX)	ND		1.0	0.21	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
9CI-PF3ONS	ND		1.0	0.18	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
11CI-PF3OUdS	ND		1.0	0.16	ug/Kg		03/28/23 23:20	04/07/23 17:04	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-663937/1-A
Matrix: Solid
Analysis Batch: 666489

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 663937

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.0	0.20	ug/Kg		03/28/23 23:20	04/07/23 17:04	1
Isotope Dilution	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	119		25 - 150				03/28/23 23:20	04/07/23 17:04	1
13C5 PFPeA	112		25 - 150				03/28/23 23:20	04/07/23 17:04	1
13C2 PFHxA	110		25 - 150				03/28/23 23:20	04/07/23 17:04	1
13C4 PFHpA	122		25 - 150				03/28/23 23:20	04/07/23 17:04	1
13C4 PFOA	114		25 - 150				03/28/23 23:20	04/07/23 17:04	1
13C5 PFNA	114		25 - 150				03/28/23 23:20	04/07/23 17:04	1
13C2 PFDA	110		25 - 150				03/28/23 23:20	04/07/23 17:04	1
13C2 PFUnA	104		25 - 150				03/28/23 23:20	04/07/23 17:04	1
13C2 PFDoA	111		25 - 150				03/28/23 23:20	04/07/23 17:04	1
13C2 PFTeDA	118		25 - 150				03/28/23 23:20	04/07/23 17:04	1
13C3 PFBS	112		25 - 150				03/28/23 23:20	04/07/23 17:04	1
18O2 PFHxS	116		25 - 150				03/28/23 23:20	04/07/23 17:04	1
13C4 PFOS	101		25 - 150				03/28/23 23:20	04/07/23 17:04	1
13C8 FOSA	101		25 - 150				03/28/23 23:20	04/07/23 17:04	1
M2-4:2 FTS	85		25 - 150				03/28/23 23:20	04/07/23 17:04	1
M2-6:2 FTS	93		25 - 150				03/28/23 23:20	04/07/23 17:04	1
M2-8:2 FTS	92		25 - 150				03/28/23 23:20	04/07/23 17:04	1
d3-NMeFOSAA	103		25 - 150				03/28/23 23:20	04/07/23 17:04	1
d5-NEtFOSAA	105		25 - 150				03/28/23 23:20	04/07/23 17:04	1
d-N-MeFOSA-M	53		25 - 150				03/28/23 23:20	04/07/23 17:04	1
d-N-EtFOSA-M	44		25 - 150				03/28/23 23:20	04/07/23 17:04	1
13C3 HFPO-DA	137		25 - 150				03/28/23 23:20	04/07/23 17:04	1
d7-N-MeFOSE-M	60		25 - 150				03/28/23 23:20	04/07/23 17:04	1
13C2 10:2 FTS	99		25 - 150				03/28/23 23:20	04/07/23 17:04	1
d9-N-EtFOSE-M	54		25 - 150				03/28/23 23:20	04/07/23 17:04	1

Lab Sample ID: LCS 320-663937/2-A
Matrix: Solid
Analysis Batch: 666489

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 663937

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	10.0	11.1		ug/Kg		111	76 - 136
Perfluoropentanoic acid (PFPA)	10.0	9.37		ug/Kg		94	69 - 129
Perfluorohexanoic acid (PFHxA)	10.0	8.91		ug/Kg		89	71 - 131
Perfluoroheptanoic acid (PFHpA)	10.0	9.31		ug/Kg		93	71 - 131
Perfluorooctanoic acid (PFOA)	10.0	9.52		ug/Kg		95	72 - 132
Perfluorononanoic acid (PFNA)	10.0	9.51		ug/Kg		95	73 - 133
Perfluorodecanoic acid (PFDA)	10.0	9.30		ug/Kg		93	72 - 132
Perfluoroundecanoic acid (PFUnA)	10.0	9.47		ug/Kg		95	66 - 126
Perfluorododecanoic acid (PFDoA)	10.0	8.88		ug/Kg		89	71 - 131
Perfluorotridecanoic acid (PFTTrDA)	10.0	8.82		ug/Kg		88	71 - 131
Perfluorotetradecanoic acid (PFTTeA)	10.0	8.56		ug/Kg		86	67 - 127

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-663937/2-A
Matrix: Solid
Analysis Batch: 666489

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 663937

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanesulfonic acid (PFBS)	8.88	8.68		ug/Kg		98	69 - 129
Perfluoropentanesulfonic acid (PFPeS)	9.40	9.46		ug/Kg		101	66 - 126
Perfluorohexanesulfonic acid (PFHxS)	9.12	7.59		ug/Kg		83	62 - 122
Perfluoroheptanesulfonic acid (PFHpS)	9.54	9.94		ug/Kg		104	76 - 136
Perfluorooctanesulfonic acid (PFOS)	9.30	8.80		ug/Kg		95	68 - 141
Perfluorononanesulfonic acid (PFNS)	9.62	9.46		ug/Kg		98	72 - 132
Perfluorodecanesulfonic acid (PFDS)	9.64	9.68		ug/Kg		100	71 - 131
Perfluorododecanesulfonic acid (PFDoS)	9.70	8.88		ug/Kg		92	70 - 130
Perfluorooctanesulfonamide (FOSA)	10.0	8.42		ug/Kg		84	77 - 137
NMeFOSAA	10.0	8.87		ug/Kg		89	72 - 132
NEtFOSAA	10.0	8.87		ug/Kg		89	72 - 132
4:2 FTS	9.38	7.29		ug/Kg		78	68 - 143
6:2 FTS	9.52	9.28		ug/Kg		97	73 - 139
8:2 FTS	9.60	10.0		ug/Kg		105	75 - 135
NEtFOSA	10.0	3.98	*-	ug/Kg		40	47 - 161
NMeFOSA	10.0	4.72	*-	ug/Kg		47	63 - 148
NMeFOSE	10.0	6.45		ug/Kg		64	43 - 153
NEtFOSE	10.0	6.07		ug/Kg		61	44 - 155
HFPO-DA (GenX)	10.0	9.14		ug/Kg		91	53 - 158
9Cl-PF3ONS	9.34	9.80		ug/Kg		105	74 - 134
11Cl-PF3OUdS	9.44	9.23		ug/Kg		98	66 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.44	9.96		ug/Kg		106	79 - 139

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	116		25 - 150
13C5 PFPeA	115		25 - 150
13C2 PFHxA	116		25 - 150
13C4 PFHpA	125		25 - 150
13C4 PFOA	113		25 - 150
13C5 PFNA	113		25 - 150
13C2 PFDA	111		25 - 150
13C2 PFUnA	107		25 - 150
13C2 PFDoA	122		25 - 150
13C2 PFTeDA	124		25 - 150
13C3 PFBS	107		25 - 150
18O2 PFHxS	120		25 - 150
13C4 PFOS	106		25 - 150
13C8 FOSA	102		25 - 150
M2-4:2 FTS	81		25 - 150
M2-6:2 FTS	96		25 - 150
M2-8:2 FTS	92		25 - 150

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QC Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-663937/2-A
Matrix: Solid
Analysis Batch: 666489

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 663937

<i>Isotope Dilution</i>	<i>LCS %Recovery</i>	<i>LCS Qualifier</i>	<i>Limits</i>
d3-NMeFOSAA	105		25 - 150
d5-NEtFOSAA	107		25 - 150
d-N-MeFOSA-M	67		25 - 150
d-N-EtFOSA-M	57		25 - 150
13C3 HFPO-DA	137		25 - 150
d7-N-MeFOSE-M	67		25 - 150
13C2 10:2 FTS	105		25 - 150
d9-N-EtFOSE-M	61		25 - 150

Lab Sample ID: LCSD 320-663937/3-A
Matrix: Solid
Analysis Batch: 666489

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 663937

<i>Analyte</i>	<i>Spike Added</i>	<i>LCSD Result</i>	<i>LCSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
Perfluorobutanoic acid (PFBA)	10.0	11.6		ug/Kg		116	76 - 136	4	30
Perfluoropentanoic acid (PFPA)	10.0	9.74		ug/Kg		97	69 - 129	4	30
Perfluorohexanoic acid (PFHxA)	10.0	9.29		ug/Kg		93	71 - 131	4	30
Perfluoroheptanoic acid (PFHpA)	10.0	9.81		ug/Kg		98	71 - 131	5	30
Perfluorooctanoic acid (PFOA)	10.0	9.64		ug/Kg		96	72 - 132	1	30
Perfluorononanoic acid (PFNA)	10.0	10.1		ug/Kg		101	73 - 133	6	30
Perfluorodecanoic acid (PFDA)	10.0	9.36		ug/Kg		94	72 - 132	1	30
Perfluoroundecanoic acid (PFUnA)	10.0	9.72		ug/Kg		97	66 - 126	3	30
Perfluorododecanoic acid (PFDoA)	10.0	9.19		ug/Kg		92	71 - 131	3	30
Perfluorotridecanoic acid (PFTrDA)	10.0	9.41		ug/Kg		94	71 - 131	7	30
Perfluorotetradecanoic acid (PFTeA)	10.0	8.59		ug/Kg		86	67 - 127	0	30
Perfluorobutanesulfonic acid (PFBS)	8.88	8.51		ug/Kg		96	69 - 129	2	30
Perfluoropentanesulfonic acid (PFPeS)	9.40	9.36		ug/Kg		100	66 - 126	1	30
Perfluorohexanesulfonic acid (PFHxS)	9.12	7.70		ug/Kg		84	62 - 122	1	30
Perfluoroheptanesulfonic acid (PFHpS)	9.54	10.1		ug/Kg		106	76 - 136	1	30
Perfluorooctanesulfonic acid (PFOS)	9.30	9.28		ug/Kg		100	68 - 141	5	30
Perfluorononanesulfonic acid (PFNS)	9.62	9.41		ug/Kg		98	72 - 132	1	30
Perfluorodecanesulfonic acid (PFDS)	9.64	9.39		ug/Kg		97	71 - 131	3	30
Perfluorododecanesulfonic acid (PFDoS)	9.70	9.08		ug/Kg		94	70 - 130	2	30
Perfluorooctanesulfonamide (FOSA)	10.0	8.82		ug/Kg		88	77 - 137	5	30
NMeFOSAA	10.0	8.74		ug/Kg		87	72 - 132	2	30
NEtFOSAA	10.0	8.66		ug/Kg		87	72 - 132	2	30
4:2 FTS	9.38	7.16		ug/Kg		76	68 - 143	2	30
6:2 FTS	9.52	9.78		ug/Kg		103	73 - 139	5	30
8:2 FTS	9.60	9.94		ug/Kg		104	75 - 135	1	30

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QC Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-663937/3-A
Matrix: Solid
Analysis Batch: 666489

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 663937

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
NEtFOSA	10.0	3.68	*-	ug/Kg		37	47 - 161	8	30
NMeFOSA	10.0	4.83	*-	ug/Kg		48	63 - 148	2	30
NMeFOSE	10.0	6.01		ug/Kg		60	43 - 153	7	30
NEtFOSE	10.0	5.75		ug/Kg		57	44 - 155	6	30
HFPO-DA (GenX)	10.0	9.13		ug/Kg		91	53 - 158	0	30
9CI-PF3ONS	9.34	9.81		ug/Kg		105	74 - 134	0	30
11CI-PF3OUdS	9.44	9.14		ug/Kg		97	66 - 136	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.44	10.4		ug/Kg		110	79 - 139	4	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	LCSD Limits
13C4 PFBA	115		25 - 150
13C5 PFPeA	112		25 - 150
13C2 PFHxA	110		25 - 150
13C4 PFHpA	119		25 - 150
13C4 PFOA	111		25 - 150
13C5 PFNA	106		25 - 150
13C2 PFDA	108		25 - 150
13C2 PFUnA	104		25 - 150
13C2 PFDaA	110		25 - 150
13C2 PFTeDA	116		25 - 150
13C3 PFBS	109		25 - 150
18O2 PFHxS	118		25 - 150
13C4 PFOS	102		25 - 150
13C8 FOSA	96		25 - 150
M2-4:2 FTS	79		25 - 150
M2-6:2 FTS	94		25 - 150
M2-8:2 FTS	101		25 - 150
d3-NMeFOSAA	96		25 - 150
d5-NEtFOSAA	104		25 - 150
d-N-MeFOSA-M	65		25 - 150
d-N-EtFOSA-M	57		25 - 150
13C3 HFPO-DA	135		25 - 150
d7-N-MeFOSE-M	62		25 - 150
13C2 10:2 FTS	103		25 - 150
d9-N-EtFOSE-M	57		25 - 150

Lab Sample ID: MB 320-667340/1-A
Matrix: Solid
Analysis Batch: 668004

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 667340

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSA	ND		1.0	0.24	ug/Kg		04/12/23 20:20	04/14/23 01:17	1
NMeFOSA	ND		1.0	0.25	ug/Kg		04/12/23 20:20	04/14/23 01:17	1
Isotope Dilution	MB %Recovery	MB Qualifier	MB Limits	Prepared	Analyzed	Dil Fac			
d-N-MeFOSA-M	103		25 - 150	04/12/23 20:20	04/14/23 01:17	1			
d-N-EtFOSA-M	94		25 - 150	04/12/23 20:20	04/14/23 01:17	1			

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QC Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-667340/2-A
Matrix: Solid
Analysis Batch: 668004

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 667340

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
NEtFOSA	10.0	9.85		ug/Kg		98	47 - 161	
NMeFOSA	10.0	10.1		ug/Kg		101	63 - 148	
		LCS	LCS					
Isotope Dilution	%Recovery	Qualifier	Limits					
d-N-MeFOSA-M	106		25 - 150					
d-N-EtFOSA-M	97		25 - 150					

Lab Sample ID: LCSD 320-667340/3-A
Matrix: Solid
Analysis Batch: 668004

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 667340

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits		RPD	RPD Limit
NEtFOSA	10.0	9.79		ug/Kg		98	47 - 161	1	30	
NMeFOSA	10.0	10.4		ug/Kg		104	63 - 148	3	30	
		LCSD	LCSD							
Isotope Dilution	%Recovery	Qualifier	Limits							
d-N-MeFOSA-M	108		25 - 150							
d-N-EtFOSA-M	101		25 - 150							

Lab Sample ID: MB 320-667343/1-A
Matrix: Water
Analysis Batch: 668004

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 667343

Analyte	MB MB		RL	MDL	Unit	D	Prepared		Analyzed		Dil Fac
	Result	Qualifier									
NEtFOSA	ND		5.0	2.2	ng/L		04/12/23 20:59	04/13/23 23:26			1
NMeFOSA	ND		5.0	1.1	ng/L		04/12/23 20:59	04/13/23 23:26			1
		MB	MB								
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared		Analyzed		Dil Fac			
d-N-MeFOSA-M	104		25 - 150	04/12/23 20:59	04/13/23 23:26				1		
d-N-EtFOSA-M	101		25 - 150	04/12/23 20:59	04/13/23 23:26				1		

Lab Sample ID: LCS 320-667343/2-A
Matrix: Water
Analysis Batch: 668004

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 667343

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
NEtFOSA	100	76.1	*	ng/L		76	78 - 138	
NMeFOSA	100	78.9		ng/L		79	67 - 154	
		LCS	LCS					
Isotope Dilution	%Recovery	Qualifier	Limits					
d-N-MeFOSA-M	100		25 - 150					
d-N-EtFOSA-M	97		25 - 150					

Lab Sample ID: LCSD 320-667343/3-A
Matrix: Water
Analysis Batch: 668004

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 667343

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits		RPD	RPD Limit
NEtFOSA	100	77.7		ng/L		78	78 - 138	2	30	

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-667343/3-A
Matrix: Water
Analysis Batch: 668004

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 667343

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
NMeFOSA	100	83.5		ng/L		84	67 - 154	6	30
		<i>LCSD</i>	<i>LCSD</i>						
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>						
<i>d-N-MeFOSA-M</i>	100		25 - 150						
<i>d-N-EtFOSA-M</i>	102		25 - 150						

Lab Sample ID: MB 320-663935/1-A
Matrix: Water
Analysis Batch: 666636

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 663935

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		13	6.0	ng/L		03/28/23 22:07	04/10/23 17:51	1
Perfluoropentanoic acid (PFPA)	ND		5.0	1.2	ng/L		03/28/23 22:07	04/10/23 17:51	1
Perfluorohexanoic acid (PFHxA)	ND		5.0	1.4	ng/L		03/28/23 22:07	04/10/23 17:51	1
Perfluoroheptanoic acid (PFHpA)	ND		5.0	0.63	ng/L		03/28/23 22:07	04/10/23 17:51	1
Perfluorooctanoic acid (PFOA)	ND		5.0	2.1	ng/L		03/28/23 22:07	04/10/23 17:51	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		03/28/23 22:07	04/10/23 17:51	1
Perfluorodecanoic acid (PFDA)	ND		5.0	0.78	ng/L		03/28/23 22:07	04/10/23 17:51	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		03/28/23 22:07	04/10/23 17:51	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		03/28/23 22:07	04/10/23 17:51	1
Perfluorotridecanoic acid (PFTTrDA)	ND		5.0	3.2	ng/L		03/28/23 22:07	04/10/23 17:51	1
Perfluorotetradecanoic acid (PFTTeA)	ND		5.0	0.73	ng/L		03/28/23 22:07	04/10/23 17:51	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0	0.50	ng/L		03/28/23 22:07	04/10/23 17:51	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		03/28/23 22:07	04/10/23 17:51	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0	0.43	ng/L		03/28/23 22:07	04/10/23 17:51	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		03/28/23 22:07	04/10/23 17:51	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.0	0.80	ng/L		03/28/23 22:07	04/10/23 17:51	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		03/28/23 22:07	04/10/23 17:51	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		03/28/23 22:07	04/10/23 17:51	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		03/28/23 22:07	04/10/23 17:51	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		03/28/23 22:07	04/10/23 17:51	1
NMeFOSAA	ND		13	3.0	ng/L		03/28/23 22:07	04/10/23 17:51	1
NEtFOSAA	ND		13	3.3	ng/L		03/28/23 22:07	04/10/23 17:51	1
4:2 FTS	ND		5.0	0.60	ng/L		03/28/23 22:07	04/10/23 17:51	1
6:2 FTS	ND		13	6.3	ng/L		03/28/23 22:07	04/10/23 17:51	1
8:2 FTS	ND		5.0	1.2	ng/L		03/28/23 22:07	04/10/23 17:51	1
NEtFOSA	ND		5.0	2.2	ng/L		03/28/23 22:07	04/10/23 17:51	1
NMeFOSA	ND		5.0	1.1	ng/L		03/28/23 22:07	04/10/23 17:51	1
NMeFOSE	ND		10	3.5	ng/L		03/28/23 22:07	04/10/23 17:51	1
NEtFOSE	ND		5.0	2.2	ng/L		03/28/23 22:07	04/10/23 17:51	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		03/28/23 22:07	04/10/23 17:51	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		03/28/23 22:07	04/10/23 17:51	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		03/28/23 22:07	04/10/23 17:51	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		03/28/23 22:07	04/10/23 17:51	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

<i>Isotope Dilution</i>	<i>MB</i>	<i>MB</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
	<i>%Recovery</i>	<i>Qualifier</i>				
13C4 PFBA	113		25 - 150	03/28/23 22:07	04/10/23 17:51	1
13C5 PFPeA	112		25 - 150	03/28/23 22:07	04/10/23 17:51	1
13C2 PFHxA	111		25 - 150	03/28/23 22:07	04/10/23 17:51	1
13C4 PFHpA	120		25 - 150	03/28/23 22:07	04/10/23 17:51	1
13C4 PFOA	116		25 - 150	03/28/23 22:07	04/10/23 17:51	1
13C5 PFNA	115		25 - 150	03/28/23 22:07	04/10/23 17:51	1
13C2 PFDA	114		25 - 150	03/28/23 22:07	04/10/23 17:51	1
13C2 PFUnA	108		25 - 150	03/28/23 22:07	04/10/23 17:51	1
13C2 PFDoA	115		25 - 150	03/28/23 22:07	04/10/23 17:51	1
13C2 PFTeDA	123		25 - 150	03/28/23 22:07	04/10/23 17:51	1
13C3 PFBS	112		25 - 150	03/28/23 22:07	04/10/23 17:51	1
18O2 PFHxS	114		25 - 150	03/28/23 22:07	04/10/23 17:51	1
13C4 PFOS	108		25 - 150	03/28/23 22:07	04/10/23 17:51	1
13C8 FOSA	99		25 - 150	03/28/23 22:07	04/10/23 17:51	1
M2-4:2 FTS	0		0 - 10	03/28/23 22:07	04/10/23 17:51	1
M2-6:2 FTS	102		25 - 150	03/28/23 22:07	04/10/23 17:51	1
M2-8:2 FTS	100		25 - 150	03/28/23 22:07	04/10/23 17:51	1
d3-NMeFOSAA	103		25 - 150	03/28/23 22:07	04/10/23 17:51	1
d5-NEtFOSAA	108		25 - 150	03/28/23 22:07	04/10/23 17:51	1
d-N-MeFOSA-M	55		25 - 150	03/28/23 22:07	04/10/23 17:51	1
d-N-EtFOSA-M	47		25 - 150	03/28/23 22:07	04/10/23 17:51	1
13C3 HFPO-DA	131		25 - 150	03/28/23 22:07	04/10/23 17:51	1
d7-N-MeFOSE-M	53		25 - 150	03/28/23 22:07	04/10/23 17:51	1
13C2 10:2 FTS	128		25 - 150	03/28/23 22:07	04/10/23 17:51	1
d9-N-EtFOSE-M	51		25 - 150	03/28/23 22:07	04/10/23 17:51	1

Lab Sample ID: LCS 320-663935/2-A
Matrix: Water
Analysis Batch: 666636

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 663935

<i>Analyte</i>	<i>Spike Added</i>	<i>LCS Result</i>	<i>LCS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>
Perfluorobutanoic acid (PFBA)	100	181	*+	ng/L		181	93 - 153
Perfluoropentanoic acid (PFPA)	100	176	*+	ng/L		176	85 - 145
Perfluorohexanoic acid (PFHxA)	100	208	*+	ng/L		208	81 - 141
Perfluoroheptanoic acid (PFHpA)	100	185	*+	ng/L		185	104 - 171
Perfluorooctanoic acid (PFOA)	100	349		ng/L		349	158 - 454
Perfluorononanoic acid (PFNA)	100	158	*+	ng/L		158	66 - 126
Perfluorodecanoic acid (PFDA)	100	141	*+	ng/L		141	65 - 125
Perfluoroundecanoic acid (PFUnA)	100	102		ng/L		102	57 - 117
Perfluorododecanoic acid (PFDoA)	100	92.0		ng/L		92	66 - 126
Perfluorotridecanoic acid (PFTTrDA)	100	93.0		ng/L		93	65 - 136
Perfluorotetradecanoic acid (PFTeA)	100	85.0		ng/L		85	63 - 123
Perfluorobutanesulfonic acid (PFBS)	88.8	90.4		ng/L		102	75 - 135
Perfluoropentanesulfonic acid (PFPeS)	94.0	91.7		ng/L		98	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	91.2	80.1		ng/L		88	64 - 124
Perfluoroheptanesulfonic acid (PFHpS)	95.4	96.8		ng/L		101	70 - 131

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-663935/2-A
Matrix: Water
Analysis Batch: 666636

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 663935

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonic acid (PFOS)	93.0	93.2		ng/L		100	68 - 128
Perfluorononanesulfonic acid (PFNS)	96.2	94.2		ng/L		98	70 - 130
Perfluorodecanesulfonic acid (PFDS)	96.4	93.8		ng/L		97	66 - 126
Perfluorododecanesulfonic acid (PFDoS)	97.0	88.1		ng/L		91	67 - 127
Perfluorooctanesulfonamide (FOSA)	100	ND		ng/L		0	0 - 10
NMeFOSAA	100	ND		ng/L		0	0 - 10
NEtFOSAA	100	ND		ng/L		0	0 - 10
4:2 FTS	93.8	ND		ng/L		0	0 - 10
6:2 FTS	95.2	ND		ng/L		0	0 - 10
8:2 FTS	96.0	ND		ng/L		0	0 - 10
NEtFOSA	100	ND		ng/L		0	0 - 10
NMeFOSA	100	ND		ng/L		0	0 - 10
NMeFOSE	100	ND		ng/L		0	0 - 10
NEtFOSE	100	ND		ng/L		0	0 - 10
HFPO-DA (GenX)	100	88.5		ng/L		88	51 - 173
9CI-PF3ONS	93.4	91.4		ng/L		98	75 - 135
11CI-PF3OUdS	94.4	58.3		ng/L		62	54 - 114
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	94.4	ND		ng/L		0.5	0 - 10

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	111		25 - 150
13C5 PFPeA	112		25 - 150
13C2 PFHxA	114		25 - 150
13C4 PFHpA	123		25 - 150
13C4 PFOA	109		25 - 150
13C5 PFNA	115		25 - 150
13C2 PFDA	114		25 - 150
13C2 PFUnA	109		25 - 150
13C2 PFDoA	119		25 - 150
13C2 PFTeDA	125		25 - 150
13C3 PFBS	108		25 - 150
18O2 PFHxS	115		25 - 150
13C4 PFOS	105		25 - 150
13C8 FOSA	101		25 - 150
M2-4:2 FTS	0		0 - 10
M2-6:2 FTS	100		25 - 150
M2-8:2 FTS	97		25 - 150
d3-NMeFOSAA	103		25 - 150
d5-NEtFOSAA	109		25 - 150
d-N-MeFOSA-M	54		25 - 150
d-N-EtFOSA-M	47		25 - 150
13C3 HFPO-DA	132		25 - 150
d7-N-MeFOSE-M	58		25 - 150
13C2 10:2 FTS	124		25 - 150

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-663935/2-A
Matrix: Water
Analysis Batch: 666636

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 663935

<i>Isotope Dilution</i>	<i>LCS</i>	<i>LCS</i>	<i>Limits</i>
<i>d9-N-EtFOSE-M</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
	52		25 - 150

Lab Sample ID: LCSD 320-663935/3-A
Matrix: Water
Analysis Batch: 666636

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 663935

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	100	172	*+	ng/L		172	93 - 153	5	30
Perfluoropentanoic acid (PFPA)	100	164	*+	ng/L		164	85 - 145	7	30
Perfluorohexanoic acid (PFHxA)	100	209	*+	ng/L		209	81 - 141	0	30
Perfluoroheptanoic acid (PFHpA)	100	189	*+	ng/L		189	104 - 171	2	30
Perfluorooctanoic acid (PFOA)	100	334		ng/L		334	158 - 454	4	30
Perfluorononanoic acid (PFNA)	100	151	*+	ng/L		151	66 - 126	4	30
Perfluorodecanoic acid (PFDA)	100	140	*+	ng/L		140	65 - 125	1	30
Perfluoroundecanoic acid (PFUnA)	100	105		ng/L		105	57 - 117	3	30
Perfluorododecanoic acid (PFDoA)	100	92.9		ng/L		93	66 - 126	1	30
Perfluorotridecanoic acid (PFTrDA)	100	94.4		ng/L		94	65 - 136	2	30
Perfluorotetradecanoic acid (PFTeA)	100	82.4		ng/L		82	63 - 123	3	30
Perfluorobutanesulfonic acid (PFBS)	88.8	92.6		ng/L		104	75 - 135	2	30
Perfluoropentanesulfonic acid (PFPeS)	94.0	92.7		ng/L		99	70 - 130	1	30
Perfluorohexanesulfonic acid (PFHxS)	91.2	83.8		ng/L		92	64 - 124	4	30
Perfluoroheptanesulfonic acid (PFHpS)	95.4	95.0		ng/L		100	70 - 131	2	30
Perfluorooctanesulfonic acid (PFOS)	93.0	96.0		ng/L		103	68 - 128	3	30
Perfluorononanesulfonic acid (PFNS)	96.2	95.2		ng/L		99	70 - 130	1	30
Perfluorodecanesulfonic acid (PFDS)	96.4	92.2		ng/L		96	66 - 126	2	30
Perfluorododecanesulfonic acid (PFDoS)	97.0	89.8		ng/L		93	67 - 127	2	30
Perfluorooctanesulfonamide (FOSA)	100	ND		ng/L		0	0 - 10	NC	30
NMeFOSAA	100	ND		ng/L		0	0 - 10	NC	30
NEtFOSAA	100	ND		ng/L		0	0 - 10	NC	30
4:2 FTS	93.8	ND		ng/L		0	0 - 10	NC	30
6:2 FTS	95.2	ND		ng/L		0	0 - 10	NC	30
8:2 FTS	96.0	ND		ng/L		0	0 - 10	NC	30
NEtFOSA	100	ND		ng/L		0	0 - 10	NC	30
NMeFOSA	100	ND		ng/L		0	0 - 10	NC	30
NMeFOSE	100	ND		ng/L		0	0 - 10	NC	30
NEtFOSE	100	ND		ng/L		0	0 - 10	NC	30
HFPO-DA (GenX)	100	82.1		ng/L		82	51 - 173	7	30
9CI-PF3ONS	93.4	94.8		ng/L		102	75 - 135	4	30
11CI-PF3OUdS	94.4	59.4		ng/L		63	54 - 114	2	30

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-663935/3-A
Matrix: Water
Analysis Batch: 666636

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 663935

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	94.4	ND		ng/L		0.5	0 - 10	7	30
LCSD LCSD									
Isotope Dilution	%Recovery	Qualifier	Limits						
13C4 PFBA	118		25 - 150						
13C5 PFPeA	118		25 - 150						
13C2 PFHxA	114		25 - 150						
13C4 PFHpA	125		25 - 150						
13C4 PFOA	115		25 - 150						
13C5 PFNA	120		25 - 150						
13C2 PFDA	120		25 - 150						
13C2 PFUnA	109		25 - 150						
13C2 PFDoA	122		25 - 150						
13C2 PFTeDA	126		25 - 150						
13C3 PFBS	108		25 - 150						
18O2 PFHxS	112		25 - 150						
13C4 PFOS	103		25 - 150						
13C8 FOSA	102		25 - 150						
M2-4:2 FTS	0		0 - 10						
M2-6:2 FTS	106		25 - 150						
M2-8:2 FTS	106		25 - 150						
d3-NMeFOSAA	108		25 - 150						
d5-NEtFOSAA	114		25 - 150						
d-N-MeFOSA-M	60		25 - 150						
d-N-EtFOSA-M	50		25 - 150						
13C3 HFPO-DA	137		25 - 150						
d7-N-MeFOSE-M	60		25 - 150						
13C2 10:2 FTS	125		25 - 150						
d9-N-EtFOSE-M	54		25 - 150						

Lab Sample ID: MB 320-663938/1-A
Matrix: Solid
Analysis Batch: 666489

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 663938

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1.24		1.0	0.23	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
Perfluoropentanoic acid (PFPA)	ND		1.0	0.21	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
Perfluorohexanoic acid (PFHxA)	ND		1.0	0.16	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
Perfluoroheptanoic acid (PFHpA)	ND		1.0	0.19	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
Perfluorooctanoic acid (PFOA)	ND		1.0	0.27	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
Perfluorononanoic acid (PFNA)	ND		1.0	0.11	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
Perfluorodecanoic acid (PFDA)	ND		1.0	0.24	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
Perfluoroundecanoic acid (PFUnA)	ND		1.0	0.21	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
Perfluorododecanoic acid (PFDoA)	ND		1.0	0.15	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
Perfluorotridecanoic acid (PFTeDA)	ND		1.0	0.11	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.0	0.19	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.0	0.19	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.0	0.19	ug/Kg		03/28/23 23:40	04/07/23 17:55	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-663938/1-A
Matrix: Solid
Analysis Batch: 666489

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 663938

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorohexanesulfonic acid (PFHxS)	ND		1.0	0.15	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.0	0.25	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.0	0.22	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
Perfluorononanesulfonic acid (PFNS)	ND		1.0	0.15	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.0	0.26	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.0	0.24	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
Perfluorooctanesulfonamide (FOSA)	ND		1.0	0.17	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
NMeFOSAA	ND		1.0	0.12	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
NEtFOSAA	ND		1.0	0.24	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
4:2 FTS	ND		1.0	0.26	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
6:2 FTS	ND		1.0	0.14	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
8:2 FTS	ND		1.0	0.18	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
NEtFOSA	ND		1.0	0.24	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
NMeFOSA	ND		1.0	0.25	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
NMeFOSE	ND		1.0	0.24	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
NEtFOSE	ND		1.0	0.14	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
HFPO-DA (GenX)	ND		1.0	0.21	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
9Cl-PF3ONS	ND		1.0	0.18	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
11Cl-PF3OUdS	ND		1.0	0.16	ug/Kg		03/28/23 23:40	04/07/23 17:55	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.0	0.20	ug/Kg		03/28/23 23:40	04/07/23 17:55	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C4 PFBA	111		25 - 150	03/28/23 23:40	04/07/23 17:55	1
13C5 PFPeA	112		25 - 150	03/28/23 23:40	04/07/23 17:55	1
13C2 PFHxA	110		25 - 150	03/28/23 23:40	04/07/23 17:55	1
13C4 PFHpA	114		25 - 150	03/28/23 23:40	04/07/23 17:55	1
13C4 PFOA	110		25 - 150	03/28/23 23:40	04/07/23 17:55	1
13C5 PFNA	113		25 - 150	03/28/23 23:40	04/07/23 17:55	1
13C2 PFDA	110		25 - 150	03/28/23 23:40	04/07/23 17:55	1
13C2 PFUnA	102		25 - 150	03/28/23 23:40	04/07/23 17:55	1
13C2 PFDoA	117		25 - 150	03/28/23 23:40	04/07/23 17:55	1
13C2 PFTeDA	114		25 - 150	03/28/23 23:40	04/07/23 17:55	1
13C3 PFBS	109		25 - 150	03/28/23 23:40	04/07/23 17:55	1
18O2 PFHxS	118		25 - 150	03/28/23 23:40	04/07/23 17:55	1
13C4 PFOS	102		25 - 150	03/28/23 23:40	04/07/23 17:55	1
13C8 FOSA	108		25 - 150	03/28/23 23:40	04/07/23 17:55	1
M2-4:2 FTS	0		0 - 10	03/28/23 23:40	04/07/23 17:55	1
M2-6:2 FTS	94		25 - 150	03/28/23 23:40	04/07/23 17:55	1
M2-8:2 FTS	89		25 - 150	03/28/23 23:40	04/07/23 17:55	1
d3-NMeFOSAA	110		25 - 150	03/28/23 23:40	04/07/23 17:55	1
d5-NEtFOSAA	110		25 - 150	03/28/23 23:40	04/07/23 17:55	1
d-N-MeFOSA-M	57		25 - 150	03/28/23 23:40	04/07/23 17:55	1
d-N-EtFOSA-M	48		25 - 150	03/28/23 23:40	04/07/23 17:55	1
13C3 HFPO-DA	136		25 - 150	03/28/23 23:40	04/07/23 17:55	1
d7-N-MeFOSE-M	59		25 - 150	03/28/23 23:40	04/07/23 17:55	1
13C2 10:2 FTS	107		25 - 150	03/28/23 23:40	04/07/23 17:55	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-663938/1-A
Matrix: Solid
Analysis Batch: 666489

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 663938

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
d9-N-EtFOSE-M	55		25 - 150	03/28/23 23:40	04/07/23 17:55	1

Lab Sample ID: LCS 320-663938/2-A
Matrix: Solid
Analysis Batch: 666489

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 663938

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	10.0	14.3		ug/Kg		143	96 - 183
Perfluoropentanoic acid (PFPA)	10.0	12.6		ug/Kg		126	81 - 141
Perfluorohexanoic acid (PFHxA)	10.0	16.9	*+	ug/Kg		169	92 - 152
Perfluoroheptanoic acid (PFHpA)	10.0	14.7		ug/Kg		147	100 - 160
Perfluorooctanoic acid (PFOA)	10.0	29.5		ug/Kg		295	169 - 414
Perfluorononanoic acid (PFNA)	10.0	13.7		ug/Kg		137	82 - 142
Perfluorodecanoic acid (PFDA)	10.0	12.2		ug/Kg		122	81 - 141
Perfluoroundecanoic acid (PFUnA)	10.0	9.69		ug/Kg		97	70 - 130
Perfluorododecanoic acid (PFDoA)	10.0	9.01		ug/Kg		90	63 - 123
Perfluorotridecanoic acid (PFTrDA)	10.0	8.85		ug/Kg		89	63 - 123
Perfluorotetradecanoic acid (PFTeA)	10.0	7.34		ug/Kg		73	55 - 115
Perfluorobutanesulfonic acid (PFBS)	8.88	9.00		ug/Kg		101	74 - 134
Perfluoropentanesulfonic acid (PFPeS)	9.40	9.56		ug/Kg		102	68 - 134
Perfluorohexanesulfonic acid (PFHxS)	9.12	8.46		ug/Kg		93	61 - 121
Perfluoroheptanesulfonic acid (PFHpS)	9.54	9.97		ug/Kg		104	68 - 128
Perfluorooctanesulfonic acid (PFOS)	9.30	9.44		ug/Kg		102	70 - 138
Perfluorononanesulfonic acid (PFNS)	9.62	8.97		ug/Kg		93	66 - 126
Perfluorodecanesulfonic acid (PFDS)	9.64	8.92		ug/Kg		93	66 - 126
Perfluorododecanesulfonic acid (PFDoS)	9.70	8.57		ug/Kg		88	70 - 130
Perfluorooctanesulfonamide (FOSA)	10.0	ND		ug/Kg		0	0 - 10
NMeFOSAA	10.0	ND		ug/Kg		0	0 - 10
NEtFOSAA	10.0	ND		ug/Kg		0	0 - 10
4:2 FTS	9.38	ND		ug/Kg		0	0 - 10
6:2 FTS	9.52	ND		ug/Kg		0	0 - 10
8:2 FTS	9.60	ND		ug/Kg		0	0 - 10
NEtFOSA	10.0	ND		ug/Kg		0	0 - 10
NMeFOSA	10.0	ND		ug/Kg		0	0 - 10
NMeFOSE	10.0	ND		ug/Kg		0	0 - 10
NEtFOSE	10.0	ND		ug/Kg		0	0 - 10
HFPO-DA (GenX)	10.0	6.06		ug/Kg		61	53 - 158
9CI-PF3ONS	9.34	7.25		ug/Kg		78	74 - 134
11CI-PF3OUdS	9.44	6.47		ug/Kg		68	66 - 136

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-663938/2-A
Matrix: Solid
Analysis Batch: 666489

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 663938

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.44	ND		ug/Kg		0	0 - 10	
LCS LCS								
Isotope Dilution	%Recovery	Qualifier						Limits
13C4 PFBA	108							25 - 150
13C5 PFPeA	111							25 - 150
13C2 PFHxA	108							25 - 150
13C4 PFHpA	114							25 - 150
13C4 PFOA	112							25 - 150
13C5 PFNA	111							25 - 150
13C2 PFDA	106							25 - 150
13C2 PFUnA	100							25 - 150
13C2 PFDoA	110							25 - 150
13C2 PFTeDA	117							25 - 150
13C3 PFBS	106							25 - 150
18O2 PFHxS	113							25 - 150
13C4 PFOS	104							25 - 150
13C8 FOSA	104							25 - 150
M2-4:2 FTS	0							0 - 10
M2-6:2 FTS	87							25 - 150
M2-8:2 FTS	89							25 - 150
d3-NMeFOSAA	101							25 - 150
d5-NEtFOSAA	109							25 - 150
d-N-MeFOSA-M	55							25 - 150
d-N-EtFOSA-M	50							25 - 150
13C3 HFPO-DA	129							25 - 150
d7-N-MeFOSE-M	59							25 - 150
13C2 10:2 FTS	95							25 - 150
d9-N-EtFOSE-M	57							25 - 150

Lab Sample ID: LCSD 320-663938/3-A
Matrix: Solid
Analysis Batch: 666489

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 663938

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	10.0	13.2		ug/Kg		132	96 - 183	9	30
Perfluoropentanoic acid (PFPA)	10.0	12.7		ug/Kg		127	81 - 141	0	30
Perfluorohexanoic acid (PFHxA)	10.0	14.7		ug/Kg		147	92 - 152	14	30
Perfluoroheptanoic acid (PFHpA)	10.0	14.7		ug/Kg		147	100 - 160	0	30
Perfluorooctanoic acid (PFOA)	10.0	28.1		ug/Kg		281	169 - 414	5	30
Perfluorononanoic acid (PFNA)	10.0	13.5		ug/Kg		135	82 - 142	2	30
Perfluorodecanoic acid (PFDA)	10.0	11.5		ug/Kg		115	81 - 141	6	30
Perfluoroundecanoic acid (PFUnA)	10.0	9.26		ug/Kg		93	70 - 130	5	30
Perfluorododecanoic acid (PFDoA)	10.0	8.76		ug/Kg		88	63 - 123	3	30
Perfluorotridecanoic acid (PFTTrDA)	10.0	8.86		ug/Kg		89	63 - 123	0	30
Perfluorotetradecanoic acid (PFTTeA)	10.0	7.94		ug/Kg		79	55 - 115	8	30

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-663938/3-A
Matrix: Solid
Analysis Batch: 666489

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 663938

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanesulfonic acid (PFBS)	8.88	8.53		ug/Kg		96	74 - 134	5	30
Perfluoropentanesulfonic acid (PFPeS)	9.40	9.03		ug/Kg		96	68 - 134	6	30
Perfluorohexanesulfonic acid (PFHxS)	9.12	7.87		ug/Kg		86	61 - 121	7	30
Perfluoroheptanesulfonic acid (PFHpS)	9.54	9.74		ug/Kg		102	68 - 128	2	30
Perfluorooctanesulfonic acid (PFOS)	9.30	9.62		ug/Kg		103	70 - 138	2	30
Perfluorononanesulfonic acid (PFNS)	9.62	8.70		ug/Kg		90	66 - 126	3	30
Perfluorodecanesulfonic acid (PFDS)	9.64	9.11		ug/Kg		94	66 - 126	2	30
Perfluorododecanesulfonic acid (PFDoS)	9.70	8.69		ug/Kg		90	70 - 130	1	30
Perfluorooctanesulfonamide (FOSA)	10.0	ND		ug/Kg		0	0 - 10	NC	30
NMeFOSAA	10.0	ND		ug/Kg		0	0 - 10	NC	30
NEtFOSAA	10.0	ND		ug/Kg		0	0 - 10	NC	30
4:2 FTS	9.38	ND		ug/Kg		0	0 - 10	NC	30
6:2 FTS	9.52	ND		ug/Kg		0	0 - 10	NC	30
8:2 FTS	9.60	ND		ug/Kg		0	0 - 10	NC	30
NEtFOSA	10.0	ND		ug/Kg		0	0 - 10	NC	30
NMeFOSA	10.0	ND		ug/Kg		0	0 - 10	NC	30
NMeFOSE	10.0	ND		ug/Kg		0	0 - 10	NC	30
NEtFOSE	10.0	ND		ug/Kg		0	0 - 10	NC	30
HFPO-DA (GenX)	10.0	5.61		ug/Kg		56	53 - 158	8	30
9Cl-PF3ONS	9.34	7.11		ug/Kg		76	74 - 134	2	30
11Cl-PF3OUdS	9.44	6.34		ug/Kg		67	66 - 136	2	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.44	ND		ug/Kg		0	0 - 10	NC	30

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C4 PFBA	111		25 - 150
13C5 PFPeA	112		25 - 150
13C2 PFHxA	113		25 - 150
13C4 PFHpA	117		25 - 150
13C4 PFOA	113		25 - 150
13C5 PFNA	111		25 - 150
13C2 PFDA	109		25 - 150
13C2 PFUnA	102		25 - 150
13C2 PFDoA	110		25 - 150
13C2 PFTeDA	112		25 - 150
13C3 PFBS	111		25 - 150
18O2 PFHxS	118		25 - 150
13C4 PFOS	100		25 - 150
13C8 FOSA	105		25 - 150
M2-4:2 FTS	0		0 - 10
M2-6:2 FTS	85		25 - 150
M2-8:2 FTS	84		25 - 150

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QC Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-663938/3-A

Matrix: Solid

Analysis Batch: 666489

Client Sample ID: Lab Control Sample Dup

Prep Type: Post-Treatment

Prep Batch: 663938

<i>Isotope Dilution</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
<i>d3-NMeFOSAA</i>	105		25 - 150
<i>d5-NEtFOSAA</i>	106		25 - 150
<i>d-N-MeFOSA-M</i>	55		25 - 150
<i>d-N-EtFOSA-M</i>	49		25 - 150
<i>13C3 HFPO-DA</i>	130		25 - 150
<i>d7-N-MeFOSE-M</i>	54		25 - 150
<i>13C2 10:2 FTS</i>	95		25 - 150
<i>d9-N-EtFOSE-M</i>	52		25 - 150

QC Association Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

LCMS

Prep Batch: 663934

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98088-1	Inf-02-20230320	Pre-Treatment	Water	TOP Pre - Prep	
320-98088-2	Inf-07-20230320	Pre-Treatment	Water	TOP Pre - Prep	
320-98088-3	Inf-08-20230320	Pre-Treatment	Water	TOP Pre - Prep	
320-98088-4	Inf-11-20230320	Pre-Treatment	Water	TOP Pre - Prep	
320-98088-5	Inf-18-20230320	Pre-Treatment	Water	TOP Pre - Prep	
320-98088-7	Eff-20230321	Pre-Treatment	Water	TOP Pre - Prep	
MB 320-663934/1-A	Method Blank	Pre-Treatment	Water	TOP Pre - Prep	
LCS 320-663934/2-A	Lab Control Sample	Pre-Treatment	Water	TOP Pre - Prep	
LCSD 320-663934/3-A	Lab Control Sample Dup	Pre-Treatment	Water	TOP Pre - Prep	

Prep Batch: 663935

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98088-1	Inf-02-20230320	Post-Treatment	Water	TOP Post Prep	
320-98088-2	Inf-07-20230320	Post-Treatment	Water	TOP Post Prep	
320-98088-3	Inf-08-20230320	Post-Treatment	Water	TOP Post Prep	
320-98088-4	Inf-11-20230320	Post-Treatment	Water	TOP Post Prep	
320-98088-5	Inf-18-20230320	Post-Treatment	Water	TOP Post Prep	
320-98088-7	Eff-20230321	Post-Treatment	Water	TOP Post Prep	
MB 320-663935/1-A	Method Blank	Post-Treatment	Water	TOP Post Prep	
LCS 320-663935/2-A	Lab Control Sample	Post-Treatment	Water	TOP Post Prep	
LCSD 320-663935/3-A	Lab Control Sample Dup	Post-Treatment	Water	TOP Post Prep	

Prep Batch: 663937

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98088-8	BioA-22-20230321	Pre-Treatment	Solid	TOP Pre-Prep	
320-98088-9	BioB-20230321	Pre-Treatment	Solid	TOP Pre-Prep	
MB 320-663937/1-A	Method Blank	Pre-Treatment	Solid	TOP Pre-Prep	
LCS 320-663937/2-A	Lab Control Sample	Pre-Treatment	Solid	TOP Pre-Prep	
LCSD 320-663937/3-A	Lab Control Sample Dup	Pre-Treatment	Solid	TOP Pre-Prep	

Prep Batch: 663938

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98088-8	BioA-22-20230321	Post-Treatment	Solid	TOP Post-Prep	
320-98088-9	BioB-20230321	Post-Treatment	Solid	TOP Post-Prep	
MB 320-663938/1-A	Method Blank	Post-Treatment	Solid	TOP Post-Prep	
LCS 320-663938/2-A	Lab Control Sample	Post-Treatment	Solid	TOP Post-Prep	
LCSD 320-663938/3-A	Lab Control Sample Dup	Post-Treatment	Solid	TOP Post-Prep	

Analysis Batch: 666489

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98088-8	BioA-22-20230321	Post-Treatment	Solid	537 (modified)	663938
320-98088-8	BioA-22-20230321	Pre-Treatment	Solid	537 (modified)	663937
320-98088-9	BioB-20230321	Post-Treatment	Solid	537 (modified)	663938
320-98088-9	BioB-20230321	Pre-Treatment	Solid	537 (modified)	663937
MB 320-663937/1-A	Method Blank	Pre-Treatment	Solid	537 (modified)	663937
MB 320-663938/1-A	Method Blank	Post-Treatment	Solid	537 (modified)	663938
LCS 320-663937/2-A	Lab Control Sample	Pre-Treatment	Solid	537 (modified)	663937
LCS 320-663938/2-A	Lab Control Sample	Post-Treatment	Solid	537 (modified)	663938
LCSD 320-663937/3-A	Lab Control Sample Dup	Pre-Treatment	Solid	537 (modified)	663937
LCSD 320-663938/3-A	Lab Control Sample Dup	Post-Treatment	Solid	537 (modified)	663938

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QC Association Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

LCMS

Analysis Batch: 666636

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98088-1	Inf-02-20230320	Post-Treatment	Water	537 (modified)	663935
320-98088-1	Inf-02-20230320	Pre-Treatment	Water	537 (modified)	663934
320-98088-2	Inf-07-20230320	Post-Treatment	Water	537 (modified)	663935
320-98088-2	Inf-07-20230320	Pre-Treatment	Water	537 (modified)	663934
320-98088-3	Inf-08-20230320	Post-Treatment	Water	537 (modified)	663935
320-98088-3	Inf-08-20230320	Pre-Treatment	Water	537 (modified)	663934
320-98088-4	Inf-11-20230320	Post-Treatment	Water	537 (modified)	663935
320-98088-4	Inf-11-20230320	Pre-Treatment	Water	537 (modified)	663934
320-98088-5	Inf-18-20230320	Post-Treatment	Water	537 (modified)	663935
320-98088-5	Inf-18-20230320	Pre-Treatment	Water	537 (modified)	663934
320-98088-7	Eff-20230321	Post-Treatment	Water	537 (modified)	663935
320-98088-7	Eff-20230321	Pre-Treatment	Water	537 (modified)	663934
MB 320-663934/1-A	Method Blank	Pre-Treatment	Water	537 (modified)	663934
MB 320-663935/1-A	Method Blank	Post-Treatment	Water	537 (modified)	663935
LCS 320-663934/2-A	Lab Control Sample	Pre-Treatment	Water	537 (modified)	663934
LCS 320-663935/2-A	Lab Control Sample	Post-Treatment	Water	537 (modified)	663935
LCSD 320-663934/3-A	Lab Control Sample Dup	Pre-Treatment	Water	537 (modified)	663934
LCSD 320-663935/3-A	Lab Control Sample Dup	Post-Treatment	Water	537 (modified)	663935

Prep Batch: 667340

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98088-8 - RE	BioA-22-20230321	Pre-Treatment	Solid	TOP Pre-Prep	
320-98088-9 - RE	BioB-20230321	Pre-Treatment	Solid	TOP Pre-Prep	
MB 320-667340/1-A	Method Blank	Pre-Treatment	Solid	TOP Pre-Prep	
LCS 320-667340/2-A	Lab Control Sample	Pre-Treatment	Solid	TOP Pre-Prep	
LCSD 320-667340/3-A	Lab Control Sample Dup	Pre-Treatment	Solid	TOP Pre-Prep	

Prep Batch: 667343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98088-1 - RE	Inf-02-20230320	Pre-Treatment	Water	TOP Pre - Prep	
320-98088-2 - RE	Inf-07-20230320	Pre-Treatment	Water	TOP Pre - Prep	
320-98088-3 - RE	Inf-08-20230320	Pre-Treatment	Water	TOP Pre - Prep	
320-98088-4 - RE	Inf-11-20230320	Pre-Treatment	Water	TOP Pre - Prep	
320-98088-5 - RE	Inf-18-20230320	Pre-Treatment	Water	TOP Pre - Prep	
320-98088-7 - RE	Eff-20230321	Pre-Treatment	Water	TOP Pre - Prep	
MB 320-667343/1-A	Method Blank	Pre-Treatment	Water	TOP Pre - Prep	
LCS 320-667343/2-A	Lab Control Sample	Pre-Treatment	Water	TOP Pre - Prep	
LCSD 320-667343/3-A	Lab Control Sample Dup	Pre-Treatment	Water	TOP Pre - Prep	

Analysis Batch: 668004

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98088-1 - RE	Inf-02-20230320	Pre-Treatment	Water	537 (modified)	667343
320-98088-2 - RE	Inf-07-20230320	Pre-Treatment	Water	537 (modified)	667343
320-98088-3 - RE	Inf-08-20230320	Pre-Treatment	Water	537 (modified)	667343
320-98088-4 - RE	Inf-11-20230320	Pre-Treatment	Water	537 (modified)	667343
320-98088-5 - RE	Inf-18-20230320	Pre-Treatment	Water	537 (modified)	667343
320-98088-7 - RE	Eff-20230321	Pre-Treatment	Water	537 (modified)	667343
320-98088-8 - RE	BioA-22-20230321	Pre-Treatment	Solid	537 (modified)	667340
320-98088-9 - RE	BioB-20230321	Pre-Treatment	Solid	537 (modified)	667340
MB 320-667340/1-A	Method Blank	Pre-Treatment	Solid	537 (modified)	667340
MB 320-667343/1-A	Method Blank	Pre-Treatment	Water	537 (modified)	667343

Eurofins Sacramento

QC Association Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

LCMS (Continued)

Analysis Batch: 668004 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 320-667340/2-A	Lab Control Sample	Pre-Treatment	Solid	537 (modified)	667340
LCS 320-667343/2-A	Lab Control Sample	Pre-Treatment	Water	537 (modified)	667343
LCSD 320-667340/3-A	Lab Control Sample Dup	Pre-Treatment	Solid	537 (modified)	667340
LCSD 320-667343/3-A	Lab Control Sample Dup	Pre-Treatment	Water	537 (modified)	667343

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Lab Chronicle

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-02-20230320

Lab Sample ID: 320-98088-1

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOP Post Prep			100.0 mL	10.0 mL	663935	03/28/23 22:07	JER	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	666636	04/10/23 18:22	S1M	EET SAC
Pre-Treatment	Prep	TOP Pre - Prep			100.0 mL	10.0 mL	663934	03/28/23 21:54	JER	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	666636	04/10/23 16:40	S1M	EET SAC
Pre-Treatment	Prep	TOP Pre - Prep	RE		100.0 mL	10.0 mL	667343	04/12/23 20:59	JER	EET SAC
Pre-Treatment	Analysis	537 (modified)	RE	1	1 mL	1 mL	668004	04/13/23 23:59	D1R	EET SAC

Client Sample ID: Inf-07-20230320

Lab Sample ID: 320-98088-2

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOP Post Prep			100.0 mL	10.0 mL	663935	03/28/23 22:07	JER	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	666636	04/10/23 18:32	S1M	EET SAC
Pre-Treatment	Prep	TOP Pre - Prep			100.0 mL	10.0 mL	663934	03/28/23 21:54	JER	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	666636	04/10/23 16:50	S1M	EET SAC
Pre-Treatment	Prep	TOP Pre - Prep	RE		100.0 mL	10.0 mL	667343	04/12/23 20:59	JER	EET SAC
Pre-Treatment	Analysis	537 (modified)	RE	1	1 mL	1 mL	668004	04/14/23 00:10	D1R	EET SAC

Client Sample ID: Inf-08-20230320

Lab Sample ID: 320-98088-3

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOP Post Prep			100.0 mL	10.0 mL	663935	03/28/23 22:07	JER	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	666636	04/10/23 18:42	S1M	EET SAC
Pre-Treatment	Prep	TOP Pre - Prep			100.0 mL	10.0 mL	663934	03/28/23 21:54	JER	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	666636	04/10/23 17:01	S1M	EET SAC
Pre-Treatment	Prep	TOP Pre - Prep	RE		100.0 mL	10.0 mL	667343	04/12/23 20:59	JER	EET SAC
Pre-Treatment	Analysis	537 (modified)	RE	1	1 mL	1 mL	668004	04/14/23 00:22	D1R	EET SAC

Client Sample ID: Inf-11-20230320

Lab Sample ID: 320-98088-4

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOP Post Prep			100.0 mL	10.0 mL	663935	03/28/23 22:07	JER	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	666636	04/10/23 18:52	S1M	EET SAC
Pre-Treatment	Prep	TOP Pre - Prep			100.0 mL	10.0 mL	663934	03/28/23 21:54	JER	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	666636	04/10/23 17:11	S1M	EET SAC
Pre-Treatment	Prep	TOP Pre - Prep	RE		100.0 mL	10.0 mL	667343	04/12/23 20:59	JER	EET SAC
Pre-Treatment	Analysis	537 (modified)	RE	1	1 mL	1 mL	668004	04/14/23 00:33	D1R	EET SAC

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Lab Chronicle

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-18-20230320

Lab Sample ID: 320-98088-5

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOP Post Prep			100.0 mL	10.0 mL	663935	03/28/23 22:07	JER	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	666636	04/10/23 19:02	S1M	EET SAC
Pre-Treatment	Prep	TOP Pre - Prep			100.0 mL	10.0 mL	663934	03/28/23 21:54	JER	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	666636	04/10/23 17:21	S1M	EET SAC
Pre-Treatment	Prep	TOP Pre - Prep	RE		100.0 mL	10.0 mL	667343	04/12/23 20:59	JER	EET SAC
Pre-Treatment	Analysis	537 (modified)	RE	1	1 mL	1 mL	668004	04/14/23 00:44	D1R	EET SAC

Client Sample ID: Eff-20230321

Lab Sample ID: 320-98088-7

Date Collected: 03/21/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOP Post Prep			100.0 mL	10.0 mL	663935	03/28/23 22:07	JER	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	666636	04/10/23 19:12	S1M	EET SAC
Pre-Treatment	Prep	TOP Pre - Prep			100.0 mL	10.0 mL	663934	03/28/23 21:54	JER	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	666636	04/10/23 17:31	S1M	EET SAC
Pre-Treatment	Prep	TOP Pre - Prep	RE		100.0 mL	10.0 mL	667343	04/12/23 20:59	JER	EET SAC
Pre-Treatment	Analysis	537 (modified)	RE	1	1 mL	1 mL	668004	04/14/23 00:55	D1R	EET SAC

Client Sample ID: BioA-22-20230321

Lab Sample ID: 320-98088-8

Date Collected: 03/21/23 14:00

Matrix: Solid

Date Received: 03/23/23 09:40

Percent Solids: 23.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOP Post-Prep			1.02 g	10.0 mL	663938	03/28/23 23:40	JER	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	666489	04/07/23 18:25	AF	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep			.99 g	10.0 mL	663937	03/28/23 23:20	JER	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	666489	04/07/23 17:35	AF	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep	RE		1.03 g	10.0 mL	667340	04/12/23 20:20	JER	EET SAC
Pre-Treatment	Analysis	537 (modified)	RE	1	1 mL	1 mL	668004	04/14/23 01:50	D1R	EET SAC

Client Sample ID: BioB-20230321

Lab Sample ID: 320-98088-9

Date Collected: 03/21/23 14:21

Matrix: Solid

Date Received: 03/23/23 09:40

Percent Solids: 6.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOP Post-Prep			1.03 g	10.0 mL	663938	03/28/23 23:40	JER	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	666489	04/07/23 18:35	AF	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep			1.01 g	10.0 mL	663937	03/28/23 23:20	JER	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	666489	04/07/23 17:45	AF	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep	RE		1.02 g	10.0 mL	667340	04/12/23 20:20	JER	EET SAC
Pre-Treatment	Analysis	537 (modified)	RE	1	1 mL	1 mL	668004	04/14/23 02:02	D1R	EET SAC

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Eurofins Sacramento

Accreditation/Certification Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Laboratory: Eurofins Sacramento

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4040	06-11-23
Wisconsin	State	998204680	08-31-23

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Method Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	EET SAC
TOP Post Prep	Solid-Phase Extraction (SPE)	SW846	EET SAC
TOP Post-Prep	Shake Extraction with Ultrasonic Bath Extraction	SW846	EET SAC
TOP Pre - Prep	Solid-Phase Extraction (SPE)	SW846	EET SAC
TOP Pre-Prep	Shake Extraction with Ultrasonic Bath Extraction	SW846	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-98088-1	Inf-02-20230320	Water	03/20/23 23:59	03/23/23 09:40
320-98088-2	Inf-07-20230320	Water	03/20/23 23:59	03/23/23 09:40
320-98088-3	Inf-08-20230320	Water	03/20/23 23:59	03/23/23 09:40
320-98088-4	Inf-11-20230320	Water	03/20/23 23:59	03/23/23 09:40
320-98088-5	Inf-18-20230320	Water	03/20/23 23:59	03/23/23 09:40
320-98088-7	Eff-20230321	Water	03/21/23 23:59	03/23/23 09:40
320-98088-8	BioA-22-20230321	Solid	03/21/23 14:00	03/23/23 09:40
320-98088-9	BioB-20230321	Solid	03/21/23 14:21	03/23/23 09:40

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Reports to Mike Ursin TRC
708 Heartland Trail
Madison, WI 53717
Suite 2000

Chain of Custody Record
muring@tracompanies.com

Client Information
Client Contact: Julie Maas
Company: Madison Metro Sewerage District
Address: 1610 Moorland Rd
City: Madison
State, Zip: WI 53713-3398
Phone: 608 218-0867
Email: juliem@madsewer.org
Project Name: MMSD PFAS
Site: Madison Metro Sewerage District

Sampler: Jenny Faust
Phone: 608 370-1745
E-Mail: jennyfaust@madsewer.org
PWSID:
Due Date Requested:
TAT Requested (days): 14
Compliance Project: Yes No
PO #: 2200422
WO #:
Project #: 32021779
SSOW#:

Lab PM: Mary Powers / Julie Maas
Carrier Tracking No(s):
State of Origin: WI
E-Mail: mary.powers@madsewer.org

Analysis Requested
320-98088 Chain of Custody
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
Other:
M - Hexane
N - None
O - AsNaO2
P - Na2OAS
Q - Na2SO3
R - Na2SO4
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4.5
Y - Trizma
Z - other (specify)

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Sludge, Overstool, B-Tissue, A-Mur)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Number of Containers	Special Instructions/Note:
Inf-02-20230320	3/20/23	23:59	C	WW	X	X		
Inf-07-20230320			C	WW	X	X		
Inf-08-20230320			C	WW	X	X		
Inf-11-20230320			C	WW	X	X		
Inf-18-20230320			C	WW	X	X		
Inf-Comp-20230320			C	WW	X	X		
Eff-20230321	3/21/23	23:59	C	WW	X	X		
B10A-20-20230321	3/21/23	14:00	G	S	X	X		
B10B-20230321		14:21	G	S	X	X		
EB01-20230321		13:40	G	W	X	X		

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological
Deliverable Requested: I, II, III, IV, Other (specify)
Empty Kit Relinquished by:
Relinquished by: Jennifer Faust
Relinquished by:
Relinquished by:
Custody Seals Intact: Yes No
Custody Seal No.: 2103341 2103340
Date/Time: 3/22/23 07:00
Company: MMSD
Received by: MMSD
Date/Time: 3/22/23 07:00
Company: MMSD
Received by:
Date/Time:
Company:
Received by:
Date/Time:
Company:
Cooler Temperature(s) °C and Other Remarks: 0.9

2 of 2 coolers

Reports to

Eurofins Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone (916) 373-5600

Mike Ursin TRC
708 Heartland Trail Suite 2000
Madison, WI 53717

Chain of Custody Record



Environment Testing

mursinc@compaines.com
mary.powers@juliemads.com

Client Information
 Client Contact: Julie Maas
 Phone: 608 370-1745
 Company: Madison Metro Sewerage District
 Address: 1610 Moorland Rd
 City: Madison
 State, Zip: WI 53713-3398
 Phone: 608 218-0867
 Email: juliemads@metro-sewer.org
 Project Name: MMSD PFAS
 Site: Madison Metro Sewerage District

Sampler: Jenny Faust
Lab PM: Mary Powers / Julie Maas
E-Mail: mary.powers@madsewer.org

Due Date Requested: _____
TAT Requested (days): 14 days TAT as in RFP
Compliance Project: Yes No
PO #: 2200422
WO #: _____
Project #: 32021779
SSOW#: _____

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=soil, BT=leachate, A=air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Analysis Requested	Total Number of Containers	Special Instructions/Note:
Inf-02-20230320	3/20/23	23:59	C	WW	N	N	PFAS W133	X	For Influent samples please follow EPA 19-001 (w/ PFAS method expectations)
Inf-07-20230320			C	WW	N	X	TSS	X	
Inf-08-20230320			C	WW	N	X	TOP Assay	X	
Inf-11-20230320			C	WW	N	X		X	
Inf-18-20230320			C	WW	N	X		X	
Inf-Comp-20230320			C	WW	N	X		X	
Eff-20230321	3/21/23	23:59	C	WN	N	X		X	
BioA-22-20230321	3/21/23	14:00	G	S	N	X		X	
BioB-20230321		14:21	G	S	N	X		X	
EB01-20230321		13:40	G	W	N	X		X	

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological
 Deliverable Requested: I, II, III, IV, Other (specify) _____

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: _____

Empty Kit Relinquished by: _____
 Relinquished by: Jenny Faust
 Date/Time: 3/22/23 07:00
 Company: MMSD

Received by: _____
 Date/Time: 3/23/23 9:40
 Company: EE/Isac

Relinquished by: _____
 Date/Time: _____
 Company: _____

Received by: _____
 Date/Time: _____
 Company: _____

Cooler Temperature(s) °C and Other Remarks: _____

Custody Seal No.: Yes No

Login Sample Receipt Checklist

Client: Madison Metropolitan Sewerage District

Job Number: 320-98088-1

Login Number: 98088
List Number: 1
Creator: Fisher, Jamyiah L

List Source: Eurofins Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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.	N/A	2103391/2103390
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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Julie Maas
Madison Metropolitan Sewerage District
1610 Moorland Road
Madison, Wisconsin 53713-3398

Generated 5/10/2023 6:07:26 PM Revision 1

JOB DESCRIPTION

MMSD PFAS

JOB NUMBER

320-98088-2

Eurofins Sacramento

Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

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 Northern California, LLC Project Manager.

Authorization



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Revision 1

Authorized for release by
Micah Smith, Project Manager II
Micah.Smith@et.eurofinsus.com
(916)374-4302



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Definitions/Glossary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
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.

General Chemistry

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.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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

Case Narrative

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Job ID: 320-98088-2

Laboratory: Eurofins Sacramento

Narrative

Job Narrative 320-98088-2

Comments

No additional comments.

Revision

The report being provided is a revision of the original report sent on 4/24/2023. The report (revision 1) is being revised to add a narration explaining the homogenization of the biosolid samples and to add a narration explaining how the particulate was handled for the water samples.

Receipt

The samples were received on 3/23/2023 9:40 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 0.7° C and 0.9° C.

LCMS

Method 537 (modified): The "I" qualifier means the transition mass ratio for Perfluorohexanoic acid (PFHxA) and Perfluorodecanoic acid (PFDA) was above the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte. The following samples are associated with this narration: Inf-11-20230320 (320-98088-4) and Inf-Comp-20230320 (320-98088-6).

Method 537 (modified): The "I" qualifier means the transition mass ratio for Perfluorohexanesulfonic acid (PFHxS) was below 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 following samples are associated with this narration: Inf-02-20230320 (320-98088-1), Inf-08-20230320 (320-98088-3) and Inf-11-20230320 (320-98088-4).

Method 537 (modified): The "I" qualifier means the transition mass ratio for the indicated analyte was above the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte. The following sample is associated with this narration: BioA-22-20230321 (320-98088-8).

Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: Inf-11-20230320 (320-98088-4). The sample was reanalyzed with concurring results. Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample.

Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: BioB-20230321 (320-98088-9). Re-analysis confirms the low IDA recovery. Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample.

Method 537 (modified): The "I" qualifier means the transition mass ratio for Perfluorohexanoic acid (PFHxA) was above the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte. The following sample is associated with this narration: BioB-20230321 (320-98088-9).

Method 537 (modified): The "I" qualifier means the transition mass ratio for Perfluorooctanesulfonic acid (PFOS) was low outside of 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 following sample is associated with this narration: BioB-20230321 (320-98088-9).

Method 537 (modified): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following sample: BioA-22-20230321 (320-98088-8). Analysis of a separate extraction for the TOPS-Pre test also has high IDA recoveries. Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

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

General Chemistry

Case Narrative

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Job ID: 320-98088-2 (Continued)

Laboratory: Eurofins Sacramento (Continued)

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

Organic Prep

Method 3535: The following sample were homogenized prior to analysis: BioA-22-20230321 (320-98088-8) and BioB-20230321 (320-98088-9). The samples were agitated prior to aliquoting, a 5g aliquot is immediately pulled for extraction after agitation.

Method 3535: During the solid phase extraction process, the following samples contained non-settable particulates which clogged the solid phase extraction column: Inf-02-20230320 (320-98088-1), Inf-07-20230320 (320-98088-2), Inf-08-20230320 (320-98088-3), Inf-11-20230320 (320-98088-4), Inf-18-20230320 (320-98088-5) and Inf-Comp-20230320 (320-98088-6). Approximately 65% of the sample container was filtered through the SPE column at which point the SPE column became clogged. The remainder of the unfiltered sample was retained in the original sample bottle. The SPE column along with the particulates that clogged it were then extracted using the elution solvent.

Method 3535: The following sample contained floating particulates in the sample bottle prior to extraction: Eff-20230321 (320-98088-7). The full sample passed through the SPE column.

Method 3535: The following samples were light yellow prior to extraction: Inf-02-20230320 (320-98088-1), Inf-07-20230320 (320-98088-2), Inf-08-20230320 (320-98088-3), Inf-11-20230320 (320-98088-4), Inf-18-20230320 (320-98088-5), Inf-Comp-20230320 (320-98088-6) and Eff-20230321 (320-98088-7).

Method 3535: The following samples were light yellow after extraction/final volume: Inf-02-20230320 (320-98088-1), Inf-07-20230320 (320-98088-2), Inf-08-20230320 (320-98088-3), Inf-11-20230320 (320-98088-4), Inf-18-20230320 (320-98088-5), Inf-Comp-20230320 (320-98088-6) and Eff-20230321 (320-98088-7).

Method SHAKE: The following samples in preparation batch 320-663933 were yellow in color following extraction. BioA-22-20230321 (320-98088-8) and BioB-20230321 (320-98088-9)

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

Detection Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: Inf-02-20230320

Lab Sample ID: 320-98088-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	5.1		4.6	2.2	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	4.0		1.8	0.45	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	4.8		1.8	0.53	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.7	J	1.8	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	3.6		1.8	0.77	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.43	J	1.8	0.25	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.43	J	1.8	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.9		1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.34	J	1.8	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.0	I	1.8	0.52	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	5.5		1.8	0.49	ng/L	1		537 (modified)	Total/NA
Total Suspended Solids	220		13	3.4	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Inf-07-20230320

Lab Sample ID: 320-98088-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	17		4.5	2.2	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	9.9		1.8	0.44	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	15		1.8	0.52	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.8		1.8	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	11		1.8	0.77	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.69	J	1.8	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.61	J	1.8	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	6.6		1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	1.1	J	1.8	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	15		1.8	0.51	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	8.7		1.8	0.49	ng/L	1		537 (modified)	Total/NA
NMeFOSAA	1.5	J	4.5	1.1	ng/L	1		537 (modified)	Total/NA
Total Suspended Solids	190		13	3.4	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Inf-08-20230320

Lab Sample ID: 320-98088-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	4.0	J	4.5	2.2	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	11		1.8	0.44	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	6.3		1.8	0.53	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.98	J	1.8	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.9		1.8	0.77	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.50	J I	1.8	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.6	J	1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.27	J	1.8	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	4.6	I	1.8	0.52	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.5		1.8	0.49	ng/L	1		537 (modified)	Total/NA
NMeFOSE	2.3	J	3.6	1.3	ng/L	1		537 (modified)	Total/NA
Total Suspended Solids	190		13	3.4	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Inf-11-20230320

Lab Sample ID: 320-98088-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.2	J	4.5	2.2	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: Inf-11-20230320 (Continued)

Lab Sample ID: 320-98088-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPA)	2.1		1.8	0.44	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	3.7	I	1.8	0.53	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.90	J	1.8	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	2.1		1.8	0.77	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.33	J	1.8	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.34	J	1.8	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.5	J	1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.7	I	1.8	0.52	ng/L	1		537 (modified)	Total/NA
NMeFOSE	2.4	J	3.6	1.3	ng/L	1		537 (modified)	Total/NA
Total Suspended Solids	200		13	3.4	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Inf-18-20230320

Lab Sample ID: 320-98088-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	13		4.4	2.1	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	7.6		1.8	0.44	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	9.2		1.8	0.51	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.4		1.8	0.22	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	10		1.8	0.75	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.59	J	1.8	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.61	J	1.8	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	6.6		1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	1.9		1.8	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	21		1.8	0.51	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	0.61	J	1.8	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	9.9		1.8	0.48	ng/L	1		537 (modified)	Total/NA
NMeFOSE	1.7	J	3.6	1.2	ng/L	1		537 (modified)	Total/NA
6:2 FTS	3.3	J	4.4	2.2	ng/L	1		537 (modified)	Total/NA
Total Suspended Solids	200		13	3.4	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Inf-Comp-20230320

Lab Sample ID: 320-98088-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	8.8		4.5	2.1	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	6.7		1.8	0.44	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	8.4		1.8	0.52	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.2		1.8	0.22	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	6.0		1.8	0.76	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.47	J	1.8	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.70	J I	1.8	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	4.3		1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.64	J	1.8	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	9.6		1.8	0.51	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.3		1.8	0.48	ng/L	1		537 (modified)	Total/NA
Total Suspended Solids	230		13	3.4	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Eff-20230321

Lab Sample ID: 320-98088-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	9.4		4.6	2.2	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: Eff-20230321 (Continued)

Lab Sample ID: 320-98088-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPA)	12		1.8	0.45	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	21		1.8	0.53	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.0		1.8	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	9.3		1.8	0.78	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.75	J	1.8	0.25	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.99	J	1.8	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	4.3		1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.71	J	1.8	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	9.6		1.8	0.52	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	0.22	J	1.8	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	5.5		1.8	0.49	ng/L	1		537 (modified)	Total/NA
NMeFOSAA	1.7	J	4.6	1.1	ng/L	1		537 (modified)	Total/NA
6:2 FTS	3.1	J	4.6	2.3	ng/L	1		537 (modified)	Total/NA
Total Suspended Solids	2.0	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: BioA-22-20230321

Lab Sample ID: 320-98088-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.9		0.84	0.19	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	3.9		0.84	0.17	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	10		0.84	0.13	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.54	J	0.84	0.16	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	6.1		0.84	0.22	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.83	J	0.84	0.093	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	9.8		0.84	0.20	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.8		0.84	0.18	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	3.1		0.84	0.13	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotridecanoic acid (PFTrDA)	0.53	J	0.84	0.089	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	0.72	J	0.84	0.16	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.20	J	0.84	0.16	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.5	I	0.84	0.12	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	11		0.84	0.18	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.3		0.84	0.14	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSAA	21		0.84	0.097	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSAA	7.9		0.84	0.20	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSE	17		0.84	0.20	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSE	3.3		0.84	0.12	ug/Kg	1	✳	537 (modified)	Total/NA
6:2 FTS	0.49	J	0.84	0.11	ug/Kg	1	✳	537 (modified)	Total/NA
8:2 FTS	0.86		0.84	0.15	ug/Kg	1	✳	537 (modified)	Total/NA

Client Sample ID: BioB-20230321

Lab Sample ID: 320-98088-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	4.5	I	3.3	0.50	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.3	J	3.3	0.86	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.44	J	3.3	0.36	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	3.1	J	3.3	0.78	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.0	J	3.3	0.68	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	1.4	J	3.3	0.49	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	9.7	I	3.3	0.70	ug/Kg	1	✳	537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: BioB-20230321 (Continued)

Lab Sample ID: 320-98088-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanesulfonic acid (PFDS)	0.87	J	3.3	0.85	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	0.84	J	3.3	0.54	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSAA	11		3.3	0.37	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSAA	4.8		3.3	0.78	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSE	6.2		3.3	0.77	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSE	1.8	J	3.3	0.46	ug/Kg	1	✳	537 (modified)	Total/NA
6:2 FTS	1.3	J	3.3	0.44	ug/Kg	1	✳	537 (modified)	Total/NA
8:2 FTS	0.83	J	3.3	0.57	ug/Kg	1	✳	537 (modified)	Total/NA

Client Sample ID: EB01-20230321

Lab Sample ID: 320-98088-10

No Detections.

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: Inf-02-20230320

Lab Sample ID: 320-98088-1

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	5.1		4.6	2.2	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluoropentanoic acid (PFPA)	4.0		1.8	0.45	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorohexanoic acid (PFHxA)	4.8		1.8	0.53	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluoroheptanoic acid (PFHpA)	1.7	J	1.8	0.23	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorooctanoic acid (PFOA)	3.6		1.8	0.77	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorononanoic acid (PFNA)	0.43	J	1.8	0.25	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorodecanoic acid (PFDA)	0.43	J	1.8	0.28	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.67	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorobutanesulfonic acid (PFBS)	3.9		1.8	0.18	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluoropentanesulfonic acid (PFPeS)	0.34	J	1.8	0.27	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorohexanesulfonic acid (PFHxS)	5.0	I	1.8	0.52	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorooctanesulfonic acid (PFOS)	5.5		1.8	0.49	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.34	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.88	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.89	ng/L		03/28/23 13:24	03/30/23 06:08	1
NEtFOSA	ND		1.8	0.79	ng/L		03/28/23 13:24	03/30/23 06:08	1
NMeFOSA	ND		1.8	0.39	ng/L		03/28/23 13:24	03/30/23 06:08	1
NMeFOSAA	ND		4.6	1.1	ng/L		03/28/23 13:24	03/30/23 06:08	1
NEtFOSAA	ND		4.6	1.2	ng/L		03/28/23 13:24	03/30/23 06:08	1
NMeFOSE	ND		3.6	1.3	ng/L		03/28/23 13:24	03/30/23 06:08	1
NEtFOSE	ND		1.8	0.77	ng/L		03/28/23 13:24	03/30/23 06:08	1
4:2 FTS	ND		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 06:08	1
6:2 FTS	ND		4.6	2.3	ng/L		03/28/23 13:24	03/30/23 06:08	1
8:2 FTS	ND		1.8	0.42	ng/L		03/28/23 13:24	03/30/23 06:08	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		03/28/23 13:24	03/30/23 06:08	1
HFPO-DA (GenX)	ND		3.6	1.4	ng/L		03/28/23 13:24	03/30/23 06:08	1
9CI-PF3ONS	ND		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 06:08	1
11CI-PF3OUdS	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 06:08	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	52		25 - 150				03/28/23 13:24	03/30/23 06:08	1
13C5 PFPeA	68		25 - 150				03/28/23 13:24	03/30/23 06:08	1
13C2 PFHxA	72		25 - 150				03/28/23 13:24	03/30/23 06:08	1
13C4 PFHpA	67		25 - 150				03/28/23 13:24	03/30/23 06:08	1
13C4 PFOA	70		25 - 150				03/28/23 13:24	03/30/23 06:08	1
13C5 PFNA	66		25 - 150				03/28/23 13:24	03/30/23 06:08	1
13C2 PFDA	60		25 - 150				03/28/23 13:24	03/30/23 06:08	1
13C2 PFUnA	52		25 - 150				03/28/23 13:24	03/30/23 06:08	1
13C2 PFDoA	42		25 - 150				03/28/23 13:24	03/30/23 06:08	1
13C2 PFTeDA	34		25 - 150				03/28/23 13:24	03/30/23 06:08	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: Inf-02-20230320

Lab Sample ID: 320-98088-1

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	64		25 - 150	03/28/23 13:24	03/30/23 06:08	1
18O2 PFHxS	65		25 - 150	03/28/23 13:24	03/30/23 06:08	1
13C4 PFOS	59		25 - 150	03/28/23 13:24	03/30/23 06:08	1
13C8 FOSA	51		10 - 150	03/28/23 13:24	03/30/23 06:08	1
d3-NMeFOSAA	43		25 - 150	03/28/23 13:24	03/30/23 06:08	1
d5-NEtFOSAA	45		25 - 150	03/28/23 13:24	03/30/23 06:08	1
d-N-MeFOSA-M	24		10 - 150	03/28/23 13:24	03/30/23 06:08	1
d-N-EtFOSA-M	40		10 - 150	03/28/23 13:24	03/30/23 06:08	1
d7-N-MeFOSE-M	24		10 - 150	03/28/23 13:24	03/30/23 06:08	1
d9-N-EtFOSE-M	40		10 - 150	03/28/23 13:24	03/30/23 06:08	1
M2-4:2 FTS	93		25 - 150	03/28/23 13:24	03/30/23 06:08	1
M2-6:2 FTS	148		25 - 150	03/28/23 13:24	03/30/23 06:08	1
M2-8:2 FTS	105		25 - 150	03/28/23 13:24	03/30/23 06:08	1
13C3 HFPO-DA	64		25 - 150	03/28/23 13:24	03/30/23 06:08	1
13C2 10:2 FTS	59		25 - 150	03/28/23 13:24	03/30/23 06:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	220		13	3.4	mg/L			03/27/23 18:56	1

Client Sample ID: Inf-07-20230320

Lab Sample ID: 320-98088-2

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	17		4.5	2.2	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluoropentanoic acid (PFPA)	9.9		1.8	0.44	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluorohexanoic acid (PFHxA)	15		1.8	0.52	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluoroheptanoic acid (PFHpA)	3.8		1.8	0.23	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluorooctanoic acid (PFOA)	11		1.8	0.77	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluorononanoic acid (PFNA)	0.69	J	1.8	0.24	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluorodecanoic acid (PFDA)	0.61	J	1.8	0.28	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.99	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.66	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluorobutanesulfonic acid (PFBS)	6.6		1.8	0.18	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluoropentanesulfonic acid (PFPeS)	1.1	J	1.8	0.27	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluorohexanesulfonic acid (PFHxS)	15		1.8	0.51	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluorooctanesulfonic acid (PFOS)	8.7		1.8	0.49	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.33	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.88	ng/L		03/28/23 13:24	03/30/23 06:19	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: Inf-07-20230320

Lab Sample ID: 320-98088-2

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.88	ng/L		03/28/23 13:24	03/30/23 06:19	1
NEtFOSA	ND		1.8	0.79	ng/L		03/28/23 13:24	03/30/23 06:19	1
NMeFOSA	ND		1.8	0.39	ng/L		03/28/23 13:24	03/30/23 06:19	1
NMeFOSAA	1.5	J	4.5	1.1	ng/L		03/28/23 13:24	03/30/23 06:19	1
NEtFOSAA	ND		4.5	1.2	ng/L		03/28/23 13:24	03/30/23 06:19	1
NMeFOSE	ND		3.6	1.3	ng/L		03/28/23 13:24	03/30/23 06:19	1
NEtFOSE	ND		1.8	0.77	ng/L		03/28/23 13:24	03/30/23 06:19	1
4:2 FTS	ND		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 06:19	1
6:2 FTS	ND		4.5	2.3	ng/L		03/28/23 13:24	03/30/23 06:19	1
8:2 FTS	ND		1.8	0.42	ng/L		03/28/23 13:24	03/30/23 06:19	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		03/28/23 13:24	03/30/23 06:19	1
HFPO-DA (GenX)	ND		3.6	1.4	ng/L		03/28/23 13:24	03/30/23 06:19	1
9Cl-PF3ONS	ND		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 06:19	1
11Cl-PF3OUdS	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 06:19	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFBA	54		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C5 PFPeA	70		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C2 PFHxA	72		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C4 PFHpA	67		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C4 PFOA	67		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C5 PFNA	64		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C2 PFDA	60		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C2 PFUnA	53		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C2 PFDoA	40		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C2 PFTeDA	30		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C3 PFBS	63		25 - 150				03/28/23 13:24	03/30/23 06:19	1
18O2 PFHxS	59		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C4 PFOS	55		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C8 FOSA	54		10 - 150				03/28/23 13:24	03/30/23 06:19	1
d3-NMeFOSAA	44		25 - 150				03/28/23 13:24	03/30/23 06:19	1
d5-NEtFOSAA	48		25 - 150				03/28/23 13:24	03/30/23 06:19	1
d-N-MeFOSA-M	25		10 - 150				03/28/23 13:24	03/30/23 06:19	1
d-N-EtFOSA-M	38		10 - 150				03/28/23 13:24	03/30/23 06:19	1
d7-N-MeFOSE-M	26		10 - 150				03/28/23 13:24	03/30/23 06:19	1
d9-N-EtFOSE-M	41		10 - 150				03/28/23 13:24	03/30/23 06:19	1
M2-4:2 FTS	93		25 - 150				03/28/23 13:24	03/30/23 06:19	1
M2-6:2 FTS	134		25 - 150				03/28/23 13:24	03/30/23 06:19	1
M2-8:2 FTS	94		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C3 HFPO-DA	57		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C2 10:2 FTS	59		25 - 150				03/28/23 13:24	03/30/23 06:19	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	190		13	3.4	mg/L			03/27/23 18:56	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: Inf-08-20230320

Lab Sample ID: 320-98088-3

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	4.0	J	4.5	2.2	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluoropentanoic acid (PFPA)	11		1.8	0.44	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorohexanoic acid (PFHxA)	6.3		1.8	0.53	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluoroheptanoic acid (PFHpA)	0.98	J	1.8	0.23	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorooctanoic acid (PFOA)	1.9		1.8	0.77	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorodecanoic acid (PFDA)	0.50	J I	1.8	0.28	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.66	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorobutanesulfonic acid (PFBS)	1.6	J	1.8	0.18	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluoropentanesulfonic acid (PFPeS)	0.27	J	1.8	0.27	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorohexanesulfonic acid (PFHxS)	4.6	I	1.8	0.52	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorooctanesulfonic acid (PFOS)	3.5		1.8	0.49	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.34	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.88	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.89	ng/L		03/28/23 13:24	03/30/23 06:29	1
NEtFOSA	ND		1.8	0.79	ng/L		03/28/23 13:24	03/30/23 06:29	1
NMeFOSA	ND		1.8	0.39	ng/L		03/28/23 13:24	03/30/23 06:29	1
NMeFOSAA	ND		4.5	1.1	ng/L		03/28/23 13:24	03/30/23 06:29	1
NEtFOSAA	ND		4.5	1.2	ng/L		03/28/23 13:24	03/30/23 06:29	1
NMeFOSE	2.3	J	3.6	1.3	ng/L		03/28/23 13:24	03/30/23 06:29	1
NEtFOSE	ND		1.8	0.77	ng/L		03/28/23 13:24	03/30/23 06:29	1
4:2 FTS	ND		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 06:29	1
6:2 FTS	ND		4.5	2.3	ng/L		03/28/23 13:24	03/30/23 06:29	1
8:2 FTS	ND		1.8	0.42	ng/L		03/28/23 13:24	03/30/23 06:29	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		03/28/23 13:24	03/30/23 06:29	1
HFPO-DA (GenX)	ND		3.6	1.4	ng/L		03/28/23 13:24	03/30/23 06:29	1
9CI-PF3ONS	ND		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 06:29	1
11CI-PF3OUdS	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 06:29	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	55		25 - 150				03/28/23 13:24	03/30/23 06:29	1
13C5 PFPeA	72		25 - 150				03/28/23 13:24	03/30/23 06:29	1
13C2 PFHxA	78		25 - 150				03/28/23 13:24	03/30/23 06:29	1
13C4 PFHpA	71		25 - 150				03/28/23 13:24	03/30/23 06:29	1
13C4 PFOA	73		25 - 150				03/28/23 13:24	03/30/23 06:29	1
13C5 PFNA	69		25 - 150				03/28/23 13:24	03/30/23 06:29	1
13C2 PFDA	62		25 - 150				03/28/23 13:24	03/30/23 06:29	1
13C2 PFUnA	53		25 - 150				03/28/23 13:24	03/30/23 06:29	1
13C2 PFDoA	41		25 - 150				03/28/23 13:24	03/30/23 06:29	1
13C2 PFTeDA	28		25 - 150				03/28/23 13:24	03/30/23 06:29	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: Inf-08-20230320

Lab Sample ID: 320-98088-3

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	67		25 - 150	03/28/23 13:24	03/30/23 06:29	1
18O2 PFHxS	63		25 - 150	03/28/23 13:24	03/30/23 06:29	1
13C4 PFOS	58		25 - 150	03/28/23 13:24	03/30/23 06:29	1
13C8 FOSA	57		10 - 150	03/28/23 13:24	03/30/23 06:29	1
d3-NMeFOSAA	44		25 - 150	03/28/23 13:24	03/30/23 06:29	1
d5-NEtFOSAA	49		25 - 150	03/28/23 13:24	03/30/23 06:29	1
d-N-MeFOSA-M	25		10 - 150	03/28/23 13:24	03/30/23 06:29	1
d-N-EtFOSA-M	40		10 - 150	03/28/23 13:24	03/30/23 06:29	1
d7-N-MeFOSE-M	26		10 - 150	03/28/23 13:24	03/30/23 06:29	1
d9-N-EtFOSE-M	43		10 - 150	03/28/23 13:24	03/30/23 06:29	1
M2-4:2 FTS	110		25 - 150	03/28/23 13:24	03/30/23 06:29	1
M2-6:2 FTS	147		25 - 150	03/28/23 13:24	03/30/23 06:29	1
M2-8:2 FTS	105		25 - 150	03/28/23 13:24	03/30/23 06:29	1
13C3 HFPO-DA	65		25 - 150	03/28/23 13:24	03/30/23 06:29	1
13C2 10:2 FTS	57		25 - 150	03/28/23 13:24	03/30/23 06:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	190		13	3.4	mg/L			03/27/23 18:56	1

Client Sample ID: Inf-11-20230320

Lab Sample ID: 320-98088-4

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	2.2	J	4.5	2.2	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluoropentanoic acid (PFPA)	2.1		1.8	0.44	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorohexanoic acid (PFHxA)	3.7	I	1.8	0.53	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluoroheptanoic acid (PFHpA)	0.90	J	1.8	0.23	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorooctanoic acid (PFOA)	2.1		1.8	0.77	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorononanoic acid (PFNA)	0.33	J	1.8	0.24	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorodecanoic acid (PFDA)	0.34	J	1.8	0.28	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.66	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorobutanesulfonic acid (PFBS)	1.5	J	1.8	0.18	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.8	0.27	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorohexanesulfonic acid (PFHxS)	3.7	I	1.8	0.52	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.49	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.34	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.88	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.89	ng/L		03/28/23 13:24	03/30/23 06:39	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: Inf-11-20230320

Lab Sample ID: 320-98088-4

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSA	ND		1.8	0.79	ng/L		03/28/23 13:24	03/30/23 06:39	1
NMeFOSA	ND		1.8	0.39	ng/L		03/28/23 13:24	03/30/23 06:39	1
NMeFOSAA	ND		4.5	1.1	ng/L		03/28/23 13:24	03/30/23 06:39	1
NEtFOSAA	ND		4.5	1.2	ng/L		03/28/23 13:24	03/30/23 06:39	1
NMeFOSE	2.4	J	3.6	1.3	ng/L		03/28/23 13:24	03/30/23 06:39	1
NEtFOSE	ND		1.8	0.77	ng/L		03/28/23 13:24	03/30/23 06:39	1
4:2 FTS	ND		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 06:39	1
6:2 FTS	ND		4.5	2.3	ng/L		03/28/23 13:24	03/30/23 06:39	1
8:2 FTS	ND		1.8	0.42	ng/L		03/28/23 13:24	03/30/23 06:39	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		03/28/23 13:24	03/30/23 06:39	1
HFPO-DA (GenX)	ND		3.6	1.4	ng/L		03/28/23 13:24	03/30/23 06:39	1
9Cl-PF3ONS	ND		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 06:39	1
11Cl-PF3OUdS	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 06:39	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	52		25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C5 PFPeA	67		25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C2 PFHxA	70		25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C4 PFHpA	67		25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C4 PFOA	69		25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C5 PFNA	63		25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C2 PFDA	54		25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C2 PFUnA	46		25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C2 PFDoA	35		25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C2 PFTeDA	24	*5-	25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C3 PFBS	64		25 - 150				03/28/23 13:24	03/30/23 06:39	1
18O2 PFHxS	62		25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C4 PFOS	58		25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C8 FOSA	44		10 - 150				03/28/23 13:24	03/30/23 06:39	1
d3-NMeFOSAA	28		25 - 150				03/28/23 13:24	03/30/23 06:39	1
d5-NEtFOSAA	37		25 - 150				03/28/23 13:24	03/30/23 06:39	1
d-N-MeFOSA-M	23		10 - 150				03/28/23 13:24	03/30/23 06:39	1
d-N-EtFOSA-M	30		10 - 150				03/28/23 13:24	03/30/23 06:39	1
d7-N-MeFOSE-M	22		10 - 150				03/28/23 13:24	03/30/23 06:39	1
d9-N-EtFOSE-M	32		10 - 150				03/28/23 13:24	03/30/23 06:39	1
M2-4:2 FTS	112		25 - 150				03/28/23 13:24	03/30/23 06:39	1
M2-6:2 FTS	141		25 - 150				03/28/23 13:24	03/30/23 06:39	1
M2-8:2 FTS	93		25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C3 HFPO-DA	61		25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C2 10:2 FTS	50		25 - 150				03/28/23 13:24	03/30/23 06:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	200		13	3.4	mg/L			03/27/23 18:56	1

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: Inf-18-20230320

Lab Sample ID: 320-98088-5

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	13		4.4	2.1	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluoropentanoic acid (PFPA)	7.6		1.8	0.44	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorohexanoic acid (PFHxA)	9.2		1.8	0.51	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluoroheptanoic acid (PFHpA)	3.4		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorooctanoic acid (PFOA)	10		1.8	0.75	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorononanoic acid (PFNA)	0.59	J	1.8	0.24	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorodecanoic acid (PFDA)	0.61	J	1.8	0.28	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.98	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorobutanesulfonic acid (PFBS)	6.6		1.8	0.18	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluoropentanesulfonic acid (PFPeS)	1.9		1.8	0.27	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorohexanesulfonic acid (PFHxS)	21		1.8	0.51	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluoroheptanesulfonic acid (PFHpS)	0.61	J	1.8	0.17	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorooctanesulfonic acid (PFOS)	9.9		1.8	0.48	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.33	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.28	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.86	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.87	ng/L		03/28/23 13:24	03/30/23 06:49	1
NEtFOSA	ND		1.8	0.77	ng/L		03/28/23 13:24	03/30/23 06:49	1
NMeFOSA	ND		1.8	0.38	ng/L		03/28/23 13:24	03/30/23 06:49	1
NMeFOSAA	ND		4.4	1.1	ng/L		03/28/23 13:24	03/30/23 06:49	1
NEtFOSAA	ND		4.4	1.2	ng/L		03/28/23 13:24	03/30/23 06:49	1
NMeFOSE	1.7	J	3.6	1.2	ng/L		03/28/23 13:24	03/30/23 06:49	1
NEtFOSE	ND		1.8	0.75	ng/L		03/28/23 13:24	03/30/23 06:49	1
4:2 FTS	ND		1.8	0.21	ng/L		03/28/23 13:24	03/30/23 06:49	1
6:2 FTS	3.3	J	4.4	2.2	ng/L		03/28/23 13:24	03/30/23 06:49	1
8:2 FTS	ND		1.8	0.41	ng/L		03/28/23 13:24	03/30/23 06:49	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		03/28/23 13:24	03/30/23 06:49	1
HFPO-DA (GenX)	ND		3.6	1.3	ng/L		03/28/23 13:24	03/30/23 06:49	1
9CI-PF3ONS	ND		1.8	0.21	ng/L		03/28/23 13:24	03/30/23 06:49	1
11CI-PF3OUdS	ND		1.8	0.28	ng/L		03/28/23 13:24	03/30/23 06:49	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	54		25 - 150				03/28/23 13:24	03/30/23 06:49	1
13C5 PFPeA	65		25 - 150				03/28/23 13:24	03/30/23 06:49	1
13C2 PFHxA	65		25 - 150				03/28/23 13:24	03/30/23 06:49	1
13C4 PFHpA	63		25 - 150				03/28/23 13:24	03/30/23 06:49	1
13C4 PFOA	67		25 - 150				03/28/23 13:24	03/30/23 06:49	1
13C5 PFNA	61		25 - 150				03/28/23 13:24	03/30/23 06:49	1
13C2 PFDA	57		25 - 150				03/28/23 13:24	03/30/23 06:49	1
13C2 PFUnA	50		25 - 150				03/28/23 13:24	03/30/23 06:49	1
13C2 PFDoA	39		25 - 150				03/28/23 13:24	03/30/23 06:49	1
13C2 PFTeDA	30		25 - 150				03/28/23 13:24	03/30/23 06:49	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: Inf-18-20230320

Lab Sample ID: 320-98088-5

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	59		25 - 150	03/28/23 13:24	03/30/23 06:49	1
18O2 PFHxS	58		25 - 150	03/28/23 13:24	03/30/23 06:49	1
13C4 PFOS	54		25 - 150	03/28/23 13:24	03/30/23 06:49	1
13C8 FOSA	47		10 - 150	03/28/23 13:24	03/30/23 06:49	1
d3-NMeFOSAA	38		25 - 150	03/28/23 13:24	03/30/23 06:49	1
d5-NEtFOSAA	46		25 - 150	03/28/23 13:24	03/30/23 06:49	1
d-N-MeFOSA-M	23		10 - 150	03/28/23 13:24	03/30/23 06:49	1
d-N-EtFOSA-M	34		10 - 150	03/28/23 13:24	03/30/23 06:49	1
d7-N-MeFOSE-M	22		10 - 150	03/28/23 13:24	03/30/23 06:49	1
d9-N-EtFOSE-M	38		10 - 150	03/28/23 13:24	03/30/23 06:49	1
M2-4:2 FTS	77		25 - 150	03/28/23 13:24	03/30/23 06:49	1
M2-6:2 FTS	137		25 - 150	03/28/23 13:24	03/30/23 06:49	1
M2-8:2 FTS	99		25 - 150	03/28/23 13:24	03/30/23 06:49	1
13C3 HFPO-DA	58		25 - 150	03/28/23 13:24	03/30/23 06:49	1
13C2 10:2 FTS	55		25 - 150	03/28/23 13:24	03/30/23 06:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	200		13	3.4	mg/L			03/27/23 18:56	1

Client Sample ID: Inf-Comp-20230320

Lab Sample ID: 320-98088-6

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	8.8		4.5	2.1	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluoropentanoic acid (PFPA)	6.7		1.8	0.44	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluorohexanoic acid (PFHxA)	8.4		1.8	0.52	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluoroheptanoic acid (PFHpA)	2.2		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluorooctanoic acid (PFOA)	6.0		1.8	0.76	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluorononanoic acid (PFNA)	0.47	J	1.8	0.24	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluorodecanoic acid (PFDA)	0.70	J I	1.8	0.28	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.98	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluorobutanesulfonic acid (PFBS)	4.3		1.8	0.18	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluoropentanesulfonic acid (PFPeS)	0.64	J	1.8	0.27	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluorohexanesulfonic acid (PFHxS)	9.6		1.8	0.51	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluorooctanesulfonic acid (PFOS)	6.3		1.8	0.48	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.33	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.87	ng/L		03/28/23 13:24	03/30/23 06:59	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: Inf-Comp-20230320

Lab Sample ID: 320-98088-6

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.88	ng/L		03/28/23 13:24	03/30/23 06:59	1
NEtFOSA	ND		1.8	0.78	ng/L		03/28/23 13:24	03/30/23 06:59	1
NMeFOSA	ND		1.8	0.39	ng/L		03/28/23 13:24	03/30/23 06:59	1
NMeFOSAA	ND		4.5	1.1	ng/L		03/28/23 13:24	03/30/23 06:59	1
NEtFOSAA	ND		4.5	1.2	ng/L		03/28/23 13:24	03/30/23 06:59	1
NMeFOSE	ND		3.6	1.3	ng/L		03/28/23 13:24	03/30/23 06:59	1
NEtFOSE	ND		1.8	0.76	ng/L		03/28/23 13:24	03/30/23 06:59	1
4:2 FTS	ND		1.8	0.21	ng/L		03/28/23 13:24	03/30/23 06:59	1
6:2 FTS	ND		4.5	2.2	ng/L		03/28/23 13:24	03/30/23 06:59	1
8:2 FTS	ND		1.8	0.41	ng/L		03/28/23 13:24	03/30/23 06:59	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		03/28/23 13:24	03/30/23 06:59	1
HFPO-DA (GenX)	ND		3.6	1.3	ng/L		03/28/23 13:24	03/30/23 06:59	1
9Cl-PF3ONS	ND		1.8	0.21	ng/L		03/28/23 13:24	03/30/23 06:59	1
11Cl-PF3OUdS	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 06:59	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	50		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C5 PFPeA	65		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C2 PFHxA	67		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C4 PFHpA	63		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C4 PFOA	66		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C5 PFNA	62		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C2 PFDA	57		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C2 PFUnA	49		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C2 PFDoA	38		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C2 PFTeDA	29		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C3 PFBS	59		25 - 150				03/28/23 13:24	03/30/23 06:59	1
18O2 PFHxS	59		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C4 PFOS	56		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C8 FOSA	47		10 - 150				03/28/23 13:24	03/30/23 06:59	1
d3-NMeFOSAA	36		25 - 150				03/28/23 13:24	03/30/23 06:59	1
d5-NEtFOSAA	45		25 - 150				03/28/23 13:24	03/30/23 06:59	1
d-N-MeFOSA-M	23		10 - 150				03/28/23 13:24	03/30/23 06:59	1
d-N-EtFOSA-M	35		10 - 150				03/28/23 13:24	03/30/23 06:59	1
d7-N-MeFOSE-M	23		10 - 150				03/28/23 13:24	03/30/23 06:59	1
d9-N-EtFOSE-M	39		10 - 150				03/28/23 13:24	03/30/23 06:59	1
M2-4:2 FTS	88		25 - 150				03/28/23 13:24	03/30/23 06:59	1
M2-6:2 FTS	138		25 - 150				03/28/23 13:24	03/30/23 06:59	1
M2-8:2 FTS	95		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C3 HFPO-DA	60		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C2 10:2 FTS	53		25 - 150				03/28/23 13:24	03/30/23 06:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	230		13	3.4	mg/L			03/27/23 18:56	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: Eff-20230321

Lab Sample ID: 320-98088-7

Date Collected: 03/21/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	9.4		4.6	2.2	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluoropentanoic acid (PFPA)	12		1.8	0.45	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorohexanoic acid (PFHxA)	21		1.8	0.53	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluoroheptanoic acid (PFHpA)	3.0		1.8	0.23	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorooctanoic acid (PFOA)	9.3		1.8	0.78	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorononanoic acid (PFNA)	0.75	J	1.8	0.25	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorodecanoic acid (PFDA)	0.99	J	1.8	0.28	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.67	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorobutanesulfonic acid (PFBS)	4.3		1.8	0.18	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluoropentanesulfonic acid (PFPeS)	0.71	J	1.8	0.27	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorohexanesulfonic acid (PFHxS)	9.6		1.8	0.52	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluoroheptanesulfonic acid (PFHpS)	0.22	J	1.8	0.17	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorooctanesulfonic acid (PFOS)	5.5		1.8	0.49	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.34	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.89	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.90	ng/L		03/28/23 13:24	03/30/23 07:09	1
NEtFOSA	ND		1.8	0.80	ng/L		03/28/23 13:24	03/30/23 07:09	1
NMeFOSA	ND		1.8	0.39	ng/L		03/28/23 13:24	03/30/23 07:09	1
NMeFOSAA	1.7	J	4.6	1.1	ng/L		03/28/23 13:24	03/30/23 07:09	1
NEtFOSAA	ND		4.6	1.2	ng/L		03/28/23 13:24	03/30/23 07:09	1
NMeFOSE	ND		3.7	1.3	ng/L		03/28/23 13:24	03/30/23 07:09	1
NEtFOSE	ND		1.8	0.78	ng/L		03/28/23 13:24	03/30/23 07:09	1
4:2 FTS	ND		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 07:09	1
6:2 FTS	3.1	J	4.6	2.3	ng/L		03/28/23 13:24	03/30/23 07:09	1
8:2 FTS	ND		1.8	0.42	ng/L		03/28/23 13:24	03/30/23 07:09	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.37	ng/L		03/28/23 13:24	03/30/23 07:09	1
HFPO-DA (GenX)	ND		3.7	1.4	ng/L		03/28/23 13:24	03/30/23 07:09	1
9CI-PF3ONS	ND		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 07:09	1
11CI-PF3OUdS	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 07:09	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	84		25 - 150				03/28/23 13:24	03/30/23 07:09	1
13C5 PFPeA	104		25 - 150				03/28/23 13:24	03/30/23 07:09	1
13C2 PFHxA	113		25 - 150				03/28/23 13:24	03/30/23 07:09	1
13C4 PFHpA	106		25 - 150				03/28/23 13:24	03/30/23 07:09	1
13C4 PFOA	107		25 - 150				03/28/23 13:24	03/30/23 07:09	1
13C5 PFNA	103		25 - 150				03/28/23 13:24	03/30/23 07:09	1
13C2 PFDA	108		25 - 150				03/28/23 13:24	03/30/23 07:09	1
13C2 PFUnA	107		25 - 150				03/28/23 13:24	03/30/23 07:09	1
13C2 PFDoA	89		25 - 150				03/28/23 13:24	03/30/23 07:09	1
13C2 PFTeDA	61		25 - 150				03/28/23 13:24	03/30/23 07:09	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: Eff-20230321

Lab Sample ID: 320-98088-7

Date Collected: 03/21/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	98		25 - 150	03/28/23 13:24	03/30/23 07:09	1
18O2 PFHxS	97		25 - 150	03/28/23 13:24	03/30/23 07:09	1
13C4 PFOS	94		25 - 150	03/28/23 13:24	03/30/23 07:09	1
13C8 FOSA	107		10 - 150	03/28/23 13:24	03/30/23 07:09	1
d3-NMeFOSAA	112		25 - 150	03/28/23 13:24	03/30/23 07:09	1
d5-NEtFOSAA	121		25 - 150	03/28/23 13:24	03/30/23 07:09	1
d-N-MeFOSA-M	89		10 - 150	03/28/23 13:24	03/30/23 07:09	1
d-N-EtFOSA-M	86		10 - 150	03/28/23 13:24	03/30/23 07:09	1
d7-N-MeFOSE-M	79		10 - 150	03/28/23 13:24	03/30/23 07:09	1
d9-N-EtFOSE-M	77		10 - 150	03/28/23 13:24	03/30/23 07:09	1
M2-4:2 FTS	143		25 - 150	03/28/23 13:24	03/30/23 07:09	1
M2-6:2 FTS	141		25 - 150	03/28/23 13:24	03/30/23 07:09	1
M2-8:2 FTS	139		25 - 150	03/28/23 13:24	03/30/23 07:09	1
13C3 HFPO-DA	95		25 - 150	03/28/23 13:24	03/30/23 07:09	1
13C2 10:2 FTS	114		25 - 150	03/28/23 13:24	03/30/23 07:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	2.0	J	4.0	1.1	mg/L			03/27/23 18:56	1

Client Sample ID: BioA-22-20230321

Lab Sample ID: 320-98088-8

Date Collected: 03/21/23 14:00

Matrix: Solid

Date Received: 03/23/23 09:40

Percent Solids: 23.2

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1.9		0.84	0.19	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluoropentanoic acid (PFPA)	3.9		0.84	0.17	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluorohexanoic acid (PFHxA)	10		0.84	0.13	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluoroheptanoic acid (PFHpA)	0.54	J	0.84	0.16	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluorooctanoic acid (PFOA)	6.1		0.84	0.22	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluorononanoic acid (PFNA)	0.83	J	0.84	0.093	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluorodecanoic acid (PFDA)	9.8		0.84	0.20	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluoroundecanoic acid (PFUnA)	1.8		0.84	0.18	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluorododecanoic acid (PFDoA)	3.1		0.84	0.13	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluorotridecanoic acid (PFTTrDA)	0.53	J	0.84	0.089	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluorotetradecanoic acid (PFTeA)	0.72	J	0.84	0.16	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluorobutanesulfonic acid (PFBS)	0.20	J	0.84	0.16	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.84	0.16	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluorohexanesulfonic acid (PFHxS)	1.5	I	0.84	0.12	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.84	0.21	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluorooctanesulfonic acid (PFOS)	11		0.84	0.18	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluorononanesulfonic acid (PFNS)	ND		0.84	0.12	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: BioA-22-20230321

Lab Sample ID: 320-98088-8

Date Collected: 03/21/23 14:00

Matrix: Solid

Date Received: 03/23/23 09:40

Percent Solids: 23.2

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanesulfonic acid (PFDS)	ND		0.84	0.22	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.84	0.20	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluorooctanesulfonamide (FOSA)	1.3		0.84	0.14	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
NEtFOSA	ND		0.84	0.20	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
NMeFOSA	ND		0.84	0.21	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
NMeFOSAA	21		0.84	0.097	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
NEtFOSAA	7.9		0.84	0.20	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
NMeFOSE	17		0.84	0.20	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
NEtFOSE	3.3		0.84	0.12	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
4:2 FTS	ND		0.84	0.22	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
6:2 FTS	0.49	J	0.84	0.11	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
8:2 FTS	0.86		0.84	0.15	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.84	0.16	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
HFPO-DA (GenX)	ND		0.84	0.17	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
9Cl-PF3ONS	ND		0.84	0.15	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
11Cl-PF3OUdS	ND		0.84	0.13	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	33		25 - 150				03/28/23 21:34	03/30/23 17:11	1
13C5 PFPeA	77		25 - 150				03/28/23 21:34	03/30/23 17:11	1
13C2 PFHxA	78		25 - 150				03/28/23 21:34	03/30/23 17:11	1
13C4 PFHpA	81		25 - 150				03/28/23 21:34	03/30/23 17:11	1
13C4 PFOA	78		25 - 150				03/28/23 21:34	03/30/23 17:11	1
13C5 PFNA	80		25 - 150				03/28/23 21:34	03/30/23 17:11	1
13C2 PFDA	77		25 - 150				03/28/23 21:34	03/30/23 17:11	1
13C2 PFUnA	60		25 - 150				03/28/23 21:34	03/30/23 17:11	1
13C2 PFDoA	36		25 - 150				03/28/23 21:34	03/30/23 17:11	1
13C2 PFTeDA	27		25 - 150				03/28/23 21:34	03/30/23 17:11	1
13C3 PFBS	77		25 - 150				03/28/23 21:34	03/30/23 17:11	1
18O2 PFHxS	83		25 - 150				03/28/23 21:34	03/30/23 17:11	1
13C4 PFOS	75		25 - 150				03/28/23 21:34	03/30/23 17:11	1
13C8 FOSA	63		10 - 150				03/28/23 21:34	03/30/23 17:11	1
d3-NMeFOSAA	60		25 - 150				03/28/23 21:34	03/30/23 17:11	1
d5-NEtFOSAA	55		25 - 150				03/28/23 21:34	03/30/23 17:11	1
d-N-MeFOSA-M	21		10 - 150				03/28/23 21:34	03/30/23 17:11	1
d-N-EtFOSA-M	11		10 - 150				03/28/23 21:34	03/30/23 17:11	1
d7-N-MeFOSE-M	22		10 - 150				03/28/23 21:34	03/30/23 17:11	1
d9-N-EtFOSE-M	11		10 - 150				03/28/23 21:34	03/30/23 17:11	1
M2-4:2 FTS	125		25 - 150				03/28/23 21:34	03/30/23 17:11	1
M2-6:2 FTS	163	*5+	25 - 150				03/28/23 21:34	03/30/23 17:11	1
M2-8:2 FTS	168	*5+	25 - 150				03/28/23 21:34	03/30/23 17:11	1
13C3 HFPO-DA	72		25 - 150				03/28/23 21:34	03/30/23 17:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	76.8		0.1	0.1	%			03/24/23 14:55	1
Percent Solids (ASTM D 2216)	23.2		0.1	0.1	%			03/24/23 14:55	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: BioB-20230321

Lab Sample ID: 320-98088-9

Date Collected: 03/21/23 14:21

Matrix: Solid

Date Received: 03/23/23 09:40

Percent Solids: 6.0

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.3	0.75	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
Perfluoropentanoic acid (PFPA)	ND		3.3	0.67	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
Perfluorohexanoic acid (PFHxA)	4.5	I	3.3	0.50	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
Perfluoroheptanoic acid (PFHpA)	ND		3.3	0.62	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
Perfluorooctanoic acid (PFOA)	1.3	J	3.3	0.86	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
Perfluorononanoic acid (PFNA)	0.44	J	3.3	0.36	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
Perfluorodecanoic acid (PFDA)	3.1	J	3.3	0.78	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
Perfluoroundecanoic acid (PFUnA)	1.0	J	3.3	0.68	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
Perfluorododecanoic acid (PFDoA)	1.4	J	3.3	0.49	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
Perfluorotridecanoic acid (PFTTrDA)	ND		3.3	0.34	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
Perfluorotetradecanoic acid (PFTeA)	ND		3.3	0.60	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
Perfluorobutanesulfonic acid (PFBS)	ND		3.3	0.62	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.3	0.60	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
Perfluorohexanesulfonic acid (PFHxS)	ND		3.3	0.47	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.3	0.80	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
Perfluorooctanesulfonic acid (PFOS)	9.7	I	3.3	0.70	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
Perfluorononanesulfonic acid (PFNS)	ND		3.3	0.47	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
Perfluorodecanesulfonic acid (PFDS)	0.87	J	3.3	0.85	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.3	0.77	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
Perfluorooctanesulfonamide (FOSA)	0.84	J	3.3	0.54	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
NEtFOSA	ND		3.3	0.77	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
NMeFOSA	ND		3.3	0.80	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
NMeFOSAA	11		3.3	0.37	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
NEtFOSAA	4.8		3.3	0.78	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
NMeFOSE	6.2		3.3	0.77	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
NEtFOSE	1.8	J	3.3	0.46	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
4:2 FTS	ND		3.3	0.83	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
6:2 FTS	1.3	J	3.3	0.44	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
8:2 FTS	0.83	J	3.3	0.57	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.3	0.63	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
HFPO-DA (GenX)	ND		3.3	0.67	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
9Cl-PF3ONS	ND		3.3	0.57	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1
11Cl-PF3OUdS	ND		3.3	0.50	ug/Kg	☼	03/28/23 21:34	03/31/23 18:53	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	20	*5-	25 - 150	03/28/23 21:34	03/31/23 18:53	1
13C5 PFPeA	60		25 - 150	03/28/23 21:34	03/31/23 18:53	1
13C2 PFHxA	84		25 - 150	03/28/23 21:34	03/31/23 18:53	1
13C4 PFHpA	97		25 - 150	03/28/23 21:34	03/31/23 18:53	1
13C4 PFOA	89		25 - 150	03/28/23 21:34	03/31/23 18:53	1
13C5 PFNA	99		25 - 150	03/28/23 21:34	03/31/23 18:53	1
13C2 PFDA	96		25 - 150	03/28/23 21:34	03/31/23 18:53	1
13C2 PFUnA	96		25 - 150	03/28/23 21:34	03/31/23 18:53	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: BioB-20230321

Lab Sample ID: 320-98088-9

Date Collected: 03/21/23 14:21

Matrix: Solid

Date Received: 03/23/23 09:40

Percent Solids: 6.0

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDoA	58		25 - 150	03/28/23 21:34	03/31/23 18:53	1
13C2 PFTeDA	29		25 - 150	03/28/23 21:34	03/31/23 18:53	1
13C3 PFBS	62		25 - 150	03/28/23 21:34	03/31/23 18:53	1
18O2 PFHxS	86		25 - 150	03/28/23 21:34	03/31/23 18:53	1
13C4 PFOS	95		25 - 150	03/28/23 21:34	03/31/23 18:53	1
13C8 FOSA	105		10 - 150	03/28/23 21:34	03/31/23 18:53	1
d3-NMeFOSAA	72		25 - 150	03/28/23 21:34	03/31/23 18:53	1
d5-NEtFOSAA	84		25 - 150	03/28/23 21:34	03/31/23 18:53	1
d-N-MeFOSA-M	58		10 - 150	03/28/23 21:34	03/31/23 18:53	1
d-N-EtFOSA-M	57		10 - 150	03/28/23 21:34	03/31/23 18:53	1
d7-N-MeFOSE-M	32		10 - 150	03/28/23 21:34	03/31/23 18:53	1
d9-N-EtFOSE-M	33		10 - 150	03/28/23 21:34	03/31/23 18:53	1
M2-4:2 FTS	82		25 - 150	03/28/23 21:34	03/31/23 18:53	1
M2-6:2 FTS	134		25 - 150	03/28/23 21:34	03/31/23 18:53	1
M2-8:2 FTS	93		25 - 150	03/28/23 21:34	03/31/23 18:53	1
13C3 HFPO-DA	94		25 - 150	03/28/23 21:34	03/31/23 18:53	1
13C2 10:2 FTS	106		25 - 150	03/28/23 21:34	03/31/23 18:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	94.0		0.1	0.1	%			03/24/23 14:55	1
Percent Solids (ASTM D 2216)	6.0		0.1	0.1	%			03/24/23 14:55	1

Client Sample ID: EB01-20230321

Lab Sample ID: 320-98088-10

Date Collected: 03/21/23 13:40

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.6	2.2	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluoropentanoic acid (PFPA)	ND		1.8	0.45	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.53	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.23	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.78	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.25	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.8	1.2	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.67	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.8	0.27	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.52	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.49	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.34	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.89	ng/L		03/28/23 13:24	03/30/23 07:19	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: EB01-20230321

Lab Sample ID: 320-98088-10

Date Collected: 03/21/23 13:40

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.90	ng/L		03/28/23 13:24	03/30/23 07:19	1
NEtFOSA	ND		1.8	0.80	ng/L		03/28/23 13:24	03/30/23 07:19	1
NMeFOSA	ND		1.8	0.39	ng/L		03/28/23 13:24	03/30/23 07:19	1
NMeFOSAA	ND		4.6	1.1	ng/L		03/28/23 13:24	03/30/23 07:19	1
NEtFOSAA	ND		4.6	1.2	ng/L		03/28/23 13:24	03/30/23 07:19	1
NMeFOSE	ND		3.7	1.3	ng/L		03/28/23 13:24	03/30/23 07:19	1
NEtFOSE	ND		1.8	0.78	ng/L		03/28/23 13:24	03/30/23 07:19	1
4:2 FTS	ND		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 07:19	1
6:2 FTS	ND		4.6	2.3	ng/L		03/28/23 13:24	03/30/23 07:19	1
8:2 FTS	ND		1.8	0.42	ng/L		03/28/23 13:24	03/30/23 07:19	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.37	ng/L		03/28/23 13:24	03/30/23 07:19	1
HFPO-DA (GenX)	ND		3.7	1.4	ng/L		03/28/23 13:24	03/30/23 07:19	1
9Cl-PF3ONS	ND		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 07:19	1
11Cl-PF3OUdS	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 07:19	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFBA	101		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C5 PFPeA	107		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C2 PFHxA	105		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C4 PFHpA	103		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C4 PFOA	101		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C5 PFNA	99		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C2 PFDA	107		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C2 PFUnA	107		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C2 PFDoA	97		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C2 PFTeDA	92		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C3 PFBS	96		25 - 150				03/28/23 13:24	03/30/23 07:19	1
18O2 PFHxS	98		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C4 PFOS	97		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C8 FOSA	106		10 - 150				03/28/23 13:24	03/30/23 07:19	1
d3-NMeFOSAA	112		25 - 150				03/28/23 13:24	03/30/23 07:19	1
d5-NEtFOSAA	116		25 - 150				03/28/23 13:24	03/30/23 07:19	1
d-N-MeFOSA-M	94		10 - 150				03/28/23 13:24	03/30/23 07:19	1
d-N-EtFOSA-M	92		10 - 150				03/28/23 13:24	03/30/23 07:19	1
d7-N-MeFOSE-M	89		10 - 150				03/28/23 13:24	03/30/23 07:19	1
d9-N-EtFOSE-M	94		10 - 150				03/28/23 13:24	03/30/23 07:19	1
M2-4:2 FTS	110		25 - 150				03/28/23 13:24	03/30/23 07:19	1
M2-6:2 FTS	109		25 - 150				03/28/23 13:24	03/30/23 07:19	1
M2-8:2 FTS	130		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C3 HFPO-DA	97		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C2 10:2 FTS	115		25 - 150				03/28/23 13:24	03/30/23 07:19	1

Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-2

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Solid

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-98088-8	BioA-22-20230321	33	77	78	81	78	80	77	60
320-98088-9	BioB-20230321	20 *5-	60	84	97	89	99	96	96
LCS 320-663933/2-A	Lab Control Sample	69	95	94	93	85	89	89	94
MB 320-663933/1-A	Method Blank	74	94	97	91	81	93	99	95

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
320-98088-8	BioA-22-20230321	36	27	77	83	75	63	60	55
320-98088-9	BioB-20230321	58	29	62	86	95	105	72	84
LCS 320-663933/2-A	Lab Control Sample	99	90	96	84	94	94	100	101
MB 320-663933/1-A	Method Blank	102	82	94	86	94	96	103	109

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	dMeFOSA (10-150)	dEtFOSA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	HFPODA (25-150)
320-98088-8	BioA-22-20230321	21	11	22	11	125	163 *5+	168 *5+	72
320-98088-9	BioB-20230321	58	57	32	33	82	134	93	94
LCS 320-663933/2-A	Lab Control Sample	102	93	102	97	92	81	109	94
MB 320-663933/1-A	Method Blank	103	97	97	96	90	86	122	95

		M102FTS (25-150)
Lab Sample ID	Client Sample ID	
320-98088-8	BioA-22-20230321	
320-98088-9	BioB-20230321	106
LCS 320-663933/2-A	Lab Control Sample	
MB 320-663933/1-A	Method Blank	

Surrogate Legend

- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- C4PFHA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDoA = 13C2 PFDoA
- PFTDA = 13C2 PFTeDA
- C3PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- PFOSA = 13C8 FOSA
- d3NMFOS = d3-NMeFOSAA
- d5NEFOS = d5-NEtFOSAA
- dMeFOSA = d-N-MeFOSA-M
- dEtFOSA = d-N-EtFOSA-M
- NMFM = d7-N-MeFOSE-M
- NEFM = d9-N-EtFOSE-M
- M242FTS = M2-4:2 FTS
- M262FTS = M2-6:2 FTS

Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District

Job ID: 320-98088-2

Project/Site: MMSD PFAS

M282FTS = M2-8:2 FTS

HFPODA = 13C3 HFPO-DA

M102FTS = 13C2 10:2 FTS

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-98088-1	Inf-02-20230320	52	68	72	67	70	66	60	52
320-98088-2	Inf-07-20230320	54	70	72	67	67	64	60	53
320-98088-3	Inf-08-20230320	55	72	78	71	73	69	62	53
320-98088-4	Inf-11-20230320	52	67	70	67	69	63	54	46
320-98088-5	Inf-18-20230320	54	65	65	63	67	61	57	50
320-98088-6	Inf-Comp-20230320	50	65	67	63	66	62	57	49
320-98088-7	Eff-20230321	84	104	113	106	107	103	108	107
320-98088-10	EB01-20230321	101	107	105	103	101	99	107	107
LCS 320-663884/2-A	Lab Control Sample	98	101	92	97	95	90	96	93
MB 320-663884/1-A	Method Blank	93	94	92	93	94	92	95	94

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
320-98088-1	Inf-02-20230320	42	34	64	65	59	51	43	45
320-98088-2	Inf-07-20230320	40	30	63	59	55	54	44	48
320-98088-3	Inf-08-20230320	41	28	67	63	58	57	44	49
320-98088-4	Inf-11-20230320	35	24 *5-	64	62	58	44	28	37
320-98088-5	Inf-18-20230320	39	30	59	58	54	47	38	46
320-98088-6	Inf-Comp-20230320	38	29	59	59	56	47	36	45
320-98088-7	Eff-20230321	89	61	98	97	94	107	112	121
320-98088-10	EB01-20230321	97	92	96	98	97	106	112	116
LCS 320-663884/2-A	Lab Control Sample	90	85	91	89	89	88	92	101
MB 320-663884/1-A	Method Blank	89	83	85	86	90	91	96	100

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	dMeFOSA (10-150)	dEtFOSA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	HFPODA (25-150)
320-98088-1	Inf-02-20230320	24	40	24	40	93	148	105	64
320-98088-2	Inf-07-20230320	25	38	26	41	93	134	94	57
320-98088-3	Inf-08-20230320	25	40	26	43	110	147	105	65
320-98088-4	Inf-11-20230320	23	30	22	32	112	141	93	61
320-98088-5	Inf-18-20230320	23	34	22	38	77	137	99	58
320-98088-6	Inf-Comp-20230320	23	35	23	39	88	138	95	60
320-98088-7	Eff-20230321	89	86	79	77	143	141	139	95
320-98088-10	EB01-20230321	94	92	89	94	110	109	130	97
LCS 320-663884/2-A	Lab Control Sample	74	71	80	76	101	98	100	88
MB 320-663884/1-A	Method Blank	80	76	83	84	98	93	96	90

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M102FTS (25-150)
320-98088-1	Inf-02-20230320	59
320-98088-2	Inf-07-20230320	59
320-98088-3	Inf-08-20230320	57
320-98088-4	Inf-11-20230320	50
320-98088-5	Inf-18-20230320	55
320-98088-6	Inf-Comp-20230320	53
320-98088-7	Eff-20230321	114

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Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M102FTS (25-150)
320-98088-10	EB01-20230321	115
LCS 320-663884/2-A	Lab Control Sample	97
MB 320-663884/1-A	Method Blank	98

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDaA = 13C2 PFDaA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFOSA = 13C8 FOSA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
dMeFOSA = d-N-MeFOSA-M
dEtFOSA = d-N-EtFOSA-M
NMFm = d7-N-MeFOSE-M
NEFm = d9-N-EtFOSE-M
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
HFPODA = 13C3 HFPO-DA
M102FTS = 13C2 10:2 FTS

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-2

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-663884/1-A

Matrix: Water

Analysis Batch: 664126

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 663884

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		03/28/23 13:24	03/29/23 13:54	1
Perfluoropentanoic acid (PFPA)	ND		2.0	0.49	ng/L		03/28/23 13:24	03/29/23 13:54	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		03/28/23 13:24	03/29/23 13:54	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		03/28/23 13:24	03/29/23 13:54	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		03/28/23 13:24	03/29/23 13:54	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		03/28/23 13:24	03/29/23 13:54	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		03/28/23 13:24	03/29/23 13:54	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		03/28/23 13:24	03/29/23 13:54	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		03/28/23 13:24	03/29/23 13:54	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		03/28/23 13:24	03/29/23 13:54	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		03/28/23 13:24	03/29/23 13:54	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		03/28/23 13:24	03/29/23 13:54	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.30	ng/L		03/28/23 13:24	03/29/23 13:54	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		03/28/23 13:24	03/29/23 13:54	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.19	ng/L		03/28/23 13:24	03/29/23 13:54	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		03/28/23 13:24	03/29/23 13:54	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.37	ng/L		03/28/23 13:24	03/29/23 13:54	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		03/28/23 13:24	03/29/23 13:54	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.97	ng/L		03/28/23 13:24	03/29/23 13:54	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		03/28/23 13:24	03/29/23 13:54	1
NEtFOSA	ND		2.0	0.87	ng/L		03/28/23 13:24	03/29/23 13:54	1
NMeFOSA	ND		2.0	0.43	ng/L		03/28/23 13:24	03/29/23 13:54	1
NMeFOSAA	ND		5.0	1.2	ng/L		03/28/23 13:24	03/29/23 13:54	1
NEtFOSAA	ND		5.0	1.3	ng/L		03/28/23 13:24	03/29/23 13:54	1
NMeFOSE	ND		4.0	1.4	ng/L		03/28/23 13:24	03/29/23 13:54	1
NEtFOSE	ND		2.0	0.85	ng/L		03/28/23 13:24	03/29/23 13:54	1
4:2 FTS	ND		2.0	0.24	ng/L		03/28/23 13:24	03/29/23 13:54	1
6:2 FTS	ND		5.0	2.5	ng/L		03/28/23 13:24	03/29/23 13:54	1
8:2 FTS	ND		2.0	0.46	ng/L		03/28/23 13:24	03/29/23 13:54	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.40	ng/L		03/28/23 13:24	03/29/23 13:54	1
HFPO-DA (GenX)	ND		4.0	1.5	ng/L		03/28/23 13:24	03/29/23 13:54	1
9Cl-PF3ONS	ND		2.0	0.24	ng/L		03/28/23 13:24	03/29/23 13:54	1
11Cl-PF3OUdS	ND		2.0	0.32	ng/L		03/28/23 13:24	03/29/23 13:54	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	93		25 - 150	03/28/23 13:24	03/29/23 13:54	1
13C5 PFPeA	94		25 - 150	03/28/23 13:24	03/29/23 13:54	1
13C2 PFHxA	92		25 - 150	03/28/23 13:24	03/29/23 13:54	1
13C4 PFHpA	93		25 - 150	03/28/23 13:24	03/29/23 13:54	1
13C4 PFOA	94		25 - 150	03/28/23 13:24	03/29/23 13:54	1
13C5 PFNA	92		25 - 150	03/28/23 13:24	03/29/23 13:54	1
13C2 PFDA	95		25 - 150	03/28/23 13:24	03/29/23 13:54	1
13C2 PFUnA	94		25 - 150	03/28/23 13:24	03/29/23 13:54	1
13C2 PFDoA	89		25 - 150	03/28/23 13:24	03/29/23 13:54	1
13C2 PFTeDA	83		25 - 150	03/28/23 13:24	03/29/23 13:54	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-663884/1-A
Matrix: Water
Analysis Batch: 664126

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 663884

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 PFBS	85		25 - 150	03/28/23 13:24	03/29/23 13:54	1
18O2 PFHxS	86		25 - 150	03/28/23 13:24	03/29/23 13:54	1
13C4 PFOS	90		25 - 150	03/28/23 13:24	03/29/23 13:54	1
13C8 FOSA	91		10 - 150	03/28/23 13:24	03/29/23 13:54	1
d3-NMeFOSAA	96		25 - 150	03/28/23 13:24	03/29/23 13:54	1
d5-NEtFOSAA	100		25 - 150	03/28/23 13:24	03/29/23 13:54	1
d-N-MeFOSA-M	80		10 - 150	03/28/23 13:24	03/29/23 13:54	1
d-N-EtFOSA-M	76		10 - 150	03/28/23 13:24	03/29/23 13:54	1
d7-N-MeFOSE-M	83		10 - 150	03/28/23 13:24	03/29/23 13:54	1
d9-N-EtFOSE-M	84		10 - 150	03/28/23 13:24	03/29/23 13:54	1
M2-4:2 FTS	98		25 - 150	03/28/23 13:24	03/29/23 13:54	1
M2-6:2 FTS	93		25 - 150	03/28/23 13:24	03/29/23 13:54	1
M2-8:2 FTS	96		25 - 150	03/28/23 13:24	03/29/23 13:54	1
13C3 HFPO-DA	90		25 - 150	03/28/23 13:24	03/29/23 13:54	1
13C2 10:2 FTS	98		25 - 150	03/28/23 13:24	03/29/23 13:54	1

Lab Sample ID: LCS 320-663884/2-A
Matrix: Water
Analysis Batch: 664126

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 663884

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	40.0	44.3		ng/L		111	60 - 135
Perfluoropentanoic acid (PFPA)	40.0	42.5		ng/L		106	60 - 135
Perfluorohexanoic acid (PFHxA)	40.0	44.8		ng/L		112	60 - 135
Perfluoroheptanoic acid (PFHpA)	40.0	48.1		ng/L		120	60 - 135
Perfluorooctanoic acid (PFOA)	40.0	47.6		ng/L		119	60 - 135
Perfluorononanoic acid (PFNA)	40.0	46.5		ng/L		116	60 - 135
Perfluorodecanoic acid (PFDA)	40.0	48.8		ng/L		122	60 - 135
Perfluoroundecanoic acid (PFUnA)	40.0	46.9		ng/L		117	60 - 135
Perfluorododecanoic acid (PFDoA)	40.0	46.0		ng/L		115	60 - 135
Perfluorotridecanoic acid (PFTrDA)	40.0	43.9		ng/L		110	60 - 135
Perfluorotetradecanoic acid (PFTeA)	40.0	45.6		ng/L		114	60 - 135
Perfluorobutanesulfonic acid (PFBS)	35.5	43.9		ng/L		123	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	37.6	46.6		ng/L		124	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	36.5	40.0		ng/L		110	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	38.2	45.9		ng/L		120	60 - 135
Perfluorooctanesulfonic acid (PFOS)	37.2	40.9		ng/L		110	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.5	41.6		ng/L		108	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	47.4		ng/L		123	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.8	41.2		ng/L		106	60 - 135

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-663884/2-A
Matrix: Water
Analysis Batch: 664126

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 663884

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	40.0	48.0		ng/L		120	60 - 135
NEtFOSA	40.0	47.4		ng/L		119	60 - 135
NMeFOSA	40.0	45.9		ng/L		115	60 - 135
NMeFOSAA	40.0	47.1		ng/L		118	60 - 135
NEtFOSAA	40.0	46.1		ng/L		115	60 - 135
NMeFOSE	40.0	46.3		ng/L		116	60 - 135
NEtFOSE	40.0	50.7		ng/L		127	60 - 135
4:2 FTS	37.5	47.9		ng/L		128	60 - 135
6:2 FTS	38.1	47.7		ng/L		125	60 - 135
8:2 FTS	38.4	44.4		ng/L		116	60 - 135
4,8-Dioxa-3H-perfluoronanoic acid (ADONA)	37.8	51.1		ng/L		135	60 - 135
HFPO-DA (GenX)	40.0	48.0		ng/L		120	60 - 135
9Cl-PF3ONS	37.4	43.7		ng/L		117	60 - 135
11Cl-PF3OUdS	37.8	42.7		ng/L		113	60 - 135

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	98		25 - 150
13C5 PFPeA	101		25 - 150
13C2 PFHxA	92		25 - 150
13C4 PFHpA	97		25 - 150
13C4 PFOA	95		25 - 150
13C5 PFNA	90		25 - 150
13C2 PFDA	96		25 - 150
13C2 PFUnA	93		25 - 150
13C2 PFDoA	90		25 - 150
13C2 PFTeDA	85		25 - 150
13C3 PFBS	91		25 - 150
18O2 PFHxS	89		25 - 150
13C4 PFOS	89		25 - 150
13C8 FOSA	88		10 - 150
d3-NMeFOSAA	92		25 - 150
d5-NEtFOSAA	101		25 - 150
d-N-MeFOSA-M	74		10 - 150
d-N-EtFOSA-M	71		10 - 150
d7-N-MeFOSE-M	80		10 - 150
d9-N-EtFOSE-M	76		10 - 150
M2-4:2 FTS	101		25 - 150
M2-6:2 FTS	98		25 - 150
M2-8:2 FTS	100		25 - 150
13C3 HFPO-DA	88		25 - 150
13C2 10:2 FTS	97		25 - 150

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-663933/1-A
Matrix: Solid
Analysis Batch: 664927

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 663933

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.20	0.046	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
Perfluoropentanoic acid (PFPA)	ND		0.20	0.041	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.031	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.038	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.053	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.022	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.048	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.042	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.030	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.20	0.021	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.037	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.038	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.20	0.037	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.029	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.20	0.049	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.20	0.043	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
Perfluorononanesulfonic acid (PFNS)	ND		0.20	0.029	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.20	0.052	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.20	0.047	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
Perfluorooctanesulfonamide (FOSA)	ND		0.20	0.033	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
NEtFOSA	ND		0.20	0.047	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
NMeFOSA	ND		0.20	0.049	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
NMeFOSAA	ND		0.20	0.023	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
NEtFOSAA	ND		0.20	0.048	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
NMeFOSE	ND		0.20	0.047	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
NEtFOSE	ND		0.20	0.028	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
4:2 FTS	ND		0.20	0.051	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
6:2 FTS	ND		0.20	0.027	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
8:2 FTS	ND		0.20	0.035	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.039	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
HFPO-DA (GenX)	ND		0.20	0.041	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
9Cl-PF3ONS	ND		0.20	0.035	ug/Kg		03/28/23 21:34	03/31/23 18:22	1
11Cl-PF3OUdS	ND		0.20	0.031	ug/Kg		03/28/23 21:34	03/31/23 18:22	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	74		25 - 150	03/28/23 21:34	03/31/23 18:22	1
13C5 PFPeA	94		25 - 150	03/28/23 21:34	03/31/23 18:22	1
13C2 PFHxA	97		25 - 150	03/28/23 21:34	03/31/23 18:22	1
13C4 PFHpA	91		25 - 150	03/28/23 21:34	03/31/23 18:22	1
13C4 PFOA	81		25 - 150	03/28/23 21:34	03/31/23 18:22	1
13C5 PFNA	93		25 - 150	03/28/23 21:34	03/31/23 18:22	1
13C2 PFDA	99		25 - 150	03/28/23 21:34	03/31/23 18:22	1
13C2 PFUnA	95		25 - 150	03/28/23 21:34	03/31/23 18:22	1
13C2 PFDoA	102		25 - 150	03/28/23 21:34	03/31/23 18:22	1
13C2 PFTeDA	82		25 - 150	03/28/23 21:34	03/31/23 18:22	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-663933/1-A
Matrix: Solid
Analysis Batch: 664927

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 663933

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 PFBS	94		25 - 150	03/28/23 21:34	03/31/23 18:22	1
18O2 PFHxS	86		25 - 150	03/28/23 21:34	03/31/23 18:22	1
13C4 PFOS	94		25 - 150	03/28/23 21:34	03/31/23 18:22	1
13C8 FOSA	96		10 - 150	03/28/23 21:34	03/31/23 18:22	1
d3-NMeFOSAA	103		25 - 150	03/28/23 21:34	03/31/23 18:22	1
d5-NEtFOSAA	109		25 - 150	03/28/23 21:34	03/31/23 18:22	1
d-N-MeFOSA-M	103		10 - 150	03/28/23 21:34	03/31/23 18:22	1
d-N-EtFOSA-M	97		10 - 150	03/28/23 21:34	03/31/23 18:22	1
d7-N-MeFOSE-M	97		10 - 150	03/28/23 21:34	03/31/23 18:22	1
d9-N-EtFOSE-M	96		10 - 150	03/28/23 21:34	03/31/23 18:22	1
M2-4:2 FTS	90		25 - 150	03/28/23 21:34	03/31/23 18:22	1
M2-6:2 FTS	86		25 - 150	03/28/23 21:34	03/31/23 18:22	1
M2-8:2 FTS	122		25 - 150	03/28/23 21:34	03/31/23 18:22	1
13C3 HFPO-DA	95		25 - 150	03/28/23 21:34	03/31/23 18:22	1

Lab Sample ID: LCS 320-663933/2-A
Matrix: Solid
Analysis Batch: 664927

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 663933

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	2.00	2.07		ug/Kg		103	60 - 135
Perfluoropentanoic acid (PFPA)	2.00	1.96		ug/Kg		98	60 - 135
Perfluorohexanoic acid (PFHxA)	2.00	1.91		ug/Kg		96	60 - 135
Perfluoroheptanoic acid (PFHpA)	2.00	2.07		ug/Kg		103	60 - 135
Perfluorooctanoic acid (PFOA)	2.00	2.17		ug/Kg		108	60 - 135
Perfluorononanoic acid (PFNA)	2.00	2.14		ug/Kg		107	60 - 135
Perfluorodecanoic acid (PFDA)	2.00	2.19		ug/Kg		110	60 - 135
Perfluoroundecanoic acid (PFUnA)	2.00	2.06		ug/Kg		103	60 - 135
Perfluorododecanoic acid (PFDoA)	2.00	2.00		ug/Kg		100	60 - 135
Perfluorotridecanoic acid (PFTrDA)	2.00	1.75		ug/Kg		87	60 - 135
Perfluorotetradecanoic acid (PFTeA)	2.00	1.85		ug/Kg		93	60 - 135
Perfluorobutanesulfonic acid (PFBS)	1.78	1.70		ug/Kg		96	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	1.88	1.63		ug/Kg		87	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.91		ug/Kg		104	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	1.91	1.73		ug/Kg		91	60 - 135
Perfluorooctanesulfonic acid (PFOS)	1.86	1.77		ug/Kg		95	60 - 135
Perfluorononanesulfonic acid (PFNS)	1.92	1.94		ug/Kg		101	60 - 135
Perfluorodecanesulfonic acid (PFDS)	1.93	2.06		ug/Kg		107	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	1.94	1.91		ug/Kg		99	60 - 135

Eurofins Sacramento

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-663933/2-A
Matrix: Solid
Analysis Batch: 664927

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 663933

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	2.00	2.09		ug/Kg		105	60 - 135
NEtFOSA	2.00	2.02		ug/Kg		101	60 - 135
NMeFOSA	2.00	1.89		ug/Kg		95	60 - 135
NMeFOSAA	2.00	2.07		ug/Kg		103	60 - 135
NEtFOSAA	2.00	1.87		ug/Kg		94	60 - 135
NMeFOSE	2.00	1.88		ug/Kg		94	60 - 135
NEtFOSE	2.00	2.01		ug/Kg		100	60 - 135
4:2 FTS	1.88	1.97		ug/Kg		105	60 - 135
6:2 FTS	1.90	2.24		ug/Kg		118	60 - 135
8:2 FTS	1.92	1.95		ug/Kg		102	60 - 135
4,8-Dioxa-3H-perfluoronanoic acid (ADONA)	1.89	1.93		ug/Kg		102	60 - 135
HFPO-DA (GenX)	2.00	1.96		ug/Kg		98	60 - 135
9Cl-PF3ONS	1.87	2.11		ug/Kg		113	60 - 135
11Cl-PF3OUdS	1.89	1.99		ug/Kg		105	60 - 135

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	69		25 - 150
13C5 PFPeA	95		25 - 150
13C2 PFHxA	94		25 - 150
13C4 PFHpA	93		25 - 150
13C4 PFOA	85		25 - 150
13C5 PFNA	89		25 - 150
13C2 PFDA	89		25 - 150
13C2 PFUnA	94		25 - 150
13C2 PFDoA	99		25 - 150
13C2 PFTeDA	90		25 - 150
13C3 PFBS	96		25 - 150
18O2 PFHxS	84		25 - 150
13C4 PFOS	94		25 - 150
13C8 FOSA	94		10 - 150
d3-NMeFOSAA	100		25 - 150
d5-NEtFOSAA	101		25 - 150
d-N-MeFOSA-M	102		10 - 150
d-N-EtFOSA-M	93		10 - 150
d7-N-MeFOSE-M	102		10 - 150
d9-N-EtFOSE-M	97		10 - 150
M2-4:2 FTS	92		25 - 150
M2-6:2 FTS	81		25 - 150
M2-8:2 FTS	109		25 - 150
13C3 HFPO-DA	94		25 - 150

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-2

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-606588/2
Matrix: Water
Analysis Batch: 606588

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			03/27/23 18:56	1

Lab Sample ID: LCS 280-606588/1
Matrix: Water
Analysis Batch: 606588

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	500	450		mg/L		90	79 - 114

Lab Sample ID: 320-98088-7 DU
Matrix: Water
Analysis Batch: 606588

Client Sample ID: Eff-20230321
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	2.0	J	2.00	J	mg/L		NC	10

QC Association Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

LCMS

Prep Batch: 663884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98088-1	Inf-02-20230320	Total/NA	Water	3535	
320-98088-2	Inf-07-20230320	Total/NA	Water	3535	
320-98088-3	Inf-08-20230320	Total/NA	Water	3535	
320-98088-4	Inf-11-20230320	Total/NA	Water	3535	
320-98088-5	Inf-18-20230320	Total/NA	Water	3535	
320-98088-6	Inf-Comp-20230320	Total/NA	Water	3535	
320-98088-7	Eff-20230321	Total/NA	Water	3535	
320-98088-10	EB01-20230321	Total/NA	Water	3535	
MB 320-663884/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-663884/2-A	Lab Control Sample	Total/NA	Water	3535	

Prep Batch: 663933

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98088-8	BioA-22-20230321	Total/NA	Solid	SHAKE	
320-98088-9	BioB-20230321	Total/NA	Solid	SHAKE	
MB 320-663933/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-663933/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Analysis Batch: 664126

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-663884/1-A	Method Blank	Total/NA	Water	537 (modified)	663884
LCS 320-663884/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	663884

Analysis Batch: 664170

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98088-1	Inf-02-20230320	Total/NA	Water	537 (modified)	663884
320-98088-2	Inf-07-20230320	Total/NA	Water	537 (modified)	663884
320-98088-3	Inf-08-20230320	Total/NA	Water	537 (modified)	663884
320-98088-4	Inf-11-20230320	Total/NA	Water	537 (modified)	663884
320-98088-5	Inf-18-20230320	Total/NA	Water	537 (modified)	663884
320-98088-6	Inf-Comp-20230320	Total/NA	Water	537 (modified)	663884
320-98088-7	Eff-20230321	Total/NA	Water	537 (modified)	663884
320-98088-10	EB01-20230321	Total/NA	Water	537 (modified)	663884

Analysis Batch: 664413

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98088-8	BioA-22-20230321	Total/NA	Solid	537 (modified)	663933

Analysis Batch: 664927

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98088-9	BioB-20230321	Total/NA	Solid	537 (modified)	663933
MB 320-663933/1-A	Method Blank	Total/NA	Solid	537 (modified)	663933
LCS 320-663933/2-A	Lab Control Sample	Total/NA	Solid	537 (modified)	663933

General Chemistry

Analysis Batch: 606588

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98088-1	Inf-02-20230320	Total/NA	Water	SM 2540D	
320-98088-2	Inf-07-20230320	Total/NA	Water	SM 2540D	
320-98088-3	Inf-08-20230320	Total/NA	Water	SM 2540D	

Eurofins Sacramento

QC Association Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

General Chemistry (Continued)

Analysis Batch: 606588 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98088-4	Inf-11-20230320	Total/NA	Water	SM 2540D	
320-98088-5	Inf-18-20230320	Total/NA	Water	SM 2540D	
320-98088-6	Inf-Comp-20230320	Total/NA	Water	SM 2540D	
320-98088-7	Eff-20230321	Total/NA	Water	SM 2540D	
MB 280-606588/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-606588/1	Lab Control Sample	Total/NA	Water	SM 2540D	
320-98088-7 DU	Eff-20230321	Total/NA	Water	SM 2540D	

Analysis Batch: 663403

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98088-8	BioA-22-20230321	Total/NA	Solid	D 2216	
320-98088-9	BioB-20230321	Total/NA	Solid	D 2216	

Lab Chronicle

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: Inf-02-20230320

Lab Sample ID: 320-98088-1

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			274.3 mL	10.0 mL	663884	03/28/23 13:24	SEY	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	664170	03/30/23 06:08	S1M	EET SAC
Total/NA	Analysis	SM 2540D		1	80 mL	250 mL	606588	03/27/23 18:56	MCR	EET DEN

Client Sample ID: Inf-07-20230320

Lab Sample ID: 320-98088-2

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			277 mL	10.0 mL	663884	03/28/23 13:24	SEY	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	664170	03/30/23 06:19	S1M	EET SAC
Total/NA	Analysis	SM 2540D		1	80 mL	250 mL	606588	03/27/23 18:56	MCR	EET DEN

Client Sample ID: Inf-08-20230320

Lab Sample ID: 320-98088-3

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			276.1 mL	10.0 mL	663884	03/28/23 13:24	SEY	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	664170	03/30/23 06:29	S1M	EET SAC
Total/NA	Analysis	SM 2540D		1	80 mL	250 mL	606588	03/27/23 18:56	MCR	EET DEN

Client Sample ID: Inf-11-20230320

Lab Sample ID: 320-98088-4

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			276 mL	10.0 mL	663884	03/28/23 13:24	SEY	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	664170	03/30/23 06:39	S1M	EET SAC
Total/NA	Analysis	SM 2540D		1	80 mL	250 mL	606588	03/27/23 18:56	MCR	EET DEN

Client Sample ID: Inf-18-20230320

Lab Sample ID: 320-98088-5

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			281.6 mL	10.0 mL	663884	03/28/23 13:24	SEY	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	664170	03/30/23 06:49	S1M	EET SAC
Total/NA	Analysis	SM 2540D		1	80 mL	250 mL	606588	03/27/23 18:56	MCR	EET DEN

Lab Chronicle

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: Inf-Comp-20230320

Lab Sample ID: 320-98088-6

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			279.2 mL	10.0 mL	663884	03/28/23 13:24	SEY	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	664170	03/30/23 06:59	S1M	EET SAC
Total/NA	Analysis	SM 2540D		1	80 mL	250 mL	606588	03/27/23 18:56	MCR	EET DEN

Client Sample ID: Eff-20230321

Lab Sample ID: 320-98088-7

Date Collected: 03/21/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			272.9 mL	10.0 mL	663884	03/28/23 13:24	SEY	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	664170	03/30/23 07:09	S1M	EET SAC
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	606588	03/27/23 18:56	MCR	EET DEN

Client Sample ID: BioA-22-20230321

Lab Sample ID: 320-98088-8

Date Collected: 03/21/23 14:00

Matrix: Solid

Date Received: 03/23/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			663403	03/24/23 14:55	TCS	EET SAC

Client Sample ID: BioA-22-20230321

Lab Sample ID: 320-98088-8

Date Collected: 03/21/23 14:00

Matrix: Solid

Date Received: 03/23/23 09:40

Percent Solids: 23.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.11 g	10.0 mL	663933	03/28/23 21:34	FX	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	664413	03/30/23 17:11	RS1	EET SAC

Client Sample ID: BioB-20230321

Lab Sample ID: 320-98088-9

Date Collected: 03/21/23 14:21

Matrix: Solid

Date Received: 03/23/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			663403	03/24/23 14:55	TCS	EET SAC

Client Sample ID: BioB-20230321

Lab Sample ID: 320-98088-9

Date Collected: 03/21/23 14:21

Matrix: Solid

Date Received: 03/23/23 09:40

Percent Solids: 6.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.13 g	10.0 mL	663933	03/28/23 21:34	FX	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	664927	03/31/23 18:53	S1M	EET SAC

Eurofins Sacramento

Lab Chronicle

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: EB01-20230321

Lab Sample ID: 320-98088-10

Date Collected: 03/21/23 13:40

Matrix: Water

Date Received: 03/23/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			273.5 mL	10.0 mL	663884	03/28/23 13:24	SEY	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	664170	03/30/23 07:19	S1M	EET SAC

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



Accreditation/Certification Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Laboratory: Eurofins Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4040	01-29-24

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
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids
Wisconsin	State	998204680	08-31-23

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
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids

Laboratory: Eurofins Denver

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999615430	08-31-23

Method Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	EET SAC
D 2216	Percent Moisture	ASTM	EET SAC
SM 2540D	Solids, Total Suspended (TSS)	SM	EET DEN
3535	Solid-Phase Extraction (SPE)	SW846	EET SAC
SHAKE	Shake Extraction with Ultrasonic Bath Extraction	SW846	EET SAC

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

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

Sample Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-98088-1	Inf-02-20230320	Water	03/20/23 23:59	03/23/23 09:40
320-98088-2	Inf-07-20230320	Water	03/20/23 23:59	03/23/23 09:40
320-98088-3	Inf-08-20230320	Water	03/20/23 23:59	03/23/23 09:40
320-98088-4	Inf-11-20230320	Water	03/20/23 23:59	03/23/23 09:40
320-98088-5	Inf-18-20230320	Water	03/20/23 23:59	03/23/23 09:40
320-98088-6	Inf-Comp-20230320	Water	03/20/23 23:59	03/23/23 09:40
320-98088-7	Eff-20230321	Water	03/21/23 23:59	03/23/23 09:40
320-98088-8	BioA-22-20230321	Solid	03/21/23 14:00	03/23/23 09:40
320-98088-9	BioB-20230321	Solid	03/21/23 14:21	03/23/23 09:40
320-98088-10	EB01-20230321	Water	03/21/23 13:40	03/23/23 09:40

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Reports to
Mike Ursin TRC
708 Heartland Trail
Madison, WI 53717
Suite 2000

Client Information
 Client Contact: Julie Maas
 Company: Madison Metro Sewerage District
 Address: 1610 Moorland Rd
 City: Madison
 State, Zip: WI 53713-3398
 Phone: 608 218-0867
 Email: juliemadsewer.org
 Project Name: MMSD PFAS
 Site: Madison Metro Sewerage District

Sampler: Jenny Faust
 Phone: 608 370-1745
 PWSID:
 Due Date Requested:
 TAT Requested (days): 14 days
 Compliance Project: Yes No
 PO #: 2200422
 WO #:
 Project #: 32021779
 SSOW#:

Analysis Requested
 State of Origin: WI
 Carrier Tracking No(s):
 State of Origin: WI
 E-Mail: marypennadsewer.org

Sample Identification

Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Preservation Code	Matrix (Water, Sludge, Overstool, B-Tissue, Hair)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Number of Containers	Special Instructions/Note:
Inf-02-20230320	3/20/23	23:59	C	WW	WW				
Inf-07-20230320			C	WW	WW				
Inf-08-20230320			C	WW	WW				
Inf-11-20230320			C	WW	WW				
Inf-18-20230320			C	WW	WW				
Inf-Comp-20230320			C	WW	WW				
EBF-20230321	3/21/23	23:59	C	WW	WW				
B10A-20230321	3/21/23	14:00	G	S	S				
B10B-20230321			G	S	S				
EB01-20230321			G	W	W				

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological
 Deliverable Requested: I, II, III, IV, Other (specify)

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/Note:
 For Influent samples please follow EPA 19-01 (w/ PFAS method expectations)
 Sec. 113 procedure for particulates in aqueous samples + certificate as needed

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 - Na2OAS
 Q - Na2SO3
 R - Na2SO4
 S - H2SO4
 T - TSP Dodecahydrate
 U - Acetone
 V - MCAA
 W - pH 4.5
 Y - Trizma
 Z - other (specify)
 Other:

Relinquished by: Jennifer Faust
 Date/Time: 3/22/23 07:00
 Company: MMSD
 Relinquished by: MMSD
 Date/Time:
 Company:
 Relinquished by:
 Date/Time:
 Company:

Custody Seal No.: 2103341
 Custody Seals Intact: Yes No
 Cooler Temperature(s) °C and Other Remarks: 0.9

2 of 2 coolers

Reports to

Eurofins Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone (916) 373-5600

Mike Ursin TRC
708 Heartland Trail Suite 2000
Madison, WI 53717

Chain of Custody Record

mursin@trc.companies.com



Environment Testing

Client Information		Lab PM:		Camer Tracking No(s):		COC No:		
Client Contact: Julie Maas		Jenny Faust		Mary Powers / Julie Maas		Page 1 of 1		
Company: Madison Metro Sewerage District		Phone: 608 370-1745		E-Mail: mays@metroadsewer.org		Job #:		
Address: 1610 Moorland Rd		PWSID:		State of Origin: WI		Total Number of Containers: X		
City: Madison		TAT Requested (days): 14 days TAT as in RFP		Analysis Requested:		Preservation Codes:		
State, Zip: WI 53713-3398		Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Field Filtered Sample (Yes or No):		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 Other:		
Phone: 608 218-0867		PO #: 2200422		Perform MS/MSD (Yes or No):		M - Hexane N - None O - ASN02 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 Y - Trizma Z - other (specify)		
Email: juliemadsewer.org		WO #: 2200422		Special Instructions/Note:				
Project Name: MMSD PFAS		Project #: 32021779						
Site: Madison Metro Sewerage District		SSOW#: 32021779						
Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Analysis Requested	Special Instructions/Note:
Inf-02 - 20230320	3/20/23	23:59	C	WW	N	X	PFAS W133	For Influent samples please follow EPA 19-001 (w/ PFAS method expectations)
Inf-07 - 20230320			C	WW		X	TSS	Sec. v13 procedure for particulates in aqueous samples + centrifuge as needed
Inf-08 - 20230320			C	WW		X		
Inf-11 - 20230320			C	WW		X		
Inf-18 - 20230320			C	WW		X		
Inf-Comp - 20230320			C	WW		X		
Eff - 20230321	3/21/23	23:59	C	WN		X		2-250 PFAS 4-125 TOPASSAY 1-1 liter TSS
BioA-22 - 20230321	3/21/23	14:00	G	S		X		
BioB - 20230321		14:21	G	S		X		
EB01-20230321		13:40	G	W		X		1 - Younce for sale

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological
 Deliverable Requested: I, II, III, IV, Other (specify)

Empty Kit Relinquished by: _____ Date: _____
 Relinquished by: *Jenny Faust* Date/Time: 3/22/23 07:00
 Relinquished by: _____ Date/Time: _____
 Relinquished by: _____ Date/Time: _____

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:

Method of Shipment: _____
 Received by: _____ Date/Time: 3/23/23 9:40
 Received by: _____ Date/Time: _____
 Received by: _____ Date/Time: _____
 Cooler Temperature(s) °C and Other Remarks: _____

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler: Smith, Micah		Carrier Tracking No(s): 320-302540.1				
Client Contact: Shipping/Receiving		Phone: E-Mail: Micah.Smith@et.eurofins.com		Page: Page 1 of 1				
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Oregon; State - Wisconsin		Job #: 320-98088-2				
Address: 4955 Yarrow Street, Arvada, CO, 80002		Due Date Requested: 4/7/2023		Preservation Codes:				
State, Zip: CO, 80002		TAT Requested (days):		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 Other:				
Phone: 303-736-0100(Tel) 303-431-7171(Fax)		PO #:		M - Hexane N - None O - AsNsO2 P - Na2OAS Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecylhydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)				
Email:		WO #:		Total Number of Containers				
Project Name: MMSD PFAS		Project #: 32021779		Special Instructions/Note:				
Site:		SSOW#:						
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=wastewater)	Field Filtered Sample (Yes or No)	Form MS/MSD (Yes or No)	2540D	Analysis Requested
Inf-02-20230320 (320-98088-1)	3/20/23	23:59 Central	Water	Water	X	X		
Inf-07-20230320 (320-98088-2)	3/20/23	23:59 Central	Water	Water	X	X		
Inf-08-20230320 (320-98088-3)	3/20/23	23:59 Central	Water	Water	X	X		
Inf-11-20230320 (320-98088-4)	3/20/23	23:59 Central	Water	Water	X	X		
Inf-18-20230320 (320-98088-5)	3/20/23	23:59 Central	Water	Water	X	X		
Inf-Comp-20230320 (320-98088-6)	3/20/23	23:59 Central	Water	Water	X	X		
Eff-20230321 (320-98088-7)	3/21/23	23:59 Central	Water	Water	X	X		

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northern California, 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/test/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northern California, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northern California, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to compliance to Eurofins Environment Testing Northern California, LLC.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 1
 Empty Kit Relinquished by: Date: Method of Shipment: Return To Client Disposal By Lab Archive For _____ Months
 Relinquished by: Date: 3-24-23 16:30 Company: EETSAC
 Relinquished by: Date: Date/Time: Received by: Date/Time: Company: EXAFEN
 Relinquished by: Date/Time: Received by: Date/Time: Company: Company:
 Custody Seals Intact: Custody Seal No.: Cooler Temperature(s) °C and Other Remarks: 02/14 CFA/



Login Sample Receipt Checklist

Client: Madison Metropolitan Sewerage District

Job Number: 320-98088-2

Login Number: 98088

List Source: Eurofins Sacramento

List Number: 1

Creator: Fisher, Jamyiah L

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.	N/A	2103391/2103390
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: Madison Metropolitan Sewerage District

Job Number: 320-98088-2

Login Number: 98088
List Number: 2
Creator: Rystrom, Joshua R

List Source: Eurofins Denver
List Creation: 03/25/23 11:19 AM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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	
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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



April 2023

 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Julie Maas
Madison Metropolitan Sewerage District
1610 Moorland Road
Madison, Wisconsin 53713-3398

Generated 5/10/2023 4:56:29 PM

JOB DESCRIPTION

MMSD PFAS Phase 3

JOB NUMBER

320-99133-1

Eurofins Sacramento

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 Northern California, LLC Project Manager.

Authorization



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Authorized for release by
Micah Smith, Project Manager II
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Definitions/Glossary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS Phase 3

Job ID: 320-99133-1

Qualifiers

LCMS

Qualifier	Qualifier Description
G	The reported quantitation limit has been raised due to an exhibited elevated noise or matrix interference
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.
α	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

Case Narrative

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS Phase 3

Job ID: 320-99133-1

Job ID: 320-99133-1

Laboratory: Eurofins Sacramento

Narrative

Job Narrative 320-99133-1

Comments

No additional comments.

Receipt

The samples were received on 4/20/2023 9:35 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 was 2.3° C.

LCMS

Method 537 (modified): The following sample exhibited matrix interferences for Perfluoropentanoic acid (PFPA) and Perfluorohexanoic acid (PFHxA) causing elevation of the reporting limit: Inf Comp 20230417 (320-99133-1). The reporting limit for the affected analyte has been raised to be equal to the matrix, and a "G" qualifier applied.

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

General Chemistry

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

Organic Prep

Method 3535: The following samples were light brown in color and contained floating particulates prior to extraction: Inf Comp 20230417 (320-99133-1) and Eff 20230418 (320-99133-2)

Method 3535: During the solid phase extraction process, the following sample contained non-settable particulates which clogged the solid phase extraction column: Inf Comp 20230417 (320-99133-1). Approximately 35% of the sample container was filtered through the SPE column at which point the SPE column became clogged. The remainder of the unfiltered sample was retained in the original sample bottle. The SPE column along with the particulates that clogged it were then extracted using the elution solvent.

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

Detection Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS Phase 3

Job ID: 320-99133-1

Client Sample ID: Inf Comp 20230417

Lab Sample ID: 320-99133-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	10		4.8	2.3	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.4		1.9	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	6.0		1.9	0.82	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.51	J	1.9	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.61	J	1.9	0.30	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	4.4		1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	11		1.9	0.55	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.9		1.9	0.52	ng/L	1		537 (modified)	Total/NA
Total Suspended Solids	290		50	19	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Eff 20230418

Lab Sample ID: 320-99133-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	12		4.7	2.2	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	14		1.9	0.46	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	23		1.9	0.54	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.9		1.9	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	12		1.9	0.80	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.76	J	1.9	0.25	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	1.2	J	1.9	0.29	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	4.6		1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	1.0	J	1.9	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	10		1.9	0.53	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	5.4		1.9	0.51	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	0.94	J	1.9	0.92	ng/L	1		537 (modified)	Total/NA
NMeFOSAA	1.4	J	4.7	1.1	ng/L	1		537 (modified)	Total/NA
Total Suspended Solids	5.6		5.0	1.9	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS Phase 3

Job ID: 320-99133-1

Client Sample ID: Inf Comp 20230417

Lab Sample ID: 320-99133-1

Date Collected: 04/17/23 23:59

Matrix: Water

Date Received: 04/20/23 09:35

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	10		4.8	2.3	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluoropentanoic acid (PFPA)	ND	G	5.5	5.5	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorohexanoic acid (PFHxA)	ND	G	35	35	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluoroheptanoic acid (PFHpA)	2.4		1.9	0.24	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorooctanoic acid (PFOA)	6.0		1.9	0.82	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorononanoic acid (PFNA)	0.51	J	1.9	0.26	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorodecanoic acid (PFDA)	0.61	J	1.9	0.30	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorobutanesulfonic acid (PFBS)	4.4		1.9	0.19	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.9	0.29	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorohexanesulfonic acid (PFHxS)	11		1.9	0.55	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorooctanesulfonic acid (PFOS)	6.9		1.9	0.52	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.35	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.31	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.93	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.94	ng/L		04/25/23 06:29	05/08/23 03:21	1
NEtFOSA	ND		1.9	0.83	ng/L		04/25/23 06:29	05/08/23 03:21	1
NMeFOSA	ND		1.9	0.41	ng/L		04/25/23 06:29	05/08/23 03:21	1
NMeFOSAA	ND		4.8	1.2	ng/L		04/25/23 06:29	05/08/23 03:21	1
NEtFOSAA	ND		4.8	1.2	ng/L		04/25/23 06:29	05/08/23 03:21	1
NMeFOSE	ND		3.8	1.3	ng/L		04/25/23 06:29	05/08/23 03:21	1
NEtFOSE	ND		1.9	0.82	ng/L		04/25/23 06:29	05/08/23 03:21	1
4:2 FTS	ND		1.9	0.23	ng/L		04/25/23 06:29	05/08/23 03:21	1
6:2 FTS	ND		4.8	2.4	ng/L		04/25/23 06:29	05/08/23 03:21	1
8:2 FTS	ND		1.9	0.44	ng/L		04/25/23 06:29	05/08/23 03:21	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		04/25/23 06:29	05/08/23 03:21	1
HFPO-DA (GenX)	ND		3.8	1.4	ng/L		04/25/23 06:29	05/08/23 03:21	1
9CI-PF3ONS	ND		1.9	0.23	ng/L		04/25/23 06:29	05/08/23 03:21	1
11CI-PF3OUdS	ND		1.9	0.31	ng/L		04/25/23 06:29	05/08/23 03:21	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	54		25 - 150				04/25/23 06:29	05/08/23 03:21	1
13C5 PFPeA	62		25 - 150				04/25/23 06:29	05/08/23 03:21	1
13C2 PFHxA	59		25 - 150				04/25/23 06:29	05/08/23 03:21	1
13C4 PFHpA	64		25 - 150				04/25/23 06:29	05/08/23 03:21	1
13C4 PFOA	66		25 - 150				04/25/23 06:29	05/08/23 03:21	1
13C5 PFNA	63		25 - 150				04/25/23 06:29	05/08/23 03:21	1
13C2 PFDA	60		25 - 150				04/25/23 06:29	05/08/23 03:21	1
13C2 PFUnA	50		25 - 150				04/25/23 06:29	05/08/23 03:21	1
13C2 PFDoA	37		25 - 150				04/25/23 06:29	05/08/23 03:21	1
13C2 PFTeDA	25		25 - 150				04/25/23 06:29	05/08/23 03:21	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS Phase 3

Job ID: 320-99133-1

Client Sample ID: Inf Comp 20230417

Lab Sample ID: 320-99133-1

Date Collected: 04/17/23 23:59

Matrix: Water

Date Received: 04/20/23 09:35

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	61		25 - 150	04/25/23 06:29	05/08/23 03:21	1
18O2 PFHxS	58		25 - 150	04/25/23 06:29	05/08/23 03:21	1
13C4 PFOS	56		25 - 150	04/25/23 06:29	05/08/23 03:21	1
13C8 FOSA	56		10 - 150	04/25/23 06:29	05/08/23 03:21	1
d3-NMeFOSAA	45		25 - 150	04/25/23 06:29	05/08/23 03:21	1
d5-NEtFOSAA	52		25 - 150	04/25/23 06:29	05/08/23 03:21	1
d-N-MeFOSA-M	22		10 - 150	04/25/23 06:29	05/08/23 03:21	1
d-N-EtFOSA-M	36		10 - 150	04/25/23 06:29	05/08/23 03:21	1
d7-N-MeFOSE-M	21		10 - 150	04/25/23 06:29	05/08/23 03:21	1
d9-N-EtFOSE-M	41		10 - 150	04/25/23 06:29	05/08/23 03:21	1
M2-4:2 FTS	57		25 - 150	04/25/23 06:29	05/08/23 03:21	1
M2-6:2 FTS	91		25 - 150	04/25/23 06:29	05/08/23 03:21	1
M2-8:2 FTS	68		25 - 150	04/25/23 06:29	05/08/23 03:21	1
13C3 HFPO-DA	59		25 - 150	04/25/23 06:29	05/08/23 03:21	1
13C2 10:2 FTS	49		25 - 150	04/25/23 06:29	05/08/23 03:21	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	290		50	19	mg/L			04/24/23 11:01	1

Client Sample ID: Eff 20230418

Lab Sample ID: 320-99133-2

Date Collected: 04/18/23 23:59

Matrix: Water

Date Received: 04/20/23 09:35

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	12		4.7	2.2	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluoropentanoic acid (PFPA)	14		1.9	0.46	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluorohexanoic acid (PFHxA)	23		1.9	0.54	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluoroheptanoic acid (PFHpA)	3.9		1.9	0.23	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluorooctanoic acid (PFOA)	12		1.9	0.80	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluorononanoic acid (PFNA)	0.76	J	1.9	0.25	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluorodecanoic acid (PFDA)	1.2	J	1.9	0.29	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluorobutanesulfonic acid (PFBS)	4.6		1.9	0.19	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluoropentanesulfonic acid (PFPeS)	1.0	J	1.9	0.28	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluorohexanesulfonic acid (PFHxS)	10		1.9	0.53	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluorooctanesulfonic acid (PFOS)	5.4		1.9	0.51	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.35	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.91	ng/L		04/25/23 06:29	05/08/23 03:31	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS Phase 3

Job ID: 320-99133-1

Client Sample ID: Eff 20230418

Lab Sample ID: 320-99133-2

Date Collected: 04/18/23 23:59

Matrix: Water

Date Received: 04/20/23 09:35

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (FOSA)	0.94	J	1.9	0.92	ng/L		04/25/23 06:29	05/08/23 03:31	1
NEtFOSA	ND		1.9	0.81	ng/L		04/25/23 06:29	05/08/23 03:31	1
NMeFOSA	ND		1.9	0.40	ng/L		04/25/23 06:29	05/08/23 03:31	1
NMeFOSAA	1.4	J	4.7	1.1	ng/L		04/25/23 06:29	05/08/23 03:31	1
NEtFOSAA	ND		4.7	1.2	ng/L		04/25/23 06:29	05/08/23 03:31	1
NMeFOSE	ND		3.7	1.3	ng/L		04/25/23 06:29	05/08/23 03:31	1
NEtFOSE	ND		1.9	0.80	ng/L		04/25/23 06:29	05/08/23 03:31	1
4:2 FTS	ND		1.9	0.22	ng/L		04/25/23 06:29	05/08/23 03:31	1
6:2 FTS	ND		4.7	2.3	ng/L		04/25/23 06:29	05/08/23 03:31	1
8:2 FTS	ND		1.9	0.43	ng/L		04/25/23 06:29	05/08/23 03:31	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.37	ng/L		04/25/23 06:29	05/08/23 03:31	1
HFPO-DA (GenX)	ND		3.7	1.4	ng/L		04/25/23 06:29	05/08/23 03:31	1
9CI-PF3ONS	ND		1.9	0.22	ng/L		04/25/23 06:29	05/08/23 03:31	1
11CI-PF3OUdS	ND		1.9	0.30	ng/L		04/25/23 06:29	05/08/23 03:31	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	79		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C5 PFPeA	93		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C2 PFHxA	100		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C4 PFHpA	101		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C4 PFOA	98		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C5 PFNA	100		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C2 PFDA	104		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C2 PFUnA	105		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C2 PFDoA	87		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C2 PFTeDA	49		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C3 PFBS	92		25 - 150				04/25/23 06:29	05/08/23 03:31	1
18O2 PFHxS	92		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C4 PFOS	97		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C8 FOSA	118		10 - 150				04/25/23 06:29	05/08/23 03:31	1
d3-NMeFOSAA	135		25 - 150				04/25/23 06:29	05/08/23 03:31	1
d5-NEtFOSAA	144		25 - 150				04/25/23 06:29	05/08/23 03:31	1
d-N-MeFOSA-M	92		10 - 150				04/25/23 06:29	05/08/23 03:31	1
d-N-EtFOSA-M	82		10 - 150				04/25/23 06:29	05/08/23 03:31	1
d7-N-MeFOSE-M	82		10 - 150				04/25/23 06:29	05/08/23 03:31	1
d9-N-EtFOSE-M	74		10 - 150				04/25/23 06:29	05/08/23 03:31	1
M2-4:2 FTS	92		25 - 150				04/25/23 06:29	05/08/23 03:31	1
M2-6:2 FTS	92		25 - 150				04/25/23 06:29	05/08/23 03:31	1
M2-8:2 FTS	99		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C3 HFPO-DA	92		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C2 10:2 FTS	89		25 - 150				04/25/23 06:29	05/08/23 03:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	5.6		5.0	1.9	mg/L			04/24/23 10:57	1

Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS Phase 3

Job ID: 320-99133-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-99133-1	Inf Comp 20230417	54	62	59	64	66	63	60	50
320-99133-2	Eff 20230418	79	93	100	101	98	100	104	105
LCS 320-669869/2-A	Lab Control Sample	99	97	98	106	101	94	104	97
LCSD 320-669869/3-B	Lab Control Sample Dup	113	112	109	119	108	108	119	109
MB 320-669869/1-A	Method Blank	92	95	93	96	97	97	107	97

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDaA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
320-99133-1	Inf Comp 20230417	37	25	61	58	56	56	45	52
320-99133-2	Eff 20230418	87	49	92	92	97	118	135	144
LCS 320-669869/2-A	Lab Control Sample	97	98	89	91	90	87	97	99
LCSD 320-669869/3-B	Lab Control Sample Dup	109	113	98	104	102	94	109	107
MB 320-669869/1-A	Method Blank	97	104	85	84	86	89	98	100

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	dMeFOSA (10-150)	dEtFOSA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	HFPODA (25-150)
320-99133-1	Inf Comp 20230417	22	36	21	41	57	91	68	59
320-99133-2	Eff 20230418	92	82	82	74	92	92	99	92
LCS 320-669869/2-A	Lab Control Sample	73	72	82	82	94	91	93	91
LCSD 320-669869/3-B	Lab Control Sample Dup	80	79	83	93	111	102	108	98
MB 320-669869/1-A	Method Blank	74	71	87	84	96	85	92	96

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M102FTS (25-150)
320-99133-1	Inf Comp 20230417	49
320-99133-2	Eff 20230418	89
LCS 320-669869/2-A	Lab Control Sample	99
LCSD 320-669869/3-B	Lab Control Sample Dup	109
MB 320-669869/1-A	Method Blank	97

Surrogate Legend

- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- C4PFHA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDaA = 13C2 PFDaA
- PFTDA = 13C2 PFTeDA
- C3PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- PFOSA = 13C8 FOSA
- d3NMFOS = d3-NMeFOSAA
- d5NEFOS = d5-NEtFOSAA
- dMeFOSA = d-N-MeFOSA-M
- dEtFOSA = d-N-EtFOSA-M

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Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District

Job ID: 320-99133-1

Project/Site: MMSD PFAS Phase 3

NMFM = d7-N-MeFOSE-M

NEFM = d9-N-EtFOSE-M

M242FTS = M2-4:2 FTS

M262FTS = M2-6:2 FTS

M282FTS = M2-8:2 FTS

HFPODA = 13C3 HFPO-DA

M102FTS = 13C2 10:2 FTS

1

2

3

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS Phase 3

Job ID: 320-99133-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-669869/1-A
Matrix: Water
Analysis Batch: 670228

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 669869

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		04/25/23 06:29	04/26/23 10:52	1
Perfluoropentanoic acid (PFPA)	ND		2.0	0.49	ng/L		04/25/23 06:29	04/26/23 10:52	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		04/25/23 06:29	04/26/23 10:52	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		04/25/23 06:29	04/26/23 10:52	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		04/25/23 06:29	04/26/23 10:52	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		04/25/23 06:29	04/26/23 10:52	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		04/25/23 06:29	04/26/23 10:52	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		04/25/23 06:29	04/26/23 10:52	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		04/25/23 06:29	04/26/23 10:52	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		04/25/23 06:29	04/26/23 10:52	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		04/25/23 06:29	04/26/23 10:52	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		04/25/23 06:29	04/26/23 10:52	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.30	ng/L		04/25/23 06:29	04/26/23 10:52	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		04/25/23 06:29	04/26/23 10:52	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.19	ng/L		04/25/23 06:29	04/26/23 10:52	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		04/25/23 06:29	04/26/23 10:52	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.37	ng/L		04/25/23 06:29	04/26/23 10:52	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		04/25/23 06:29	04/26/23 10:52	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.97	ng/L		04/25/23 06:29	04/26/23 10:52	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		04/25/23 06:29	04/26/23 10:52	1
NEtFOSA	ND		2.0	0.87	ng/L		04/25/23 06:29	04/26/23 10:52	1
NMeFOSA	ND		2.0	0.43	ng/L		04/25/23 06:29	04/26/23 10:52	1
NMeFOSAA	ND		5.0	1.2	ng/L		04/25/23 06:29	04/26/23 10:52	1
NEtFOSAA	ND		5.0	1.3	ng/L		04/25/23 06:29	04/26/23 10:52	1
NMeFOSE	ND		4.0	1.4	ng/L		04/25/23 06:29	04/26/23 10:52	1
NEtFOSE	ND		2.0	0.85	ng/L		04/25/23 06:29	04/26/23 10:52	1
4:2 FTS	ND		2.0	0.24	ng/L		04/25/23 06:29	04/26/23 10:52	1
6:2 FTS	ND		5.0	2.5	ng/L		04/25/23 06:29	04/26/23 10:52	1
8:2 FTS	ND		2.0	0.46	ng/L		04/25/23 06:29	04/26/23 10:52	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.40	ng/L		04/25/23 06:29	04/26/23 10:52	1
HFPO-DA (GenX)	ND		4.0	1.5	ng/L		04/25/23 06:29	04/26/23 10:52	1
9Cl-PF3ONS	ND		2.0	0.24	ng/L		04/25/23 06:29	04/26/23 10:52	1
11Cl-PF3OUdS	ND		2.0	0.32	ng/L		04/25/23 06:29	04/26/23 10:52	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C4 PFBA	92		25 - 150	04/25/23 06:29	04/26/23 10:52	1
13C5 PFPeA	95		25 - 150	04/25/23 06:29	04/26/23 10:52	1
13C2 PFHxA	93		25 - 150	04/25/23 06:29	04/26/23 10:52	1
13C4 PFHpA	96		25 - 150	04/25/23 06:29	04/26/23 10:52	1
13C4 PFOA	97		25 - 150	04/25/23 06:29	04/26/23 10:52	1
13C5 PFNA	97		25 - 150	04/25/23 06:29	04/26/23 10:52	1
13C2 PFDA	107		25 - 150	04/25/23 06:29	04/26/23 10:52	1
13C2 PFUnA	97		25 - 150	04/25/23 06:29	04/26/23 10:52	1
13C2 PFDoA	97		25 - 150	04/25/23 06:29	04/26/23 10:52	1
13C2 PFTeDA	104		25 - 150	04/25/23 06:29	04/26/23 10:52	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS Phase 3

Job ID: 320-99133-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-669869/1-A
Matrix: Water
Analysis Batch: 670228

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 669869

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 PFBS	85		25 - 150	04/25/23 06:29	04/26/23 10:52	1
18O2 PFHxS	84		25 - 150	04/25/23 06:29	04/26/23 10:52	1
13C4 PFOS	86		25 - 150	04/25/23 06:29	04/26/23 10:52	1
13C8 FOSA	89		10 - 150	04/25/23 06:29	04/26/23 10:52	1
d3-NMeFOSAA	98		25 - 150	04/25/23 06:29	04/26/23 10:52	1
d5-NEtFOSAA	100		25 - 150	04/25/23 06:29	04/26/23 10:52	1
d-N-MeFOSA-M	74		10 - 150	04/25/23 06:29	04/26/23 10:52	1
d-N-EtFOSA-M	71		10 - 150	04/25/23 06:29	04/26/23 10:52	1
d7-N-MeFOSE-M	87		10 - 150	04/25/23 06:29	04/26/23 10:52	1
d9-N-EtFOSE-M	84		10 - 150	04/25/23 06:29	04/26/23 10:52	1
M2-4:2 FTS	96		25 - 150	04/25/23 06:29	04/26/23 10:52	1
M2-6:2 FTS	85		25 - 150	04/25/23 06:29	04/26/23 10:52	1
M2-8:2 FTS	92		25 - 150	04/25/23 06:29	04/26/23 10:52	1
13C3 HFPO-DA	96		25 - 150	04/25/23 06:29	04/26/23 10:52	1
13C2 10:2 FTS	97		25 - 150	04/25/23 06:29	04/26/23 10:52	1

Lab Sample ID: LCS 320-669869/2-A
Matrix: Water
Analysis Batch: 670228

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 669869

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	40.0	41.1		ng/L		103	60 - 135
Perfluoropentanoic acid (PFPA)	40.0	43.0		ng/L		108	60 - 135
Perfluorohexanoic acid (PFHxA)	40.0	39.5		ng/L		99	60 - 135
Perfluoroheptanoic acid (PFHpA)	40.0	41.1		ng/L		103	60 - 135
Perfluorooctanoic acid (PFOA)	40.0	44.3		ng/L		111	60 - 135
Perfluorononanoic acid (PFNA)	40.0	46.2		ng/L		115	60 - 135
Perfluorodecanoic acid (PFDA)	40.0	44.7		ng/L		112	60 - 135
Perfluoroundecanoic acid (PFUnA)	40.0	46.4		ng/L		116	60 - 135
Perfluorododecanoic acid (PFDoA)	40.0	44.2		ng/L		110	60 - 135
Perfluorotridecanoic acid (PFTrDA)	40.0	41.4		ng/L		104	60 - 135
Perfluorotetradecanoic acid (PFTeA)	40.0	38.7		ng/L		97	60 - 135
Perfluorobutanesulfonic acid (PFBS)	35.5	37.4		ng/L		105	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	37.6	44.8		ng/L		119	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	36.5	38.4		ng/L		105	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	38.2	41.8		ng/L		110	60 - 135
Perfluorooctanesulfonic acid (PFOS)	37.2	38.9		ng/L		105	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.5	42.4		ng/L		110	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	41.6		ng/L		108	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.8	35.3		ng/L		91	60 - 135

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS Phase 3

Job ID: 320-99133-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-669869/2-A
Matrix: Water
Analysis Batch: 670228

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 669869

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	40.0	45.3		ng/L		113	60 - 135
NEtFOSA	40.0	43.0		ng/L		108	60 - 135
NMeFOSA	40.0	46.0		ng/L		115	60 - 135
NMeFOSAA	40.0	41.5		ng/L		104	60 - 135
NEtFOSAA	40.0	41.1		ng/L		103	60 - 135
NMeFOSE	40.0	42.9		ng/L		107	60 - 135
NEtFOSE	40.0	43.7		ng/L		109	60 - 135
4:2 FTS	37.5	46.0		ng/L		123	60 - 135
6:2 FTS	38.1	47.9		ng/L		126	60 - 135
8:2 FTS	38.4	41.9		ng/L		109	60 - 135
4,8-Dioxa-3H-perfluoronanoic acid (ADONA)	37.8	48.7		ng/L		129	60 - 135
HFPO-DA (GenX)	40.0	43.1		ng/L		108	60 - 135
9Cl-PF3ONS	37.4	43.5		ng/L		117	60 - 135
11Cl-PF3OUdS	37.8	42.7		ng/L		113	60 - 135

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	99		25 - 150
13C5 PFPeA	97		25 - 150
13C2 PFHxA	98		25 - 150
13C4 PFHpA	106		25 - 150
13C4 PFOA	101		25 - 150
13C5 PFNA	94		25 - 150
13C2 PFDA	104		25 - 150
13C2 PFUnA	97		25 - 150
13C2 PFDoA	97		25 - 150
13C2 PFTeDA	98		25 - 150
13C3 PFBS	89		25 - 150
18O2 PFHxS	91		25 - 150
13C4 PFOS	90		25 - 150
13C8 FOSA	87		10 - 150
d3-NMeFOSAA	97		25 - 150
d5-NEtFOSAA	99		25 - 150
d-N-MeFOSA-M	73		10 - 150
d-N-EtFOSA-M	72		10 - 150
d7-N-MeFOSE-M	82		10 - 150
d9-N-EtFOSE-M	82		10 - 150
M2-4:2 FTS	94		25 - 150
M2-6:2 FTS	91		25 - 150
M2-8:2 FTS	93		25 - 150
13C3 HFPO-DA	91		25 - 150
13C2 10:2 FTS	99		25 - 150

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS Phase 3

Job ID: 320-99133-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-669869/3-B

Matrix: Water

Analysis Batch: 670228

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 669869

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Perfluorobutanoic acid (PFBA)	40.0	39.4		ng/L		99	60 - 135	4	30	
Perfluoropentanoic acid (PFPA)	40.0	39.2		ng/L		98	60 - 135	9	30	
Perfluorohexanoic acid (PFHxA)	40.0	37.5		ng/L		94	60 - 135	5	30	
Perfluoroheptanoic acid (PFHpA)	40.0	39.3		ng/L		98	60 - 135	4	30	
Perfluorooctanoic acid (PFOA)	40.0	41.5		ng/L		104	60 - 135	7	30	
Perfluorononanoic acid (PFNA)	40.0	41.7		ng/L		104	60 - 135	10	30	
Perfluorodecanoic acid (PFDA)	40.0	41.4		ng/L		103	60 - 135	8	30	
Perfluoroundecanoic acid (PFUnA)	40.0	42.5		ng/L		106	60 - 135	9	30	
Perfluorododecanoic acid (PFDoA)	40.0	42.3		ng/L		106	60 - 135	4	30	
Perfluorotridecanoic acid (PFTTrDA)	40.0	39.7		ng/L		99	60 - 135	4	30	
Perfluorotetradecanoic acid (PFTeA)	40.0	35.1		ng/L		88	60 - 135	10	30	
Perfluorobutanesulfonic acid (PFBS)	35.5	36.9		ng/L		104	60 - 135	1	30	
Perfluoropentanesulfonic acid (PFPeS)	37.6	42.9		ng/L		114	60 - 135	4	30	
Perfluorohexanesulfonic acid (PFHxS)	36.5	36.1		ng/L		99	60 - 135	6	30	
Perfluoroheptanesulfonic acid (PFHpS)	38.2	38.0		ng/L		100	60 - 135	10	30	
Perfluorooctanesulfonic acid (PFOS)	37.2	36.3		ng/L		97	60 - 135	7	30	
Perfluorononanesulfonic acid (PFNS)	38.5	38.3		ng/L		100	60 - 135	10	30	
Perfluorodecanesulfonic acid (PFDS)	38.6	38.3		ng/L		99	60 - 135	8	30	
Perfluorododecanesulfonic acid (PFDoS)	38.8	31.2		ng/L		80	60 - 135	12	30	
Perfluorooctanesulfonamide (FOSA)	40.0	44.7		ng/L		112	60 - 135	1	30	
NEtFOSA	40.0	40.0		ng/L		100	60 - 135	7	30	
NMeFOSA	40.0	39.0		ng/L		98	60 - 135	16	30	
NMeFOSAA	40.0	39.6		ng/L		99	60 - 135	5	30	
NEtFOSAA	40.0	41.4		ng/L		103	60 - 135	1	30	
NMeFOSE	40.0	43.4		ng/L		109	60 - 135	1	30	
NEtFOSE	40.0	40.5		ng/L		101	60 - 135	8	30	
4:2 FTS	37.5	39.6		ng/L		105	60 - 135	15	30	
6:2 FTS	38.1	42.1		ng/L		111	60 - 135	13	30	
8:2 FTS	38.4	37.1		ng/L		97	60 - 135	12	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	47.0		ng/L		124	60 - 135	4	30	
HFPO-DA (GenX)	40.0	41.0		ng/L		102	60 - 135	5	30	
9CI-PF3ONS	37.4	40.3		ng/L		108	60 - 135	8	30	
11CI-PF3OUdS	37.8	40.4		ng/L		107	60 - 135	6	30	

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C4 PFBA	113		25 - 150
13C5 PFPeA	112		25 - 150
13C2 PFHxA	109		25 - 150

Eurofins Sacramento

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS Phase 3

Job ID: 320-99133-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-669869/3-B
Matrix: Water
Analysis Batch: 670228

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 669869

Isotope Dilution	LCSD LCSD		Limits
	%Recovery	Qualifier	
13C4 PFHpA	119		25 - 150
13C4 PFOA	108		25 - 150
13C5 PFNA	108		25 - 150
13C2 PFDA	119		25 - 150
13C2 PFUnA	109		25 - 150
13C2 PFDoA	109		25 - 150
13C2 PFTeDA	113		25 - 150
13C3 PFBS	98		25 - 150
18O2 PFHxS	104		25 - 150
13C4 PFOS	102		25 - 150
13C8 FOSA	94		10 - 150
d3-NMeFOSAA	109		25 - 150
d5-NEtFOSAA	107		25 - 150
d-N-MeFOSA-M	80		10 - 150
d-N-EtFOSA-M	79		10 - 150
d7-N-MeFOSE-M	83		10 - 150
d9-N-EtFOSE-M	93		10 - 150
M2-4:2 FTS	111		25 - 150
M2-6:2 FTS	102		25 - 150
M2-8:2 FTS	108		25 - 150
13C3 HFPO-DA	98		25 - 150
13C2 10:2 FTS	109		25 - 150

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 500-709276/1
Matrix: Water
Analysis Batch: 709276

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Suspended Solids	ND		5.0	1.9	mg/L			04/24/23 09:28	1

Lab Sample ID: LCS 500-709276/2
Matrix: Water
Analysis Batch: 709276

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

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Total Suspended Solids	200	196		mg/L		98	80 - 120

QC Association Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS Phase 3

Job ID: 320-99133-1

LCMS

Prep Batch: 669869

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-99133-1	Inf Comp 20230417	Total/NA	Water	3535	
320-99133-2	Eff 20230418	Total/NA	Water	3535	
MB 320-669869/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-669869/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-669869/3-B	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 670228

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-669869/1-A	Method Blank	Total/NA	Water	537 (modified)	669869
LCS 320-669869/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	669869
LCSD 320-669869/3-B	Lab Control Sample Dup	Total/NA	Water	537 (modified)	669869

Analysis Batch: 672907

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-99133-1	Inf Comp 20230417	Total/NA	Water	537 (modified)	669869
320-99133-2	Eff 20230418	Total/NA	Water	537 (modified)	669869

General Chemistry

Analysis Batch: 709276

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-99133-1	Inf Comp 20230417	Total/NA	Water	SM 2540D	
320-99133-2	Eff 20230418	Total/NA	Water	SM 2540D	
MB 500-709276/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 500-709276/2	Lab Control Sample	Total/NA	Water	SM 2540D	

Lab Chronicle

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS Phase 3

Job ID: 320-99133-1

Client Sample ID: Inf Comp 20230417

Lab Sample ID: 320-99133-1

Date Collected: 04/17/23 23:59

Matrix: Water

Date Received: 04/20/23 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			260.7 mL	10.0 mL	669869	04/25/23 06:29	EJR	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	672907	05/08/23 03:21	RS1	EET SAC
Total/NA	Analysis	SM 2540D		1	50 mL	500 mL	709276	04/24/23 11:01	MB	EET CHI
								Completed: 04/24/23 11:05 ¹		

Client Sample ID: Eff 20230418

Lab Sample ID: 320-99133-2

Date Collected: 04/18/23 23:59

Matrix: Water

Date Received: 04/20/23 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			266.9 mL	10.0 mL	669869	04/25/23 06:29	EJR	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	672907	05/08/23 03:31	RS1	EET SAC
Total/NA	Analysis	SM 2540D		1	500 mL	500 mL	709276	04/24/23 10:57	MB	EET CHI
								Completed: 04/24/23 11:01 ¹		

¹ This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200
 EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS Phase 3

Job ID: 320-99133-1

Laboratory: Eurofins Sacramento

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4040	01-29-24
Wisconsin	State	998204680	08-31-23

Laboratory: Eurofins Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999580010	08-31-23

- 1
- 2
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- 10
- 11
- 12
- 13
- 14
- 15

Method Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS Phase 3

Job ID: 320-99133-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	EET SAC
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CHI
3535	Solid-Phase Extraction (SPE)	SW846	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

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 CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS Phase 3

Job ID: 320-99133-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-99133-1	Inf Comp 20230417	Water	04/17/23 23:59	04/20/23 09:35
320-99133-2	Eff 20230418	Water	04/18/23 23:59	04/20/23 09:35

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Eurofins Sacramento
 880 Riverside Parkway
 West Sacramento, CA 95605
 Phone (916) 373-5600


Reports to: Mike Utsin
 TRC

Chain of Custody Record

708 Heartland Trail
 Suite 2000 Madison, WI 53717
 musinc@trccompanies.com



Environment Testing

Client Information		Lab PM: <i>Mary Powers / Julie Maas</i>	COC No:
Client Contact: <i>Julie Maas</i>		E-Mail: <i>maryp@madsewer.org</i>	Page: <i>1</i> of <i>1</i>
Company: <i>Madison Metro Sewerage District</i>		Phone: <i>608 370-1745</i>	Job #:
Address: <i>1610 Moorland Rd</i>		State of Origin: <i>WI</i>	
City: <i>Madison</i>			
State, Zip: <i>WI 53713-3398</i>			
Phone: <i>608 218 0867</i>			
Email: <i>juliem@madsewer.org</i>			
Project Name: <i>mmsd PFAS Phase 3</i>			
Site: <i>Madison Metro Sewerage Dist</i>			
SSOW#			
Due Date Requested:			
TAT Requested (days): <i>As contract states</i>			
Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
PO #: <i>2260422</i>			
WO #			
Project #: <i>32621779</i>			
Sample Date			
Sample Time			
Sample Type (C=Comp, G=grab)			
Matrix (W=Water, S=Solid, O=Other Soil, BT=Tissue, A=Air)			
Preservation Code:			
Field Filtered Sample (Yes or No)			
Perform MS/MSD (Yes or No)			
Total Number of Containers			
Special Instructions/Note:			
<div style="text-align: center;">  320-99133 Chain of Custody </div>			
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Empty Kit Relinquished by: Relinquished by: <i>Jenny Faust</i> Date/Time: <i>4-19-23 6:30 am</i> Company: <i>MMSD</i>		Special Instructions/QC Requirements: Method of Shipment: _____ Received by: _____ Date/Time: _____ Company: _____	
Relinquished by: Relinquished by: _____ Date/Time: _____ Company: _____		Received by: _____ Date/Time: _____ Company: _____	
Relinquished by: _____ Date/Time: _____ Company: _____		Received by: _____ Date/Time: _____ Company: _____	
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No.: <i>2112406/2112407</i>		Cooler Temperature(s) °C and Other Remarks: <i>7.3</i>	



Eurofins Sacramento

880 Riverside Parkway
West Sacramento CA 95605
Phone 916-373-5600 Fax 916-372-1059

Chain of Custody Record



Environment Testing

Client Information (Sub Contract Lab)		Sampler		Lab PM Smith Micah		Carrier Tracking No(s)		COC No 320-305208 1			
Client Contact: Shipping/Receiving		Phone		E-Mail Micah Smith@et.eurofins.com		State of Origin Wisconsin		Page Page 1 of 1			
Company Eurofins Environment Testing North Centr				Accreditations Required (See note) NELAP - Oregon State - Wisconsin				Job # 320-99133-1			
Address 2417 Bond Street		Due Date Requested 5/10/2023		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 Z other (specify)	
City University Park		TAT Requested (days)									
State Zip IL 60484		PO #									
Phone 708-534-5200(Tel) 708-534-5211(Fax)		WO #									
Email		Project # 32021779									
Project Name MMSD PFAS Phase 3		SSOW#		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of Containers			
Site 320-99133 COC				2540D							
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)	Total Number of Containers	Special Instructions/Note		
Inf Comp 20230417 (320-99133-1)		4/17/23	23 59 Central		Water		X	1			
Eff 20230418 (320-99133-2)		4/18/23	23 59 Central		Water		X	1			
Note: Since laboratory accreditations are subject to change Eurofins Environment Testing Northern California 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 Northern California LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northern California 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 Northern California LLC.											
Possible Hazard Identification					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)						
Unconfirmed					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months						
Deliverable Requested I II III IV Other (specify)			Primary Deliverable Rank 1		Special Instructions/QC Requirements						
Empty Kit Relinquished by			Date		Time		Method of Shipment:				
Relinquished by <i>[Signature]</i>			Date/Time 4-21-23 / 16:30		Company EETSAC		Received by <i>[Signature]</i>		Date/Time 4/22/23 10:40		
Relinquished by			Date/Time		Company		Received by		Date/Time		
Relinquished by			Date/Time		Company		Received by		Date/Time		
Custody Seals Intact. △ Yes △ No		Custody Seal No.			Cooler Temperature(s) °C and Other Remarks. 0.9 → 1.3						



Login Sample Receipt Checklist

Client: Madison Metropolitan Sewerage District

Job Number: 320-99133-1

Login Number: 99133

List Source: Eurofins Sacramento

List Number: 1

Creator: Oropeza, Salvador

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	2112407/2112406
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: Madison Metropolitan Sewerage District

Job Number: 320-99133-1

Login Number: 99133
List Number: 2
Creator: Scott, Sherri L

List Source: Eurofins Chicago
List Creation: 04/22/23 12:13 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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	1.3
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?	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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	



May 2023



ANALYTICAL REPORT

PREPARED FOR

Attn: Julie Maas
Madison Metropolitan Sewerage District
1610 Moorland Road
Madison, Wisconsin 53713-3398

Generated 7/11/2023 5:18:47 PM Revision 1

JOB DESCRIPTION

MMSD PFAS Phase 3

JOB NUMBER

320-100432-1


Eurofins Sacramento

Job Notes

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Authorization



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Revision 1

Authorized for release by
Micah Smith, Project Manager II
Micah.Smith@et.eurofinsus.com
(916)374-4302



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Definitions/Glossary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS Phase 3

Job ID: 320-100432-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte 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.

General Chemistry

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.

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

Case Narrative

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS Phase 3

Job ID: 320-100432-1

Job ID: 320-100432-1

Laboratory: Eurofins Sacramento

Narrative

**Job Narrative
320-100432-1**

Comments

No additional comments.

Revision

The report being provided is a revision of the original report sent on 6/26/2023. The report (revision 1) is being revised to include the QC data for Method 537 (modified). Also included is clarification regarding the particulates for the Prep Method 3535.

Receipt

The samples were received on 5/18/2023 9:40 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 was 1.8° C.

LCMS

Method 537 (modified): The low level continuing calibration verification (CCVL) associated with batch 320-677076 recovered above the upper control limit for NEtFOSE. The sample associated with this CCV was non-detect for the affected analyte; therefore, the data have been reported.

Method 537 (modified): The continuing calibration verification (CCV) associated with batch 320-677076 recovered above the upper control limit for NEtFOSE, 4,8-Dioxa-3H-perfluorononanoic acid (ADONA), 9CI-PF3ONS and 11CI-PF3OUdS. The sample associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 537 (modified): The continuing calibration verification (CCV) associated with batch 320-677076 recovered above the upper control limit for NEtFOSE and 11CI-PF3OUdS. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 537 (modified): The continuing calibration verification (CCV) associated with batch 320-677427 recovered above the upper control limit for M2-4:2 FTS an isotope dilution analyte (IDA) used to quantitate the concentration of the associated native analyte 4:2 FTS. This native analyte is in control in the associated CCVIS, CCVL, LCS and other CCV samples in the batch, indicating no adverse impact on target analyte quantitation. Consequently, the associated sample results have been reported.

Method 537 (modified): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following samples: (CCB 320-677427/2). The target analyte associated with this IDA is non-detect (ND); Therefore there is no affect on the data. Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: Inf Comp 20230515 (320-100432-1). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample. The sample was re-analyzed with concurring result, and the original set of data has been reported.

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

General Chemistry

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

Organic Prep

Method 3535: During the solid phase extraction process, the following samples contained non-settable particulates which clogged the solid phase extraction column: Inf Comp 20230515 (320-100432-1) and Eff 20230516 (320-100432-2). Approximately 63% and 84%, respectively, of the sample container was filtered through the SPE column at which point the SPE column became clogged. The remainder of the unfiltered samples were retained in the original sample bottles. The SPE column along with the particulates that clogged it were then extracted using the elution solvent.

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

Case Narrative

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS Phase 3

Job ID: 320-100432-1

Job ID: 320-100432-1 (Continued)

Laboratory: Eurofins Sacramento (Continued)

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Detection Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS Phase 3

Job ID: 320-100432-1

Client Sample ID: Inf Comp 20230515

Lab Sample ID: 320-100432-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	6.8		4.7	2.3	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	5.3		1.9	0.46	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	7.6		1.9	0.55	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.7	J	1.9	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	4.5		1.9	0.80	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.50	J	1.9	0.25	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.38	J	1.9	0.29	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.9		1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.39	J	1.9	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	7.6		1.9	0.54	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	5.0		1.9	0.51	ng/L	1		537 (modified)	Total/NA
NMeFOSE	1.5	J	3.8	1.3	ng/L	1		537 (modified)	Total/NA
Total Suspended Solids	220		38	15	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Eff 20230516

Lab Sample ID: 320-100432-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	13		4.8	2.3	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	13		1.9	0.47	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	18		1.9	0.56	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.6		1.9	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	11		1.9	0.81	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	1.3	J	1.9	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	1.3	J	1.9	0.30	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.9		1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.72	J	1.9	0.29	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	8.9		1.9	0.55	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	5.6		1.9	0.52	ng/L	1		537 (modified)	Total/NA
Total Suspended Solids	2.6	J	5.0	1.9	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS Phase 3

Job ID: 320-100432-1

Client Sample ID: Inf Comp 20230515

Lab Sample ID: 320-100432-1

Date Collected: 05/15/23 23:59

Matrix: Water

Date Received: 05/18/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	6.8		4.7	2.3	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluoropentanoic acid (PFPA)	5.3		1.9	0.46	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorohexanoic acid (PFHxA)	7.6		1.9	0.55	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluoroheptanoic acid (PFHpA)	1.7	J	1.9	0.24	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorooctanoic acid (PFOA)	4.5		1.9	0.80	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorononanoic acid (PFNA)	0.50	J	1.9	0.25	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorodecanoic acid (PFDA)	0.38	J	1.9	0.29	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorobutanesulfonic acid (PFBS)	2.9		1.9	0.19	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluoropentanesulfonic acid (PFPeS)	0.39	J	1.9	0.28	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorohexanesulfonic acid (PFHxS)	7.6		1.9	0.54	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorooctanesulfonic acid (PFOS)	5.0		1.9	0.51	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.35	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.91	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.92	ng/L		05/23/23 05:12	06/22/23 21:01	1
NEtFOSA	ND		1.9	0.82	ng/L		05/23/23 05:12	06/22/23 21:01	1
NMeFOSA	ND		1.9	0.40	ng/L		05/23/23 05:12	06/22/23 21:01	1
NMeFOSAA	ND		4.7	1.1	ng/L		05/23/23 05:12	06/22/23 21:01	1
NEtFOSAA	ND		4.7	1.2	ng/L		05/23/23 05:12	06/22/23 21:01	1
NMeFOSE	1.5	J	3.8	1.3	ng/L		05/23/23 05:12	06/22/23 21:01	1
NEtFOSE	ND		1.9	0.80	ng/L		05/23/23 05:12	06/22/23 21:01	1
4:2 FTS	ND		1.9	0.23	ng/L		05/23/23 05:12	06/22/23 21:01	1
6:2 FTS	ND		4.7	2.4	ng/L		05/23/23 05:12	06/22/23 21:01	1
8:2 FTS	ND		1.9	0.43	ng/L		05/23/23 05:12	06/22/23 21:01	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		05/23/23 05:12	06/22/23 21:01	1
HFPO-DA (GenX)	ND		3.8	1.4	ng/L		05/23/23 05:12	06/22/23 21:01	1
9CI-PF3ONS	ND		1.9	0.23	ng/L		05/23/23 05:12	06/22/23 21:01	1
11CI-PF3OUdS	ND		1.9	0.30	ng/L		05/23/23 05:12	06/22/23 21:01	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	52		25 - 150				05/23/23 05:12	06/22/23 21:01	1
13C5 PFPeA	66		25 - 150				05/23/23 05:12	06/22/23 21:01	1
13C2 PFHxA	53		25 - 150				05/23/23 05:12	06/22/23 21:01	1
13C4 PFHpA	68		25 - 150				05/23/23 05:12	06/22/23 21:01	1
13C4 PFOA	70		25 - 150				05/23/23 05:12	06/22/23 21:01	1
13C5 PFNA	68		25 - 150				05/23/23 05:12	06/22/23 21:01	1
13C2 PFDA	65		25 - 150				05/23/23 05:12	06/22/23 21:01	1
13C2 PFUnA	51		25 - 150				05/23/23 05:12	06/22/23 21:01	1
13C2 PFDoA	37		25 - 150				05/23/23 05:12	06/22/23 21:01	1
13C2 PFTeDA	17	*5-	25 - 150				05/23/23 05:12	06/22/23 21:01	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS Phase 3

Job ID: 320-100432-1

Client Sample ID: Inf Comp 20230515

Lab Sample ID: 320-100432-1

Date Collected: 05/15/23 23:59

Matrix: Water

Date Received: 05/18/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	57		25 - 150	05/23/23 05:12	06/22/23 21:01	1
18O2 PFHxS	58		25 - 150	05/23/23 05:12	06/22/23 21:01	1
13C4 PFOS	54		25 - 150	05/23/23 05:12	06/22/23 21:01	1
13C8 FOSA	52		10 - 150	05/23/23 05:12	06/22/23 21:01	1
d3-NMeFOSAA	37		25 - 150	05/23/23 05:12	06/22/23 21:01	1
d5-NEtFOSAA	41		25 - 150	05/23/23 05:12	06/22/23 21:01	1
d-N-MeFOSA-M	22		10 - 150	05/23/23 05:12	06/22/23 21:01	1
d-N-EtFOSA-M	35		10 - 150	05/23/23 05:12	06/22/23 21:01	1
d7-N-MeFOSE-M	27		10 - 150	05/23/23 05:12	06/22/23 21:01	1
d9-N-EtFOSE-M	37		10 - 150	05/23/23 05:12	06/22/23 21:01	1
M2-4:2 FTS	68		25 - 150	05/23/23 05:12	06/22/23 21:01	1
M2-6:2 FTS	143		25 - 150	05/23/23 05:12	06/22/23 21:01	1
M2-8:2 FTS	99		25 - 150	05/23/23 05:12	06/22/23 21:01	1
13C3 HFPO-DA	53		25 - 150	05/23/23 05:12	06/22/23 21:01	1
13C2 10:2 FTS	48		25 - 150	05/23/23 05:12	06/22/23 21:01	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	220		38	15	mg/L			05/22/23 16:45	1

Client Sample ID: Eff 20230516

Lab Sample ID: 320-100432-2

Date Collected: 05/16/23 23:59

Matrix: Water

Date Received: 05/18/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	13		4.8	2.3	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluoropentanoic acid (PFPA)	13		1.9	0.47	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluorohexanoic acid (PFHxA)	18		1.9	0.56	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluoroheptanoic acid (PFHpA)	2.6		1.9	0.24	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluorooctanoic acid (PFOA)	11		1.9	0.81	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluorononanoic acid (PFNA)	1.3	J	1.9	0.26	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluorodecanoic acid (PFDA)	1.3	J	1.9	0.30	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluorobutanesulfonic acid (PFBS)	2.9		1.9	0.19	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluoropentanesulfonic acid (PFPeS)	0.72	J	1.9	0.29	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluorohexanesulfonic acid (PFHxS)	8.9		1.9	0.55	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluorooctanesulfonic acid (PFOS)	5.6		1.9	0.52	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.35	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.31	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.93	ng/L		05/23/23 05:12	06/22/23 21:12	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS Phase 3

Job ID: 320-100432-1

Client Sample ID: Eff 20230516

Lab Sample ID: 320-100432-2

Date Collected: 05/16/23 23:59

Matrix: Water

Date Received: 05/18/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.94	ng/L		05/23/23 05:12	06/22/23 21:12	1
NEtFOSA	ND		1.9	0.83	ng/L		05/23/23 05:12	06/22/23 21:12	1
NMeFOSA	ND		1.9	0.41	ng/L		05/23/23 05:12	06/22/23 21:12	1
NMeFOSAA	ND		4.8	1.1	ng/L		05/23/23 05:12	06/22/23 21:12	1
NEtFOSAA	ND		4.8	1.2	ng/L		05/23/23 05:12	06/22/23 21:12	1
NMeFOSE	ND		3.8	1.3	ng/L		05/23/23 05:12	06/22/23 21:12	1
NEtFOSE	ND		1.9	0.81	ng/L		05/23/23 05:12	06/22/23 21:12	1
4:2 FTS	ND		1.9	0.23	ng/L		05/23/23 05:12	06/22/23 21:12	1
6:2 FTS	ND		4.8	2.4	ng/L		05/23/23 05:12	06/22/23 21:12	1
8:2 FTS	ND		1.9	0.44	ng/L		05/23/23 05:12	06/22/23 21:12	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		05/23/23 05:12	06/22/23 21:12	1
HFPO-DA (GenX)	ND		3.8	1.4	ng/L		05/23/23 05:12	06/22/23 21:12	1
9Cl-PF3ONS	ND		1.9	0.23	ng/L		05/23/23 05:12	06/22/23 21:12	1
11Cl-PF3OUdS	ND		1.9	0.31	ng/L		05/23/23 05:12	06/22/23 21:12	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	70		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C5 PFPeA	83		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C2 PFHxA	87		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C4 PFHpA	88		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C4 PFOA	91		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C5 PFNA	91		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C2 PFDA	89		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C2 PFUnA	82		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C2 PFDoA	61		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C2 PFTeDA	45		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C3 PFBS	83		25 - 150				05/23/23 05:12	06/22/23 21:12	1
18O2 PFHxS	83		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C4 PFOS	76		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C8 FOSA	83		10 - 150				05/23/23 05:12	06/22/23 21:12	1
d3-NMeFOSAA	69		25 - 150				05/23/23 05:12	06/22/23 21:12	1
d5-NEtFOSAA	81		25 - 150				05/23/23 05:12	06/22/23 21:12	1
d-N-MeFOSA-M	57		10 - 150				05/23/23 05:12	06/22/23 21:12	1
d-N-EtFOSA-M	49		10 - 150				05/23/23 05:12	06/22/23 21:12	1
d7-N-MeFOSE-M	45		10 - 150				05/23/23 05:12	06/22/23 21:12	1
d9-N-EtFOSE-M	39		10 - 150				05/23/23 05:12	06/22/23 21:12	1
M2-4:2 FTS	120		25 - 150				05/23/23 05:12	06/22/23 21:12	1
M2-6:2 FTS	122		25 - 150				05/23/23 05:12	06/22/23 21:12	1
M2-8:2 FTS	110		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C3 HFPO-DA	71		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C2 10:2 FTS	79		25 - 150				05/23/23 05:12	06/22/23 21:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	2.6	J	5.0	1.9	mg/L			05/22/23 16:48	1

Eurofins Sacramento

Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS Phase 3

Job ID: 320-100432-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-100432-1	Inf Comp 20230515	52	66	53	68	70	68	65	51
320-100432-2	Eff 20230516	70	83	87	88	91	91	89	82
LCS 320-676920/2-A	Lab Control Sample	101	97	103	103	103	106	113	113
MB 320-676920/1-A	Method Blank	97	96	97	103	99	99	105	108

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOFOS (25-150)	d5NEFOFOS (25-150)
320-100432-1	Inf Comp 20230515	37	17 *5-	57	58	54	52	37	41
320-100432-2	Eff 20230516	61	45	83	83	76	83	69	81
LCS 320-676920/2-A	Lab Control Sample	104	88	96	98	107	95	92	96
MB 320-676920/1-A	Method Blank	98	94	99	103	105	99	87	92

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	dMeFOFOSA (10-150)	dEtFOFOSA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	HFPODA (25-150)
320-100432-1	Inf Comp 20230515	22	35	27	37	68	143	99	53
320-100432-2	Eff 20230516	57	49	45	39	120	122	110	71
LCS 320-676920/2-A	Lab Control Sample	65	62	71	68	100	113	123	95
MB 320-676920/1-A	Method Blank	72	67	72	73	92	108	118	86

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M102FTS (25-150)
320-100432-1	Inf Comp 20230515	48
320-100432-2	Eff 20230516	79
LCS 320-676920/2-A	Lab Control Sample	118
MB 320-676920/1-A	Method Blank	112

Surrogate Legend

- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- C4PFHA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDoA = 13C2 PFDoA
- PFTDA = 13C2 PFTeDA
- C3PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- PFOSA = 13C8 FOSA
- d3NMFOFOS = d3-NMeFOFOSAA
- d5NEFOFOS = d5-NEtFOFOSAA
- dMeFOFOSA = d-N-MeFOFOSA-M
- dEtFOFOSA = d-N-EtFOFOSA-M
- NMFM = d7-N-MeFOFOSA-M
- NEFM = d9-N-EtFOFOSA-M
- M242FTS = M2-4:2 FTS
- M262FTS = M2-6:2 FTS

Eurofins Sacramento

Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District

Job ID: 320-100432-1

Project/Site: MMSD PFAS Phase 3

M282FTS = M2-8:2 FTS

HFPODA = 13C3 HFPO-DA

M102FTS = 13C2 10:2 FTS

1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS Phase 3

Job ID: 320-100432-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-676920/1-A
Matrix: Water
Analysis Batch: 685343

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 676920

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		05/23/23 05:12	06/22/23 20:39	1
Perfluoropentanoic acid (PFPA)	ND		2.0	0.49	ng/L		05/23/23 05:12	06/22/23 20:39	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		05/23/23 05:12	06/22/23 20:39	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		05/23/23 05:12	06/22/23 20:39	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		05/23/23 05:12	06/22/23 20:39	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		05/23/23 05:12	06/22/23 20:39	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		05/23/23 05:12	06/22/23 20:39	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		05/23/23 05:12	06/22/23 20:39	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		05/23/23 05:12	06/22/23 20:39	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		05/23/23 05:12	06/22/23 20:39	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		05/23/23 05:12	06/22/23 20:39	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		05/23/23 05:12	06/22/23 20:39	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.30	ng/L		05/23/23 05:12	06/22/23 20:39	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		05/23/23 05:12	06/22/23 20:39	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.19	ng/L		05/23/23 05:12	06/22/23 20:39	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		05/23/23 05:12	06/22/23 20:39	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.37	ng/L		05/23/23 05:12	06/22/23 20:39	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		05/23/23 05:12	06/22/23 20:39	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.97	ng/L		05/23/23 05:12	06/22/23 20:39	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		05/23/23 05:12	06/22/23 20:39	1
NEtFOSA	ND		2.0	0.87	ng/L		05/23/23 05:12	06/22/23 20:39	1
NMeFOSA	ND		2.0	0.43	ng/L		05/23/23 05:12	06/22/23 20:39	1
NMeFOSAA	ND		5.0	1.2	ng/L		05/23/23 05:12	06/22/23 20:39	1
NEtFOSAA	ND		5.0	1.3	ng/L		05/23/23 05:12	06/22/23 20:39	1
NMeFOSE	ND		4.0	1.4	ng/L		05/23/23 05:12	06/22/23 20:39	1
NEtFOSE	ND		2.0	0.85	ng/L		05/23/23 05:12	06/22/23 20:39	1
4:2 FTS	ND		2.0	0.24	ng/L		05/23/23 05:12	06/22/23 20:39	1
6:2 FTS	ND		5.0	2.5	ng/L		05/23/23 05:12	06/22/23 20:39	1
8:2 FTS	ND		2.0	0.46	ng/L		05/23/23 05:12	06/22/23 20:39	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.40	ng/L		05/23/23 05:12	06/22/23 20:39	1
HFPO-DA (GenX)	ND		4.0	1.5	ng/L		05/23/23 05:12	06/22/23 20:39	1
9Cl-PF3ONS	ND		2.0	0.24	ng/L		05/23/23 05:12	06/22/23 20:39	1
11Cl-PF3OUdS	ND		2.0	0.32	ng/L		05/23/23 05:12	06/22/23 20:39	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C4 PFBA	97		25 - 150	05/23/23 05:12	06/22/23 20:39	1
13C5 PFPeA	96		25 - 150	05/23/23 05:12	06/22/23 20:39	1
13C2 PFHxA	97		25 - 150	05/23/23 05:12	06/22/23 20:39	1
13C4 PFHpA	103		25 - 150	05/23/23 05:12	06/22/23 20:39	1
13C4 PFOA	99		25 - 150	05/23/23 05:12	06/22/23 20:39	1
13C5 PFNA	99		25 - 150	05/23/23 05:12	06/22/23 20:39	1
13C2 PFDA	105		25 - 150	05/23/23 05:12	06/22/23 20:39	1
13C2 PFUnA	108		25 - 150	05/23/23 05:12	06/22/23 20:39	1
13C2 PFDoA	98		25 - 150	05/23/23 05:12	06/22/23 20:39	1
13C2 PFTeDA	94		25 - 150	05/23/23 05:12	06/22/23 20:39	1

Eurofins Sacramento

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS Phase 3

Job ID: 320-100432-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-676920/1-A
Matrix: Water
Analysis Batch: 685343

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 676920

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 PFBS	99		25 - 150	05/23/23 05:12	06/22/23 20:39	1
18O2 PFHxS	103		25 - 150	05/23/23 05:12	06/22/23 20:39	1
13C4 PFOS	105		25 - 150	05/23/23 05:12	06/22/23 20:39	1
13C8 FOSA	99		10 - 150	05/23/23 05:12	06/22/23 20:39	1
d3-NMeFOSAA	87		25 - 150	05/23/23 05:12	06/22/23 20:39	1
d5-NEtFOSAA	92		25 - 150	05/23/23 05:12	06/22/23 20:39	1
d-N-MeFOSA-M	72		10 - 150	05/23/23 05:12	06/22/23 20:39	1
d-N-EtFOSA-M	67		10 - 150	05/23/23 05:12	06/22/23 20:39	1
d7-N-MeFOSE-M	72		10 - 150	05/23/23 05:12	06/22/23 20:39	1
d9-N-EtFOSE-M	73		10 - 150	05/23/23 05:12	06/22/23 20:39	1
M2-4:2 FTS	92		25 - 150	05/23/23 05:12	06/22/23 20:39	1
M2-6:2 FTS	108		25 - 150	05/23/23 05:12	06/22/23 20:39	1
M2-8:2 FTS	118		25 - 150	05/23/23 05:12	06/22/23 20:39	1
13C3 HFPO-DA	86		25 - 150	05/23/23 05:12	06/22/23 20:39	1
13C2 10:2 FTS	112		25 - 150	05/23/23 05:12	06/22/23 20:39	1

Lab Sample ID: LCS 320-676920/2-A
Matrix: Water
Analysis Batch: 685343

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 676920

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	40.0	41.1		ng/L		103	60 - 135
Perfluoropentanoic acid (PFPA)	40.0	41.4		ng/L		104	60 - 135
Perfluorohexanoic acid (PFHxA)	40.0	38.4		ng/L		96	60 - 135
Perfluoroheptanoic acid (PFHpA)	40.0	38.4		ng/L		96	60 - 135
Perfluorooctanoic acid (PFOA)	40.0	39.7		ng/L		99	60 - 135
Perfluorononanoic acid (PFNA)	40.0	40.4		ng/L		101	60 - 135
Perfluorodecanoic acid (PFDA)	40.0	41.1		ng/L		103	60 - 135
Perfluoroundecanoic acid (PFUnA)	40.0	38.6		ng/L		97	60 - 135
Perfluorododecanoic acid (PFDoA)	40.0	39.7		ng/L		99	60 - 135
Perfluorotridecanoic acid (PFTrDA)	40.0	34.6		ng/L		86	60 - 135
Perfluorotetradecanoic acid (PFTeA)	40.0	38.9		ng/L		97	60 - 135
Perfluorobutanesulfonic acid (PFBS)	35.5	37.6		ng/L		106	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	37.6	38.8		ng/L		103	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	36.5	35.7		ng/L		98	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	38.2	36.4		ng/L		95	60 - 135
Perfluorooctanesulfonic acid (PFOS)	37.2	34.6		ng/L		93	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.5	36.6		ng/L		95	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	35.3		ng/L		91	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.8	27.6		ng/L		71	60 - 135

Eurofins Sacramento

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS Phase 3

Job ID: 320-100432-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-676920/2-A
 Matrix: Water
 Analysis Batch: 685343

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 676920

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	40.0	39.2		ng/L		98	60 - 135
NEtFOSA	40.0	38.5		ng/L		96	60 - 135
NMeFOSA	40.0	38.8		ng/L		97	60 - 135
NMeFOSAA	40.0	39.1		ng/L		98	60 - 135
NEtFOSAA	40.0	43.3		ng/L		108	60 - 135
NMeFOSE	40.0	38.3		ng/L		96	60 - 135
NEtFOSE	40.0	40.3		ng/L		101	60 - 135
4:2 FTS	37.5	38.2		ng/L		102	60 - 135
6:2 FTS	38.1	37.2		ng/L		98	60 - 135
8:2 FTS	38.4	38.9		ng/L		101	60 - 135
4,8-Dioxa-3H-perfluoronanoic acid (ADONA)	37.8	37.3		ng/L		99	60 - 135
HFPO-DA (GenX)	40.0	38.1		ng/L		95	60 - 135
9Cl-PF3ONS	37.4	34.3		ng/L		92	60 - 135
11Cl-PF3OUdS	37.8	32.9		ng/L		87	60 - 135

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	101		25 - 150
13C5 PFPeA	97		25 - 150
13C2 PFHxA	103		25 - 150
13C4 PFHpA	103		25 - 150
13C4 PFOA	103		25 - 150
13C5 PFNA	106		25 - 150
13C2 PFDA	113		25 - 150
13C2 PFUnA	113		25 - 150
13C2 PFDoA	104		25 - 150
13C2 PFTeDA	88		25 - 150
13C3 PFBS	96		25 - 150
18O2 PFHxS	98		25 - 150
13C4 PFOS	107		25 - 150
13C8 FOSA	95		10 - 150
d3-NMeFOSAA	92		25 - 150
d5-NEtFOSAA	96		25 - 150
d-N-MeFOSA-M	65		10 - 150
d-N-EtFOSA-M	62		10 - 150
d7-N-MeFOSE-M	71		10 - 150
d9-N-EtFOSE-M	68		10 - 150
M2-4:2 FTS	100		25 - 150
M2-6:2 FTS	113		25 - 150
M2-8:2 FTS	123		25 - 150
13C3 HFPO-DA	95		25 - 150
13C2 10:2 FTS	118		25 - 150

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS Phase 3

Job ID: 320-100432-1

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 500-714623/1
Matrix: Water
Analysis Batch: 714623

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		5.0	1.9	mg/L			05/22/23 16:25	1

Lab Sample ID: LCS 500-714623/2
Matrix: Water
Analysis Batch: 714623

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	200	201		mg/L		101	80 - 120

Lab Sample ID: 320-100432-2 MS
Matrix: Water
Analysis Batch: 714623

Client Sample ID: Eff 20230516
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	2.6	J	100	106		mg/L		103	75 - 125

QC Association Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS Phase 3

Job ID: 320-100432-1

LCMS

Prep Batch: 676920

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-100432-1	Inf Comp 20230515	Total/NA	Water	3535	
320-100432-2	Eff 20230516	Total/NA	Water	3535	
MB 320-676920/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-676920/2-A	Lab Control Sample	Total/NA	Water	3535	

Analysis Batch: 685343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-100432-1	Inf Comp 20230515	Total/NA	Water	537 (modified)	676920
320-100432-2	Eff 20230516	Total/NA	Water	537 (modified)	676920
MB 320-676920/1-A	Method Blank	Total/NA	Water	537 (modified)	676920
LCS 320-676920/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	676920

General Chemistry

Analysis Batch: 714623

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-100432-1	Inf Comp 20230515	Total/NA	Water	SM 2540D	
320-100432-2	Eff 20230516	Total/NA	Water	SM 2540D	
MB 500-714623/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 500-714623/2	Lab Control Sample	Total/NA	Water	SM 2540D	
320-100432-2 MS	Eff 20230516	Total/NA	Water	SM 2540D	

Lab Chronicle

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS Phase 3

Job ID: 320-100432-1

Client Sample ID: Inf Comp 20230515

Lab Sample ID: 320-100432-1

Date Collected: 05/15/23 23:59

Matrix: Water

Date Received: 05/18/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			265.6 mL	10.0 mL	676920	05/23/23 05:12	EFG	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	685343	06/22/23 21:01	RS1	EET SAC
Total/NA	Analysis	SM 2540D		1	65 mL	500 mL	714623	05/22/23 16:45	CLB	EET CHI
								Completed: 05/22/23 16:48 ¹		

Client Sample ID: Eff 20230516

Lab Sample ID: 320-100432-2

Date Collected: 05/16/23 23:59

Matrix: Water

Date Received: 05/18/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			261.1 mL	10.0 mL	676920	05/23/23 05:12	EFG	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	685343	06/22/23 21:12	RS1	EET SAC
Total/NA	Analysis	SM 2540D		1	500 mL	500 mL	714623	05/22/23 16:48	CLB	EET CHI
								Completed: 05/22/23 16:52 ¹		

¹ This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS Phase 3

Job ID: 320-100432-1

Laboratory: Eurofins Sacramento

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4040	01-29-24
Wisconsin	State	998204680	08-31-23

Laboratory: Eurofins Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999580010	08-31-23

- 1
- 2
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- 12
- 13
- 14
- 15

Method Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS Phase 3

Job ID: 320-100432-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	EET SAC
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CHI
3535	Solid-Phase Extraction (SPE)	SW846	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

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 CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS Phase 3

Job ID: 320-100432-1

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Collected</u>	<u>Received</u>
320-100432-1	Inf Comp 20230515	Water	05/15/23 23:59	05/18/23 09:40
320-100432-2	Eff 20230516	Water	05/16/23 23:59	05/18/23 09:40

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Reports to TRC
Address: Mike Ursin
708 Heartland Tr Suite 2000 m ursin@trcompanies.com
Madison, WI 53717

TAL-8210

Client Contact Company Name: Madison Metro Sewerage Dist Address: 1610 Moorland City/State/Zip: Madison, WI 53713-3398 Phone: 608.218-0861 Fax: Project Name: MMSD Phase 3 Site: MMSD PO #: 2200422		Project Manager: Julie Madis Tel/Email: juliemad@madsewer.org Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Site Contact: Lab Contact: Mary Powers Date: 5-17-23 Carrier: Fed Ex COC No: 574222 Sampler: 1 of 1 COCs	
Regulatory Program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other:		Filtered Sample (Y/N) <input type="checkbox"/> N Perform MS/MSD (Y/N) <input type="checkbox"/> N		Sample Specific Notes:	
Sample Identification InfComp 20230515 Eff 20230516		Sample Date 5/15/23 23:59 5/16/23 23:59		Sample Type (C=Comp, G=Grab) C C	
Matrix WW WW		# of Cont. 3 3		Sample Specific Notes:	
320-100432 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.					
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown					
Special Instructions/QC Requirements & Comments: For Influent sample follow EPA 19-001 (WI FFAS method expectations) sec V13 procedure for particulates in aqueous samples. Centrifuge as needed					
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.: 215357/215356 Cooler Temp. (°C): 18 Corrid: 18		Therm ID No.: LAB3	
Relinquished by: Jennifer Faust		Received by: [Signature] Date/Time: 5-17-23 Date/Time: 5-17-23		Company: MMSD Company: MMSD	
Relinquished by:		Received in Laboratory by:		Company:	



Login Sample Receipt Checklist

Client: Madison Metropolitan Sewerage District

Job Number: 320-100432-1

Login Number: 100432

List Source: Eurofins Sacramento

List Number: 1

Creator: Smith, Micah

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	2115357/2115356
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?	False	
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 <math><6\text{mm}</math> (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: Madison Metropolitan Sewerage District

Job Number: 320-100432-1

Login Number: 100432

List Number: 2

Creator: Hernandez, Stephanie

List Source: Eurofins Chicago

List Creation: 05/20/23 02:35 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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	-0.5 Samples not frozen
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 <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



June 2023

 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Julie Maas
Madison Metropolitan Sewerage District
1610 Moorland Road
Madison, Wisconsin 53713-3398

Generated 6/26/2023 4:14:00 PM

JOB DESCRIPTION

MMSD PFAS

JOB NUMBER

320-101909-1

Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

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 Northern California, LLC Project Manager.

Authorization



Generated
6/26/2023 4:14:00 PM

Authorized for release by
Micah Smith, Project Manager II
Micah.Smith@et.eurofinsus.com
(916)374-4302



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Definitions/Glossary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-101909-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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

Case Narrative

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-101909-1

Job ID: 320-101909-1

Laboratory: Eurofins Sacramento

Narrative

**Job Narrative
320-101909-1**

Comments

No additional comments.

Receipt

The samples were received on 6/24/2023 9:25 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 was 1.3° C.

General Chemistry

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

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Detection Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-101909-1

Client Sample ID: Inf0220230619

Lab Sample ID: 320-101909-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	300		50	19	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Inf0720230619

Lab Sample ID: 320-101909-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	290		45	18	mg/L	1		SM 2540D	Total/NA

Client Sample ID: In0820230619

Lab Sample ID: 320-101909-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	280		42	16	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Inf1120230619

Lab Sample ID: 320-101909-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	320		50	19	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Inf1820230619

Lab Sample ID: 320-101909-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	400		63	24	mg/L	1		SM 2540D	Total/NA

Client Sample ID: InfComp20230619

Lab Sample ID: 320-101909-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	320		50	19	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Eff20230620

Lab Sample ID: 320-101909-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	8.9		5.0	1.9	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-101909-1

Client Sample ID: Inf0220230619

Lab Sample ID: 320-101909-1

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/24/23 09:25

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	300		50	19	mg/L			06/24/23 10:18	1

Client Sample ID: Inf0720230619

Lab Sample ID: 320-101909-2

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/24/23 09:25

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	290		45	18	mg/L			06/24/23 10:24	1

Client Sample ID: In0820230619

Lab Sample ID: 320-101909-3

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/24/23 09:25

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	280		42	16	mg/L			06/24/23 10:30	1

Client Sample ID: Inf1120230619

Lab Sample ID: 320-101909-4

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/24/23 09:25

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	320		50	19	mg/L			06/24/23 10:36	1

Client Sample ID: Inf1820230619

Lab Sample ID: 320-101909-5

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/24/23 09:25

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	400		63	24	mg/L			06/24/23 10:42	1

Client Sample ID: InfComp20230619

Lab Sample ID: 320-101909-6

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/24/23 09:25

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	320		50	19	mg/L			06/24/23 10:48	1

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-101909-1

Client Sample ID: Eff20230620

Lab Sample ID: 320-101909-7

Date Collected: 06/20/23 23:59

Matrix: Water

Date Received: 06/24/23 09:25

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	8.9		5.0	1.9	mg/L			06/24/23 10:54	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-101909-1

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 500-720269/1
Matrix: Water
Analysis Batch: 720269

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		5.0	1.9	mg/L			06/24/23 08:32	1

Lab Sample ID: LCS 500-720269/2
Matrix: Water
Analysis Batch: 720269

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	200	212		mg/L		106	80 - 120

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QC Association Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-101909-1

General Chemistry

Analysis Batch: 720269

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-101909-1	Inf0220230619	Total/NA	Water	SM 2540D	
320-101909-2	Inf0720230619	Total/NA	Water	SM 2540D	
320-101909-3	Inf0820230619	Total/NA	Water	SM 2540D	
320-101909-4	Inf1120230619	Total/NA	Water	SM 2540D	
320-101909-5	Inf1820230619	Total/NA	Water	SM 2540D	
320-101909-6	InfComp20230619	Total/NA	Water	SM 2540D	
320-101909-7	Eff20230620	Total/NA	Water	SM 2540D	
MB 500-720269/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 500-720269/2	Lab Control Sample	Total/NA	Water	SM 2540D	

Lab Chronicle

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-101909-1

Client Sample ID: Inf0220230619

Lab Sample ID: 320-101909-1

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/24/23 09:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	50 mL	500 mL	720269	06/24/23 10:18	MB	EET CHI
								Completed:	06/24/23 10:24	¹

Client Sample ID: Inf0720230619

Lab Sample ID: 320-101909-2

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/24/23 09:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	55 mL	500 mL	720269	06/24/23 10:24	MB	EET CHI
								Completed:	06/24/23 10:30	¹

Client Sample ID: In0820230619

Lab Sample ID: 320-101909-3

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/24/23 09:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	60 mL	500 mL	720269	06/24/23 10:30	MB	EET CHI
								Completed:	06/24/23 10:36	¹

Client Sample ID: Inf1120230619

Lab Sample ID: 320-101909-4

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/24/23 09:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	50 mL	500 mL	720269	06/24/23 10:36	MB	EET CHI
								Completed:	06/24/23 10:42	¹

Client Sample ID: Inf1820230619

Lab Sample ID: 320-101909-5

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/24/23 09:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	40 mL	500 mL	720269	06/24/23 10:42	MB	EET CHI
								Completed:	06/24/23 10:48	¹

Client Sample ID: InfComp20230619

Lab Sample ID: 320-101909-6

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/24/23 09:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	50 mL	500 mL	720269	06/24/23 10:48	MB	EET CHI
								Completed:	06/24/23 10:54	¹

Eurofins Sacramento

Lab Chronicle

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-101909-1

Client Sample ID: Eff20230620

Lab Sample ID: 320-101909-7

Date Collected: 06/20/23 23:59

Matrix: Water

Date Received: 06/24/23 09:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	500 mL	500 mL	720269	06/24/23 10:54	MB	EET CHI
								Completed:	06/24/23 11:00	¹

¹ This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200



Accreditation/Certification Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-101909-1

Laboratory: Eurofins Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999580010	08-31-23

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Method Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-101909-1

Method	Method Description	Protocol	Laboratory
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CHI

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

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Sample Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-101909-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-101909-1	Inf0220230619	Water	06/19/23 23:59	06/24/23 09:25
320-101909-2	Inf0720230619	Water	06/19/23 23:59	06/24/23 09:25
320-101909-3	Inf0820230619	Water	06/19/23 23:59	06/24/23 09:25
320-101909-4	Inf1120230619	Water	06/19/23 23:59	06/24/23 09:25
320-101909-5	Inf1820230619	Water	06/19/23 23:59	06/24/23 09:25
320-101909-6	InfComp20230619	Water	06/19/23 23:59	06/24/23 09:25
320-101909-7	Eff20230620	Water	06/20/23 23:59	06/24/23 09:25

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FedEx Express *Package US Airbill*

FedEx Tracking Number

8137 1044 5064

Form ID No.

0215

320-101909 Waybr



fedex.com 1.800.GoFedEx 1.800.463.3339

1 From

Date _____

Sender's Name _____ Phone _____

Company _____

Address _____ Dept./Floor/Suite/Room _____

City _____ State _____ ZIP _____

2 Your Internal Billing Reference

3 To

Recipient's Name _____ Phone _____

Company _____

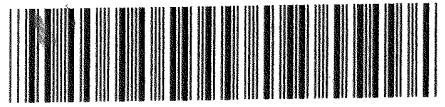
Address _____ Dept./Floor/Suite/Room _____

Address _____
Use this line for the HOLD location address or for continuation of your shipping address.

City _____ State _____ ZIP _____

Hold Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.

Hold Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.



8137 1044 5064

4 Express Package Service * To most locations. **Packages up to 150 lbs.**
For packages over 150 lbs. use the FedEx Express Freight US Airbill.

Next Business Day

FedEx First Overnight
Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless Saturday Delivery is selected.

FedEx Priority Overnight
Next business morning. Friday shipments will be delivered on Monday unless Saturday Delivery is selected.

FedEx Standard Overnight
Next business afternoon.* Saturday Delivery NOT available.

2 or 3 Business Days

FedEx 2Day A.M.
Second business morning. Saturday Delivery NOT available.

FedEx 2Day
Second business afternoon.* Thursday shipments will be delivered on Monday unless Saturday Delivery is selected.

FedEx Express Saver
Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit \$500.

FedEx Envelope* FedEx Pak* FedEx Box FedEx Tube Other

6 Special Handling and Delivery Signature Options Fees may apply. See the FedEx Service Guide.

Saturday Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M. or FedEx Express Saver

No Signature Required
Package may be left without obtaining a signature for delivery.

Direct Signature
Someone at recipient's address may sign for delivery.

Indirect Signature
If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only.

Does this shipment contain dangerous goods?

No Yes Yes Dry Ice Cargo Aircraft Only

As per attached Shipper's Declaration. Shipper's Declaration not required.

Restrictions apply for dangerous goods — see the current FedEx Service Guide.

7 Payment Bill to:

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Total Packages _____ Total Weight _____ lbs. Credit Card Auth. _____

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Send results to Mike Ursin

mlursine@trc.companies.com

Chain of Custody Record

703294



Environment Testing America

TAL-8210

Address TRC
999 Fourier Dr Suite 101
Madison, WI 53717

Regulatory Program: DW NPDES RCRA Other

Client Contact		Project Manager <u>Mary Powers</u>		Site Contact <u>Mary Powers</u>		Date <u>6/23/23</u>		COC No <u>703294</u>	
Company Name <u>MMSD</u>		Tel/Email <u>maryp@madsewer.org</u>		Lab Contact <u>Jenny Faust</u>		Carrier <u>Fed Ex</u>		of COCs	
Address <u>1610 Moorland Rd</u>		Analysis Turnaround Time		Filtered Sample (Y/N) <u>TSS</u> Perform MS/MSD (Y/N)		320-101909 COC		Sampler	
City/State/Zip <u>Madison, WI 53713-3398</u>		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS						For Lab Use Only	
Phone <u>608 222-1201</u>		TAT if different from Below						Walk-in Client	
Fax		<input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day						Lab Sampling	
Project Name <u>MMSD Phase B</u>		Job / SDG No <u>320-101909</u>							
Site <u>MMSD</u>									
P O # <u>220422</u>									
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Sample Specific Notes
1 <u>Inf02 20230619</u>		<u>6/19/23</u>	<u>23:54</u>	<u>C</u>	<u>WW</u>	<u>1</u>	<u>N</u>	<u>X</u>	
2 <u>Inf07 20230619</u>		↓	↓	<u>C</u>	<u>WW</u>	<u>1</u>	↓	<u>X</u>	
3 <u>Inf08 20230619</u>		↓	↓	<u>C</u>	<u>WW</u>	<u>1</u>	↓	<u>X</u>	
4 <u>Inf11 20230619</u>		↓	↓	<u>C</u>	<u>WW</u>	<u>1</u>	↓	<u>X</u>	
5 <u>Inf18 20230619</u>		↓	↓	<u>C</u>	<u>WW</u>	<u>1</u>	↓	<u>X</u>	
6 <u>Inf Comp 20230619</u>		↓	↓	<u>C</u>	<u>WW</u>	<u>1</u>	↓	<u>X</u>	
7 <u>EFF 20230620</u>		<u>6/20/23</u>	↓	<u>C</u>	<u>WW</u>	<u>1</u>	↓	<u>X</u>	
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					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input checked="" type="checkbox"/> Non Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown					<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments									
Custody Seals Intact. <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No		Cooler Temp (°C) Obs'd <u>1.6</u> Cor'd <u>1.3</u>		Therm ID No			
Relinquished by <u>Jenny Faust</u>		Company <u>MMSD</u>		Date/Time <u>6/23/23 14:05</u>		Received by		Company	
Relinquished by		Company		Date/Time		Received by		Company	
Relinquished by		Company		Date/Time		Received in Laboratory by <u>Stephanie Humandly</u>		Company <u>EETA</u>	
								Date/Time <u>6/24/23 0925</u>	

Login Sample Receipt Checklist

Client: Madison Metropolitan Sewerage District

Job Number: 320-101909-1

Login Number: 101909

List Number: 2

Creator: Hernandez, Stephanie

List Source: Eurofins Chicago

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	1.3
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?	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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Julie Maas
Madison Metropolitan Sewerage District
1610 Moorland Road
Madison, Wisconsin 53713-3398

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JOB DESCRIPTION

MMSD Phase 3

JOB NUMBER

320-101930-2

Eurofins Sacramento

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 Northern California, LLC Project Manager.

Authorization



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Authorized for release by
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(916)374-4302



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Definitions/Glossary

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
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.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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

Case Narrative

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Job ID: 320-101930-2

Laboratory: Eurofins Sacramento

Narrative

Job Narrative 320-101930-2

Comments

No additional comments.

Receipt

The samples were received on 6/26/2023 9:10 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 was 15.2° C.

Receipt Exceptions

The following samples were received at the laboratory outside the required temperature criteria: Inf0220230619 (320-101930-1), Inf0720230619 (320-101930-2), Inf0820230619 (320-101930-3), Inf1120230619 (320-101930-4), Inf1820230619 (320-101930-5), Eff20230620 (320-101930-6), Inf Comp 20230619 (320-101930-7), BioA20230621 (320-101930-8), BioB20230621 (320-101930-9) and EB0120230621 (320-101930-10). Cooling media present in the cooler was melted.

LCMS

Method 537 (modified): The "I" qualifier means the transition mass ratio for the indicated analyte was above the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte. The following samples are associated with this narration: Inf0220230619 (320-101930-1), Inf0820230619 (320-101930-3) and Inf Comp 20230619 (320-101930-7).

Method 537 (modified): The "I" qualifier means the transition mass ratio for the indicated analyte was below 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 following samples are associated with this narration: Inf0220230619 (320-101930-1) and Inf0820230619 (320-101930-3).

Method 537 (modified): The "I" qualifier means the transition mass ratio for the indicated analyte was above the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte: BioB20230621 (320-101930-9)

Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following samples are below the method recommended limit: Inf0220230619 (320-101930-1), Inf0720230619 (320-101930-2), Inf0820230619 (320-101930-3), Inf1120230619 (320-101930-4), Inf1820230619 (320-101930-5) and Inf Comp 20230619 (320-101930-7). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the samples. These samples were re-analyzed with concurring results, therefore, the original data was reported.

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

General Chemistry

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

Organic Prep

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-688614 and 320-688614

Method 3535: The following samples in preparation batch 320-688614 were yellow in color prior to and following extraction. Inf0220230619 (320-101930-1), Inf0720230619 (320-101930-2), Inf0820230619 (320-101930-3), Inf1120230619 (320-101930-4), Inf1820230619 (320-101930-5), Eff20230620 (320-101930-6) and Inf Comp 20230619 (320-101930-7).

Method 3535: During the solid phase extraction process, the following samples contained non-settable particulates which clogged the solid phase extraction column: Inf0220230619 (320-101930-1), Inf0720230619 (320-101930-2), Inf0820230619 (320-101930-3), Inf1120230619 (320-101930-4), Inf820230619 (320-101930-5), and Inf Comp 20230619 (320-101930-7). Approximately 84% (320-101930-1), 75% (320-101930-2), 67% (320-101930-3), 65% (320-101930-4), 73% (320-101930-5), and 73% of (320-101930-7), respectively, of the sample container was filtered through the SPE column at which point the SPE column became clogged. The remainder of the unfiltered samples were retained in the original sample bottles. The SPE column along with the particulates that clogged it were

Case Narrative

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Job ID: 320-101930-2 (Continued)

Laboratory: Eurofins Sacramento (Continued)

then extracted using the elution solvent.

Method SHAKE: Due to the matrix, the initial volumes used for the following samples deviated from the standard procedure: BioA20230621 (320-101930-8). The reporting limits (RLs) have been adjusted proportionately.

Method SHAKE: The following sample in preparation batch 320-692232 was yellow in color following extraction: BioA20230621 (320-101930-8).

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

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Detection Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: Inf0220230619

Lab Sample ID: 320-101930-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	3.8	J	4.4	2.1	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	3.6		1.8	0.43	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	23		1.8	0.51	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.1	J	1.8	0.22	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	3.0		1.8	0.75	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.40	J I	1.8	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.45	J	1.8	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.2	J I	1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	4.0	I	1.8	0.50	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	5.0	I	1.8	0.48	ng/L	1		537 (modified)	Total/NA

Client Sample ID: Inf0720230619

Lab Sample ID: 320-101930-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	10		4.3	2.1	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	5.3		1.7	0.42	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	10		1.7	0.50	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.8		1.7	0.22	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	6.7		1.7	0.73	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.48	J	1.7	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.41	J	1.7	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	5.3		1.7	0.17	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.81	J	1.7	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	12		1.7	0.49	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	0.19	J	1.7	0.16	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	5.7		1.7	0.47	ng/L	1		537 (modified)	Total/NA

Client Sample ID: Inf0820230619

Lab Sample ID: 320-101930-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	7.3		4.7	2.3	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	3.0		1.9	0.46	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	5.4		1.9	0.54	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.0	J	1.9	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.9		1.9	0.80	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.27	J	1.9	0.25	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.46	J	1.9	0.29	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.3	J	1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.0	I	1.9	0.53	ng/L	1		537 (modified)	Total/NA

Client Sample ID: Inf1120230619

Lab Sample ID: 320-101930-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.8	J	4.4	2.1	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	0.59	J	1.7	0.43	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	4.5		1.7	0.51	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.63	J	1.7	0.22	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.7		1.7	0.74	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.35	J I	1.7	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.83	J	1.7	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.5	I	1.7	0.50	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: Inf1120230619 (Continued)

Lab Sample ID: 320-101930-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.36	J I	1.7	0.35	ng/L	1		537 (modified)	Total/NA

Client Sample ID: Inf1820230619

Lab Sample ID: 320-101930-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	9.5		4.3	2.1	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	4.7		1.7	0.42	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	7.8		1.7	0.50	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.9		1.7	0.22	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	7.2		1.7	0.73	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.48	J	1.7	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.3		1.7	0.17	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	1.0	J	1.7	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	13		1.7	0.49	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	0.26	J	1.7	0.16	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	8.4		1.7	0.47	ng/L	1		537 (modified)	Total/NA
6:2 FTS	2.5	J	4.3	2.2	ng/L	1		537 (modified)	Total/NA

Client Sample ID: Eff20230620

Lab Sample ID: 320-101930-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	10		4.5	2.2	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	17		1.8	0.44	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	22		1.8	0.52	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.3		1.8	0.22	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	7.4		1.8	0.76	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.52	J	1.8	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	1.5	J	1.8	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.2		1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.65	J I	1.8	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	8.0		1.8	0.51	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.8		1.8	0.48	ng/L	1		537 (modified)	Total/NA
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.53	J	1.8	0.36	ng/L	1		537 (modified)	Total/NA

Client Sample ID: Inf Comp 20230619

Lab Sample ID: 320-101930-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	6.9		4.3	2.1	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	3.3		1.7	0.42	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	6.5		1.7	0.50	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.3	J	1.7	0.22	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	4.1		1.7	0.74	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.39	J I	1.7	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.0		1.7	0.17	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.40	J	1.7	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	7.1		1.7	0.49	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	4.3		1.7	0.47	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: BioA20230621

Lab Sample ID: 320-101930-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.8	J	4.4	1.0	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	7.8		4.4	0.90	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	15		4.4	0.68	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	6.0		4.4	1.2	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	8.9		4.4	1.1	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.7	J	4.4	0.93	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	4.2	J	4.4	0.66	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotridecanoic acid (PFTrDA)	0.57	J	4.4	0.46	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	1.6	J	4.4	0.82	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanesulfonic acid (PFDS)	10		4.4	1.1	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.5	J	4.4	0.73	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSAA	27		4.4	0.51	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSAA	9.2		4.4	1.1	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSE	21		4.4	1.0	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSE	3.3	J	4.4	0.62	ug/Kg	1	✳	537 (modified)	Total/NA
8:2 FTS	1.1	J	4.4	0.77	ug/Kg	1	✳	537 (modified)	Total/NA
11CI-PF3OUdS	0.77	J	4.4	0.68	ug/Kg	1	✳	537 (modified)	Total/NA

Client Sample ID: BioB20230621

Lab Sample ID: 320-101930-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	1.5	J	3.3	0.86	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	5.0		3.3	0.78	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.2	J	3.3	0.68	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	2.4	J	3.3	0.49	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotridecanoic acid (PFTrDA)	0.50	J	3.3	0.34	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	0.62	J	3.3	0.60	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanesulfonic acid (PFDS)	11	I	3.3	0.85	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	0.62	J	3.3	0.54	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSAA	11		3.3	0.37	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSAA	4.3		3.3	0.78	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSE	6.7		3.3	0.77	ug/Kg	1	✳	537 (modified)	Total/NA

Client Sample ID: EB0120230621

Lab Sample ID: 320-101930-10

No Detections.

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: Inf0220230619

Lab Sample ID: 320-101930-1

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	3.8	J	4.4	2.1	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluoropentanoic acid (PFPA)	3.6		1.8	0.43	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorohexanoic acid (PFHxA)	23		1.8	0.51	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluoroheptanoic acid (PFHpA)	1.1	J	1.8	0.22	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorooctanoic acid (PFOA)	3.0		1.8	0.75	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorononanoic acid (PFNA)	0.40	J I	1.8	0.24	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorodecanoic acid (PFDA)	0.45	J	1.8	0.27	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.97	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.48	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.1	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.64	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorobutanesulfonic acid (PFBS)	1.2	J I	1.8	0.18	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.8	0.26	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorohexanesulfonic acid (PFHxS)	4.0	I	1.8	0.50	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorooctanesulfonic acid (PFOS)	5.0	I	1.8	0.48	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.33	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.28	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.85	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.86	ng/L		07/06/23 18:44	07/14/23 00:25	1
NEtFOSA	ND		1.8	0.77	ng/L		07/06/23 18:44	07/14/23 00:25	1
NMeFOSA	ND		1.8	0.38	ng/L		07/06/23 18:44	07/14/23 00:25	1
NMeFOSAA	ND		4.4	1.1	ng/L		07/06/23 18:44	07/14/23 00:25	1
NEtFOSAA	ND		4.4	1.1	ng/L		07/06/23 18:44	07/14/23 00:25	1
NMeFOSE	ND		3.5	1.2	ng/L		07/06/23 18:44	07/14/23 00:25	1
NEtFOSE	ND		1.8	0.75	ng/L		07/06/23 18:44	07/14/23 00:25	1
4:2 FTS	ND		1.8	0.21	ng/L		07/06/23 18:44	07/14/23 00:25	1
6:2 FTS	ND		4.4	2.2	ng/L		07/06/23 18:44	07/14/23 00:25	1
8:2 FTS	ND		1.8	0.40	ng/L		07/06/23 18:44	07/14/23 00:25	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.35	ng/L		07/06/23 18:44	07/14/23 00:25	1
HFPO-DA (GenX)	ND		3.5	1.3	ng/L		07/06/23 18:44	07/14/23 00:25	1
9CI-PF3ONS	ND		1.8	0.21	ng/L		07/06/23 18:44	07/14/23 00:25	1
11CI-PF3OUdS	ND		1.8	0.28	ng/L		07/06/23 18:44	07/14/23 00:25	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	48		25 - 150				07/06/23 18:44	07/14/23 00:25	1
13C5 PFPeA	60		25 - 150				07/06/23 18:44	07/14/23 00:25	1
13C2 PFHxA	57		25 - 150				07/06/23 18:44	07/14/23 00:25	1
13C4 PFHpA	71		25 - 150				07/06/23 18:44	07/14/23 00:25	1
13C4 PFOA	69		25 - 150				07/06/23 18:44	07/14/23 00:25	1
13C5 PFNA	73		25 - 150				07/06/23 18:44	07/14/23 00:25	1
13C2 PFDA	75		25 - 150				07/06/23 18:44	07/14/23 00:25	1
13C2 PFUnA	56		25 - 150				07/06/23 18:44	07/14/23 00:25	1
13C2 PFDoA	35		25 - 150				07/06/23 18:44	07/14/23 00:25	1
13C2 PFTeDA	20	*5-	25 - 150				07/06/23 18:44	07/14/23 00:25	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: Inf0220230619

Lab Sample ID: 320-101930-1

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	63		25 - 150	07/06/23 18:44	07/14/23 00:25	1
18O2 PFHxS	66		25 - 150	07/06/23 18:44	07/14/23 00:25	1
13C4 PFOS	62		25 - 150	07/06/23 18:44	07/14/23 00:25	1
13C8 FOSA	56		10 - 150	07/06/23 18:44	07/14/23 00:25	1
d3-NMeFOSAA	36		25 - 150	07/06/23 18:44	07/14/23 00:25	1
d5-NEtFOSAA	44		25 - 150	07/06/23 18:44	07/14/23 00:25	1
d-N-MeFOSA-M	16		10 - 150	07/06/23 18:44	07/14/23 00:25	1
d-N-EtFOSA-M	32		10 - 150	07/06/23 18:44	07/14/23 00:25	1
d7-N-MeFOSE-M	19		10 - 150	07/06/23 18:44	07/14/23 00:25	1
d9-N-EtFOSE-M	38		10 - 150	07/06/23 18:44	07/14/23 00:25	1
M2-4:2 FTS	71		25 - 150	07/06/23 18:44	07/14/23 00:25	1
M2-6:2 FTS	138		25 - 150	07/06/23 18:44	07/14/23 00:25	1
M2-8:2 FTS	114		25 - 150	07/06/23 18:44	07/14/23 00:25	1
13C3 HFPO-DA	60		25 - 150	07/06/23 18:44	07/14/23 00:25	1
13C2 10:2 FTS	45		25 - 150	07/06/23 18:44	07/14/23 00:25	1

Client Sample ID: Inf0720230619

Lab Sample ID: 320-101930-2

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	10		4.3	2.1	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluoropentanoic acid (PFPA)	5.3		1.7	0.42	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorohexanoic acid (PFHxA)	10		1.7	0.50	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluoroheptanoic acid (PFHpA)	1.8		1.7	0.22	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorooctanoic acid (PFOA)	6.7		1.7	0.73	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorononanoic acid (PFNA)	0.48	J	1.7	0.23	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorodecanoic acid (PFDA)	0.41	J	1.7	0.27	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.95	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.47	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.7	1.1	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.63	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorobutanesulfonic acid (PFBS)	5.3		1.7	0.17	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluoropentanesulfonic acid (PFPeS)	0.81	J	1.7	0.26	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorohexanesulfonic acid (PFHxS)	12		1.7	0.49	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluoroheptanesulfonic acid (PFHpS)	0.19	J	1.7	0.16	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorooctanesulfonic acid (PFOS)	5.7		1.7	0.47	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.32	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.28	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.84	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorooctanesulfonamide (FOSA)	ND		1.7	0.84	ng/L		07/06/23 18:44	07/14/23 00:36	1
NEtFOSA	ND		1.7	0.75	ng/L		07/06/23 18:44	07/14/23 00:36	1
NMeFOSA	ND		1.7	0.37	ng/L		07/06/23 18:44	07/14/23 00:36	1
NMeFOSAA	ND		4.3	1.0	ng/L		07/06/23 18:44	07/14/23 00:36	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: Inf0720230619

Lab Sample ID: 320-101930-2

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	ND		4.3	1.1	ng/L		07/06/23 18:44	07/14/23 00:36	1
NMeFOSE	ND		3.4	1.2	ng/L		07/06/23 18:44	07/14/23 00:36	1
NEtFOSE	ND		1.7	0.73	ng/L		07/06/23 18:44	07/14/23 00:36	1
4:2 FTS	ND		1.7	0.21	ng/L		07/06/23 18:44	07/14/23 00:36	1
6:2 FTS	ND		4.3	2.2	ng/L		07/06/23 18:44	07/14/23 00:36	1
8:2 FTS	ND		1.7	0.40	ng/L		07/06/23 18:44	07/14/23 00:36	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.34	ng/L		07/06/23 18:44	07/14/23 00:36	1
HFPO-DA (GenX)	ND		3.4	1.3	ng/L		07/06/23 18:44	07/14/23 00:36	1
9CI-PF3ONS	ND		1.7	0.21	ng/L		07/06/23 18:44	07/14/23 00:36	1
11CI-PF3OUdS	ND		1.7	0.28	ng/L		07/06/23 18:44	07/14/23 00:36	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	57		25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C5 PFPeA	67		25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C2 PFHxA	58		25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C4 PFHpA	73		25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C4 PFOA	72		25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C5 PFNA	74		25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C2 PFDA	73		25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C2 PFUnA	55		25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C2 PFDoA	30		25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C2 PFTeDA	16	*5-	25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C3 PFBS	64		25 - 150				07/06/23 18:44	07/14/23 00:36	1
18O2 PFHxS	67		25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C4 PFOS	63		25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C8 FOSA	52		10 - 150				07/06/23 18:44	07/14/23 00:36	1
d3-NMeFOSAA	31		25 - 150				07/06/23 18:44	07/14/23 00:36	1
d5-NEtFOSAA	45		25 - 150				07/06/23 18:44	07/14/23 00:36	1
d-N-MeFOSA-M	15		10 - 150				07/06/23 18:44	07/14/23 00:36	1
d-N-EtFOSA-M	32		10 - 150				07/06/23 18:44	07/14/23 00:36	1
d7-N-MeFOSE-M	17		10 - 150				07/06/23 18:44	07/14/23 00:36	1
d9-N-EtFOSE-M	37		10 - 150				07/06/23 18:44	07/14/23 00:36	1
M2-4:2 FTS	72		25 - 150				07/06/23 18:44	07/14/23 00:36	1
M2-6:2 FTS	139		25 - 150				07/06/23 18:44	07/14/23 00:36	1
M2-8:2 FTS	106		25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C3 HFPO-DA	61		25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C2 10:2 FTS	43		25 - 150				07/06/23 18:44	07/14/23 00:36	1

Client Sample ID: Inf0820230619

Lab Sample ID: 320-101930-3

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	7.3		4.7	2.3	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluoropentanoic acid (PFPA)	3.0		1.9	0.46	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluorohexanoic acid (PFHxA)	5.4		1.9	0.54	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluoroheptanoic acid (PFHpA)	1.0	J	1.9	0.23	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluorooctanoic acid (PFOA)	1.9		1.9	0.80	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluorononanoic acid (PFNA)	0.27	J	1.9	0.25	ng/L		07/06/23 18:44	07/14/23 00:48	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: Inf0820230619

Lab Sample ID: 320-101930-3

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanoic acid (PFDA)	0.46	J	1.9	0.29	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluorobutanesulfonic acid (PFBS)	1.3	J	1.9	0.19	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.9	0.28	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluorohexanesulfonic acid (PFHxS)	3.0	I	1.9	0.53	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.51	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.35	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.91	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.92	ng/L		07/06/23 18:44	07/14/23 00:48	1
NEtFOSA	ND		1.9	0.82	ng/L		07/06/23 18:44	07/14/23 00:48	1
NMeFOSA	ND		1.9	0.40	ng/L		07/06/23 18:44	07/14/23 00:48	1
NMeFOSAA	ND		4.7	1.1	ng/L		07/06/23 18:44	07/14/23 00:48	1
NEtFOSAA	ND		4.7	1.2	ng/L		07/06/23 18:44	07/14/23 00:48	1
NMeFOSE	ND		3.8	1.3	ng/L		07/06/23 18:44	07/14/23 00:48	1
NEtFOSE	ND		1.9	0.80	ng/L		07/06/23 18:44	07/14/23 00:48	1
4:2 FTS	ND		1.9	0.23	ng/L		07/06/23 18:44	07/14/23 00:48	1
6:2 FTS	ND		4.7	2.3	ng/L		07/06/23 18:44	07/14/23 00:48	1
8:2 FTS	ND		1.9	0.43	ng/L		07/06/23 18:44	07/14/23 00:48	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		07/06/23 18:44	07/14/23 00:48	1
HFPO-DA (GenX)	ND		3.8	1.4	ng/L		07/06/23 18:44	07/14/23 00:48	1
9Cl-PF3ONS	ND		1.9	0.23	ng/L		07/06/23 18:44	07/14/23 00:48	1
11Cl-PF3OUdS	ND		1.9	0.30	ng/L		07/06/23 18:44	07/14/23 00:48	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	39		25 - 150				07/06/23 18:44	07/14/23 00:48	1
13C5 PFPeA	39		25 - 150				07/06/23 18:44	07/14/23 00:48	1
13C2 PFHxA	44		25 - 150				07/06/23 18:44	07/14/23 00:48	1
13C4 PFHpA	50		25 - 150				07/06/23 18:44	07/14/23 00:48	1
13C4 PFOA	57		25 - 150				07/06/23 18:44	07/14/23 00:48	1
13C5 PFNA	54		25 - 150				07/06/23 18:44	07/14/23 00:48	1
13C2 PFDA	54		25 - 150				07/06/23 18:44	07/14/23 00:48	1
13C2 PFUnA	46		25 - 150				07/06/23 18:44	07/14/23 00:48	1
13C2 PFDoA	27		25 - 150				07/06/23 18:44	07/14/23 00:48	1
13C2 PFTeDA	11	*5-	25 - 150				07/06/23 18:44	07/14/23 00:48	1
13C3 PFBS	46		25 - 150				07/06/23 18:44	07/14/23 00:48	1
18O2 PFHxS	52		25 - 150				07/06/23 18:44	07/14/23 00:48	1
13C4 PFOS	47		25 - 150				07/06/23 18:44	07/14/23 00:48	1
13C8 FOSA	43		10 - 150				07/06/23 18:44	07/14/23 00:48	1
d3-NMeFOSAA	27		25 - 150				07/06/23 18:44	07/14/23 00:48	1
d5-NEtFOSAA	36		25 - 150				07/06/23 18:44	07/14/23 00:48	1
d-N-MeFOSA-M	13		10 - 150				07/06/23 18:44	07/14/23 00:48	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: Inf0820230619

Lab Sample ID: 320-101930-3

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d-N-EtFOSA-M	24		10 - 150	07/06/23 18:44	07/14/23 00:48	1
d7-N-MeFOSE-M	18		10 - 150	07/06/23 18:44	07/14/23 00:48	1
d9-N-EtFOSE-M	28		10 - 150	07/06/23 18:44	07/14/23 00:48	1
M2-4:2 FTS	57		25 - 150	07/06/23 18:44	07/14/23 00:48	1
M2-6:2 FTS	107		25 - 150	07/06/23 18:44	07/14/23 00:48	1
M2-8:2 FTS	78		25 - 150	07/06/23 18:44	07/14/23 00:48	1
13C3 HFPO-DA	41		25 - 150	07/06/23 18:44	07/14/23 00:48	1
13C2 10:2 FTS	41		25 - 150	07/06/23 18:44	07/14/23 00:48	1

Client Sample ID: Inf1120230619

Lab Sample ID: 320-101930-4

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	2.8	J	4.4	2.1	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluoropentanoic acid (PFPA)	0.59	J	1.7	0.43	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorohexanoic acid (PFHxA)	4.5		1.7	0.51	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluoroheptanoic acid (PFHpA)	0.63	J	1.7	0.22	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorooctanoic acid (PFOA)	1.7		1.7	0.74	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.24	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorodecanoic acid (PFDA)	0.35	J I	1.7	0.27	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.96	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.48	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.7	1.1	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.64	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorobutanesulfonic acid (PFBS)	0.83	J	1.7	0.17	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.7	0.26	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorohexanesulfonic acid (PFHxS)	2.5	I	1.7	0.50	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.7	0.17	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	0.47	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.32	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.28	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.85	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorooctanesulfonamide (FOSA)	ND		1.7	0.85	ng/L		07/06/23 18:44	07/14/23 00:59	1
NEtFOSA	ND		1.7	0.76	ng/L		07/06/23 18:44	07/14/23 00:59	1
NMeFOSA	ND		1.7	0.37	ng/L		07/06/23 18:44	07/14/23 00:59	1
NMeFOSAA	ND		4.4	1.0	ng/L		07/06/23 18:44	07/14/23 00:59	1
NEtFOSAA	ND		4.4	1.1	ng/L		07/06/23 18:44	07/14/23 00:59	1
NMeFOSE	ND		3.5	1.2	ng/L		07/06/23 18:44	07/14/23 00:59	1
NEtFOSE	ND		1.7	0.74	ng/L		07/06/23 18:44	07/14/23 00:59	1
4:2 FTS	ND		1.7	0.21	ng/L		07/06/23 18:44	07/14/23 00:59	1
6:2 FTS	ND		4.4	2.2	ng/L		07/06/23 18:44	07/14/23 00:59	1
8:2 FTS	ND		1.7	0.40	ng/L		07/06/23 18:44	07/14/23 00:59	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.36	J I	1.7	0.35	ng/L		07/06/23 18:44	07/14/23 00:59	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: Inf1120230619

Lab Sample ID: 320-101930-4

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA (GenX)	ND		3.5	1.3	ng/L		07/06/23 18:44	07/14/23 00:59	1
9CI-PF3ONS	ND		1.7	0.21	ng/L		07/06/23 18:44	07/14/23 00:59	1
11CI-PF3OUdS	ND		1.7	0.28	ng/L		07/06/23 18:44	07/14/23 00:59	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	42		25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C5 PFPeA	50		25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C2 PFHxA	50		25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C4 PFHpA	59		25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C4 PFOA	59		25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C5 PFNA	59		25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C2 PFDA	61		25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C2 PFUnA	43		25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C2 PFDoA	24	*5-	25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C2 PFTeDA	13	*5-	25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C3 PFBS	56		25 - 150				07/06/23 18:44	07/14/23 00:59	1
18O2 PFHxS	56		25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C4 PFOS	51		25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C8 FOSA	46		10 - 150				07/06/23 18:44	07/14/23 00:59	1
d3-NMeFOSAA	23	*5-	25 - 150				07/06/23 18:44	07/14/23 00:59	1
d5-NEtFOSAA	34		25 - 150				07/06/23 18:44	07/14/23 00:59	1
d-N-MeFOSA-M	13		10 - 150				07/06/23 18:44	07/14/23 00:59	1
d-N-EtFOSA-M	25		10 - 150				07/06/23 18:44	07/14/23 00:59	1
d7-N-MeFOSE-M	14		10 - 150				07/06/23 18:44	07/14/23 00:59	1
d9-N-EtFOSE-M	28		10 - 150				07/06/23 18:44	07/14/23 00:59	1
M2-4:2 FTS	89		25 - 150				07/06/23 18:44	07/14/23 00:59	1
M2-6:2 FTS	130		25 - 150				07/06/23 18:44	07/14/23 00:59	1
M2-8:2 FTS	90		25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C3 HFPO-DA	51		25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C2 10:2 FTS	34		25 - 150				07/06/23 18:44	07/14/23 00:59	1

Client Sample ID: Inf1820230619

Lab Sample ID: 320-101930-5

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	9.5		4.3	2.1	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluoropentanoic acid (PFPA)	4.7		1.7	0.42	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorohexanoic acid (PFHxA)	7.8		1.7	0.50	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluoroheptanoic acid (PFHpA)	1.9		1.7	0.22	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorooctanoic acid (PFOA)	7.2		1.7	0.73	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorononanoic acid (PFNA)	0.48	J	1.7	0.23	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.27	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.95	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.47	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.7	1.1	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.63	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorobutanesulfonic acid (PFBS)	3.3		1.7	0.17	ng/L		07/06/23 18:44	07/14/23 01:10	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: Inf1820230619

Lab Sample ID: 320-101930-5

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanesulfonic acid (PFPeS)	1.0	J	1.7	0.26	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorohexanesulfonic acid (PFHxS)	13		1.7	0.49	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluoroheptanesulfonic acid (PFHpS)	0.26	J	1.7	0.16	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorooctanesulfonic acid (PFOS)	8.4		1.7	0.47	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.32	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.28	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.84	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorooctanesulfonamide (FOSA)	ND		1.7	0.84	ng/L		07/06/23 18:44	07/14/23 01:10	1
NEtFOSA	ND		1.7	0.75	ng/L		07/06/23 18:44	07/14/23 01:10	1
NMeFOSA	ND		1.7	0.37	ng/L		07/06/23 18:44	07/14/23 01:10	1
NMeFOSAA	ND		4.3	1.0	ng/L		07/06/23 18:44	07/14/23 01:10	1
NEtFOSAA	ND		4.3	1.1	ng/L		07/06/23 18:44	07/14/23 01:10	1
NMeFOSE	ND		3.4	1.2	ng/L		07/06/23 18:44	07/14/23 01:10	1
NEtFOSE	ND		1.7	0.73	ng/L		07/06/23 18:44	07/14/23 01:10	1
4:2 FTS	ND		1.7	0.21	ng/L		07/06/23 18:44	07/14/23 01:10	1
6:2 FTS	2.5	J	4.3	2.2	ng/L		07/06/23 18:44	07/14/23 01:10	1
8:2 FTS	ND		1.7	0.40	ng/L		07/06/23 18:44	07/14/23 01:10	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.34	ng/L		07/06/23 18:44	07/14/23 01:10	1
HFPO-DA (GenX)	ND		3.4	1.3	ng/L		07/06/23 18:44	07/14/23 01:10	1
9Cl-PF3ONS	ND		1.7	0.21	ng/L		07/06/23 18:44	07/14/23 01:10	1
11Cl-PF3OUdS	ND		1.7	0.28	ng/L		07/06/23 18:44	07/14/23 01:10	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	45		25 - 150	07/06/23 18:44	07/14/23 01:10	1
13C5 PFPeA	54		25 - 150	07/06/23 18:44	07/14/23 01:10	1
13C2 PFHxA	46		25 - 150	07/06/23 18:44	07/14/23 01:10	1
13C4 PFHpA	54		25 - 150	07/06/23 18:44	07/14/23 01:10	1
13C4 PFOA	55		25 - 150	07/06/23 18:44	07/14/23 01:10	1
13C5 PFNA	54		25 - 150	07/06/23 18:44	07/14/23 01:10	1
13C2 PFDA	58		25 - 150	07/06/23 18:44	07/14/23 01:10	1
13C2 PFUnA	44		25 - 150	07/06/23 18:44	07/14/23 01:10	1
13C2 PFDoA	27		25 - 150	07/06/23 18:44	07/14/23 01:10	1
13C2 PFTeDA	15	*5-	25 - 150	07/06/23 18:44	07/14/23 01:10	1
13C3 PFBS	50		25 - 150	07/06/23 18:44	07/14/23 01:10	1
18O2 PFHxS	53		25 - 150	07/06/23 18:44	07/14/23 01:10	1
13C4 PFOS	45		25 - 150	07/06/23 18:44	07/14/23 01:10	1
13C8 FOSA	42		10 - 150	07/06/23 18:44	07/14/23 01:10	1
d3-NMeFOSAA	26		25 - 150	07/06/23 18:44	07/14/23 01:10	1
d5-NEtFOSAA	36		25 - 150	07/06/23 18:44	07/14/23 01:10	1
d-N-MeFOSA-M	14		10 - 150	07/06/23 18:44	07/14/23 01:10	1
d-N-EtFOSA-M	28		10 - 150	07/06/23 18:44	07/14/23 01:10	1
d7-N-MeFOSE-M	14		10 - 150	07/06/23 18:44	07/14/23 01:10	1
d9-N-EtFOSE-M	33		10 - 150	07/06/23 18:44	07/14/23 01:10	1
M2-4:2 FTS	53		25 - 150	07/06/23 18:44	07/14/23 01:10	1
M2-6:2 FTS	105		25 - 150	07/06/23 18:44	07/14/23 01:10	1
M2-8:2 FTS	93		25 - 150	07/06/23 18:44	07/14/23 01:10	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: Inf1820230619

Lab Sample ID: 320-101930-5

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	42		25 - 150	07/06/23 18:44	07/14/23 01:10	1
13C2 10:2 FTS	36		25 - 150	07/06/23 18:44	07/14/23 01:10	1

Client Sample ID: Eff20230620

Lab Sample ID: 320-101930-6

Date Collected: 06/20/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	10		4.5	2.2	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluoropentanoic acid (PFPA)	17		1.8	0.44	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorohexanoic acid (PFHxA)	22		1.8	0.52	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluoroheptanoic acid (PFHpA)	2.3		1.8	0.22	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorooctanoic acid (PFOA)	7.4		1.8	0.76	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorononanoic acid (PFNA)	0.52	J	1.8	0.24	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorodecanoic acid (PFDA)	1.5	J	1.8	0.28	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.99	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.8	1.2	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorobutanesulfonic acid (PFBS)	3.2		1.8	0.18	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluoropentanesulfonic acid (PFPeS)	0.65	J I	1.8	0.27	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorohexanesulfonic acid (PFHxS)	8.0		1.8	0.51	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorooctanesulfonic acid (PFOS)	3.8		1.8	0.48	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.33	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.87	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.88	ng/L		07/06/23 18:44	07/14/23 01:21	1
NEtFOSA	ND		1.8	0.78	ng/L		07/06/23 18:44	07/14/23 01:21	1
NMeFOSA	ND		1.8	0.39	ng/L		07/06/23 18:44	07/14/23 01:21	1
NMeFOSAA	ND		4.5	1.1	ng/L		07/06/23 18:44	07/14/23 01:21	1
NEtFOSAA	ND		4.5	1.2	ng/L		07/06/23 18:44	07/14/23 01:21	1
NMeFOSE	ND		3.6	1.3	ng/L		07/06/23 18:44	07/14/23 01:21	1
NEtFOSE	ND		1.8	0.76	ng/L		07/06/23 18:44	07/14/23 01:21	1
4:2 FTS	ND		1.8	0.22	ng/L		07/06/23 18:44	07/14/23 01:21	1
6:2 FTS	ND		4.5	2.2	ng/L		07/06/23 18:44	07/14/23 01:21	1
8:2 FTS	ND		1.8	0.41	ng/L		07/06/23 18:44	07/14/23 01:21	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.53	J	1.8	0.36	ng/L		07/06/23 18:44	07/14/23 01:21	1
HFPO-DA (GenX)	ND		3.6	1.3	ng/L		07/06/23 18:44	07/14/23 01:21	1
9Cl-PF3ONS	ND		1.8	0.22	ng/L		07/06/23 18:44	07/14/23 01:21	1
11Cl-PF3OUdS	ND		1.8	0.29	ng/L		07/06/23 18:44	07/14/23 01:21	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C4 PFBA	54		25 - 150	07/06/23 18:44	07/14/23 01:21	1			

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: Eff20230620

Lab Sample ID: 320-101930-6

Date Collected: 06/20/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	65		25 - 150	07/06/23 18:44	07/14/23 01:21	1
13C2 PFHxA	71		25 - 150	07/06/23 18:44	07/14/23 01:21	1
13C4 PFHpA	79		25 - 150	07/06/23 18:44	07/14/23 01:21	1
13C4 PFOA	85		25 - 150	07/06/23 18:44	07/14/23 01:21	1
13C5 PFNA	79		25 - 150	07/06/23 18:44	07/14/23 01:21	1
13C2 PFDA	86		25 - 150	07/06/23 18:44	07/14/23 01:21	1
13C2 PFUnA	81		25 - 150	07/06/23 18:44	07/14/23 01:21	1
13C2 PFDoA	74		25 - 150	07/06/23 18:44	07/14/23 01:21	1
13C2 PFTeDA	53		25 - 150	07/06/23 18:44	07/14/23 01:21	1
13C3 PFBS	69		25 - 150	07/06/23 18:44	07/14/23 01:21	1
18O2 PFHxS	70		25 - 150	07/06/23 18:44	07/14/23 01:21	1
13C4 PFOS	72		25 - 150	07/06/23 18:44	07/14/23 01:21	1
13C8 FOSA	81		10 - 150	07/06/23 18:44	07/14/23 01:21	1
d3-NMeFOSAA	71		25 - 150	07/06/23 18:44	07/14/23 01:21	1
d5-NEtFOSAA	79		25 - 150	07/06/23 18:44	07/14/23 01:21	1
d-N-MeFOSA-M	62		10 - 150	07/06/23 18:44	07/14/23 01:21	1
d-N-EtFOSA-M	58		10 - 150	07/06/23 18:44	07/14/23 01:21	1
d7-N-MeFOSE-M	66		10 - 150	07/06/23 18:44	07/14/23 01:21	1
d9-N-EtFOSE-M	65		10 - 150	07/06/23 18:44	07/14/23 01:21	1
M2-4:2 FTS	97		25 - 150	07/06/23 18:44	07/14/23 01:21	1
M2-6:2 FTS	111		25 - 150	07/06/23 18:44	07/14/23 01:21	1
M2-8:2 FTS	106		25 - 150	07/06/23 18:44	07/14/23 01:21	1
13C3 HFPO-DA	65		25 - 150	07/06/23 18:44	07/14/23 01:21	1
13C2 10:2 FTS	83		25 - 150	07/06/23 18:44	07/14/23 01:21	1

Client Sample ID: Inf Comp 20230619

Lab Sample ID: 320-101930-7

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	6.9		4.3	2.1	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluoropentanoic acid (PFPA)	3.3		1.7	0.42	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluorohexanoic acid (PFHxA)	6.5		1.7	0.50	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluoroheptanoic acid (PFHpA)	1.3	J	1.7	0.22	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluorooctanoic acid (PFOA)	4.1		1.7	0.74	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluorononanoic acid (PFNA)	0.39	J I	1.7	0.23	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.27	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.95	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.48	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluorotridecanoic acid (PFTeDA)	ND		1.7	1.1	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.63	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluorobutanesulfonic acid (PFBS)	2.0		1.7	0.17	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluoropentanesulfonic acid (PFPeS)	0.40	J	1.7	0.26	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluorohexanesulfonic acid (PFHxS)	7.1		1.7	0.49	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.7	0.16	ng/L		07/06/23 18:44	07/14/23 01:33	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: Inf Comp 20230619

Lab Sample ID: 320-101930-7

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	4.3		1.7	0.47	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.32	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.28	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.84	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluorooctanesulfonamide (FOSA)	ND		1.7	0.85	ng/L		07/06/23 18:44	07/14/23 01:33	1
NEtFOSA	ND		1.7	0.75	ng/L		07/06/23 18:44	07/14/23 01:33	1
NMeFOSA	ND		1.7	0.37	ng/L		07/06/23 18:44	07/14/23 01:33	1
NMeFOSAA	ND		4.3	1.0	ng/L		07/06/23 18:44	07/14/23 01:33	1
NEtFOSAA	ND		4.3	1.1	ng/L		07/06/23 18:44	07/14/23 01:33	1
NMeFOSE	ND		3.5	1.2	ng/L		07/06/23 18:44	07/14/23 01:33	1
NEtFOSE	ND		1.7	0.74	ng/L		07/06/23 18:44	07/14/23 01:33	1
4:2 FTS	ND		1.7	0.21	ng/L		07/06/23 18:44	07/14/23 01:33	1
6:2 FTS	ND		4.3	2.2	ng/L		07/06/23 18:44	07/14/23 01:33	1
8:2 FTS	ND		1.7	0.40	ng/L		07/06/23 18:44	07/14/23 01:33	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.35	ng/L		07/06/23 18:44	07/14/23 01:33	1
HFPO-DA (GenX)	ND		3.5	1.3	ng/L		07/06/23 18:44	07/14/23 01:33	1
9Cl-PF3ONS	ND		1.7	0.21	ng/L		07/06/23 18:44	07/14/23 01:33	1
11Cl-PF3OUdS	ND		1.7	0.28	ng/L		07/06/23 18:44	07/14/23 01:33	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	55		25 - 150	07/06/23 18:44	07/14/23 01:33	1
13C5 PFPeA	62		25 - 150	07/06/23 18:44	07/14/23 01:33	1
13C2 PFHxA	54		25 - 150	07/06/23 18:44	07/14/23 01:33	1
13C4 PFHpA	66		25 - 150	07/06/23 18:44	07/14/23 01:33	1
13C4 PFOA	65		25 - 150	07/06/23 18:44	07/14/23 01:33	1
13C5 PFNA	69		25 - 150	07/06/23 18:44	07/14/23 01:33	1
13C2 PFDA	72		25 - 150	07/06/23 18:44	07/14/23 01:33	1
13C2 PFUnA	58		25 - 150	07/06/23 18:44	07/14/23 01:33	1
13C2 PFDoA	33		25 - 150	07/06/23 18:44	07/14/23 01:33	1
13C2 PFTeDA	18	*5-	25 - 150	07/06/23 18:44	07/14/23 01:33	1
13C3 PFBS	66		25 - 150	07/06/23 18:44	07/14/23 01:33	1
18O2 PFHxS	67		25 - 150	07/06/23 18:44	07/14/23 01:33	1
13C4 PFOS	60		25 - 150	07/06/23 18:44	07/14/23 01:33	1
13C8 FOSA	54		10 - 150	07/06/23 18:44	07/14/23 01:33	1
d3-NMeFOSAA	32		25 - 150	07/06/23 18:44	07/14/23 01:33	1
d5-NEtFOSAA	44		25 - 150	07/06/23 18:44	07/14/23 01:33	1
d-N-MeFOSA-M	16		10 - 150	07/06/23 18:44	07/14/23 01:33	1
d-N-EtFOSA-M	32		10 - 150	07/06/23 18:44	07/14/23 01:33	1
d7-N-MeFOSE-M	17		10 - 150	07/06/23 18:44	07/14/23 01:33	1
d9-N-EtFOSE-M	36		10 - 150	07/06/23 18:44	07/14/23 01:33	1
M2-4:2 FTS	74		25 - 150	07/06/23 18:44	07/14/23 01:33	1
M2-6:2 FTS	141		25 - 150	07/06/23 18:44	07/14/23 01:33	1
M2-8:2 FTS	113		25 - 150	07/06/23 18:44	07/14/23 01:33	1
13C3 HFPO-DA	54		25 - 150	07/06/23 18:44	07/14/23 01:33	1
13C2 10:2 FTS	46		25 - 150	07/06/23 18:44	07/14/23 01:33	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: BioA20230621

Lab Sample ID: 320-101930-8

Date Collected: 06/21/23 07:45

Matrix: Solid

Date Received: 06/26/23 09:10

Percent Solids: 21.0

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	2.8	J	4.4	1.0	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
Perfluoropentanoic acid (PFPA)	7.8		4.4	0.90	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
Perfluorohexanoic acid (PFHxA)	15		4.4	0.68	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
Perfluoroheptanoic acid (PFHpA)	ND		4.4	0.84	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
Perfluorooctanoic acid (PFOA)	6.0		4.4	1.2	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
Perfluorononanoic acid (PFNA)	ND		4.4	0.48	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
Perfluorodecanoic acid (PFDA)	8.9		4.4	1.1	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
Perfluoroundecanoic acid (PFUnA)	1.7	J	4.4	0.93	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
Perfluorododecanoic acid (PFDoA)	4.2	J	4.4	0.66	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
Perfluorotridecanoic acid (PFTrDA)	0.57	J	4.4	0.46	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
Perfluorotetradecanoic acid (PFTeA)	1.6	J	4.4	0.82	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
Perfluorobutanesulfonic acid (PFBS)	ND		4.4	0.84	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
Perfluoropentanesulfonic acid (PFPeS)	ND		4.4	0.82	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
Perfluorohexanesulfonic acid (PFHxS)	ND		4.4	0.64	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		4.4	1.1	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
Perfluorooctanesulfonic acid (PFOS)	ND		4.4	0.95	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
Perfluorononanesulfonic acid (PFNS)	ND		4.4	0.64	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
Perfluorodecanesulfonic acid (PFDS)	10		4.4	1.1	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
Perfluorododecanesulfonic acid (PFDoS)	ND		4.4	1.0	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
Perfluorooctanesulfonamide (FOSA)	1.5	J	4.4	0.73	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
NEtFOSA	ND		4.4	1.0	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
NMeFOSA	ND		4.4	1.1	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
NMeFOSAA	27		4.4	0.51	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
NEtFOSAA	9.2		4.4	1.1	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
NMeFOSE	21		4.4	1.0	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
NEtFOSE	3.3	J	4.4	0.62	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
4:2 FTS	ND		4.4	1.1	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
6:2 FTS	ND		4.4	0.60	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
8:2 FTS	1.1	J	4.4	0.77	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		4.4	0.86	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
HFPO-DA (GenX)	ND		4.4	0.90	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
9CI-PF3ONS	ND		4.4	0.77	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
11CI-PF3OUds	0.77	J	4.4	0.68	ug/Kg	✳	07/19/23 19:11	07/20/23 19:59	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	77		25 - 150				07/19/23 19:11	07/20/23 19:59	1
13C5 PFPeA	85		25 - 150				07/19/23 19:11	07/20/23 19:59	1
13C2 PFHxA	78		25 - 150				07/19/23 19:11	07/20/23 19:59	1
13C4 PFHpA	85		25 - 150				07/19/23 19:11	07/20/23 19:59	1
13C4 PFOA	87		25 - 150				07/19/23 19:11	07/20/23 19:59	1
13C5 PFNA	77		25 - 150				07/19/23 19:11	07/20/23 19:59	1
13C2 PFDA	74		25 - 150				07/19/23 19:11	07/20/23 19:59	1
13C2 PFUnA	61		25 - 150				07/19/23 19:11	07/20/23 19:59	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: BioA20230621

Lab Sample ID: 320-101930-8

Date Collected: 06/21/23 07:45

Matrix: Solid

Date Received: 06/26/23 09:10

Percent Solids: 21.0

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDoA	51		25 - 150	07/19/23 19:11	07/20/23 19:59	1
13C2 PFTeDA	42		25 - 150	07/19/23 19:11	07/20/23 19:59	1
13C3 PFBS	83		25 - 150	07/19/23 19:11	07/20/23 19:59	1
18O2 PFHxS	80		25 - 150	07/19/23 19:11	07/20/23 19:59	1
13C4 PFOS	76		25 - 150	07/19/23 19:11	07/20/23 19:59	1
13C8 FOSA	79		10 - 150	07/19/23 19:11	07/20/23 19:59	1
d3-NMeFOSAA	60		25 - 150	07/19/23 19:11	07/20/23 19:59	1
d5-NEtFOSAA	57		25 - 150	07/19/23 19:11	07/20/23 19:59	1
d-N-MeFOSA-M	44		10 - 150	07/19/23 19:11	07/20/23 19:59	1
d-N-EtFOSA-M	34		10 - 150	07/19/23 19:11	07/20/23 19:59	1
d7-N-MeFOSE-M	44		10 - 150	07/19/23 19:11	07/20/23 19:59	1
d9-N-EtFOSE-M	42		10 - 150	07/19/23 19:11	07/20/23 19:59	1
M2-4:2 FTS	87		25 - 150	07/19/23 19:11	07/20/23 19:59	1
M2-6:2 FTS	93		25 - 150	07/19/23 19:11	07/20/23 19:59	1
M2-8:2 FTS	82		25 - 150	07/19/23 19:11	07/20/23 19:59	1
13C3 HFPO-DA	80		25 - 150	07/19/23 19:11	07/20/23 19:59	1
13C2 10:2 FTS	67		25 - 150	07/19/23 19:11	07/20/23 19:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	79.0		0.1	0.1	%			06/28/23 11:44	1
Percent Solids (ASTM D 2216)	21.0		0.1	0.1	%			06/28/23 11:44	1

Client Sample ID: BioB20230621

Lab Sample ID: 320-101930-9

Date Collected: 06/21/23 07:00

Matrix: Solid

Date Received: 06/26/23 09:10

Percent Solids: 5.8

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.3	0.75	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluoropentanoic acid (PFPA)	ND		3.3	0.67	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluorohexanoic acid (PFHxA)	ND		3.3	0.51	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluoroheptanoic acid (PFHpA)	ND		3.3	0.62	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluorooctanoic acid (PFOA)	1.5	J	3.3	0.86	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluorononanoic acid (PFNA)	ND		3.3	0.36	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluorodecanoic acid (PFDA)	5.0		3.3	0.78	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluoroundecanoic acid (PFUnA)	1.2	J	3.3	0.68	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluorododecanoic acid (PFDoA)	2.4	J	3.3	0.49	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluorotridecanoic acid (PFTTrDA)	0.50	J	3.3	0.34	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluorotetradecanoic acid (PFTTeA)	0.62	J	3.3	0.60	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluorobutanesulfonic acid (PFBS)	ND		3.3	0.62	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.3	0.60	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluorohexanesulfonic acid (PFHxS)	ND		3.3	0.47	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.3	0.80	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluorooctanesulfonic acid (PFOS)	ND		3.3	0.70	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluorononanesulfonic acid (PFNS)	ND		3.3	0.47	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: BioB20230621

Lab Sample ID: 320-101930-9

Date Collected: 06/21/23 07:00

Matrix: Solid

Date Received: 06/26/23 09:10

Percent Solids: 5.8

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanesulfonic acid (PFDS)	11	I	3.3	0.85	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.3	0.77	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
Perfluorooctanesulfonamide (FOSA)	0.62	J	3.3	0.54	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
NEtFOSA	ND		3.3	0.77	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
NMeFOSA	ND		3.3	0.80	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
NMeFOSAA	11		3.3	0.37	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
NEtFOSAA	4.3		3.3	0.78	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
NMeFOSE	6.7		3.3	0.77	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
NEtFOSE	ND		3.3	0.46	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
4:2 FTS	ND		3.3	0.83	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
6:2 FTS	ND		3.3	0.44	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
8:2 FTS	ND		3.3	0.57	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.3	0.64	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
HFPO-DA (GenX)	ND		3.3	0.67	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
9CI-PF3ONS	ND		3.3	0.57	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
11CI-PF3OUdS	ND		3.3	0.51	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	83		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C5 PFPeA	92		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C2 PFHxA	90		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C4 PFHpA	88		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C4 PFOA	88		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C5 PFNA	90		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C2 PFDA	87		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C2 PFUnA	68		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C2 PFDoA	69		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C2 PFTeDA	36		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C3 PFBS	94		25 - 150	07/06/23 04:40	07/13/23 18:29	1
18O2 PFHxS	87		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C4 PFOS	88		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C8 FOSA	92		10 - 150	07/06/23 04:40	07/13/23 18:29	1
d3-NMeFOSAA	60		25 - 150	07/06/23 04:40	07/13/23 18:29	1
d5-NEtFOSAA	60		25 - 150	07/06/23 04:40	07/13/23 18:29	1
d-N-MeFOSA-M	49		10 - 150	07/06/23 04:40	07/13/23 18:29	1
d-N-EtFOSA-M	43		10 - 150	07/06/23 04:40	07/13/23 18:29	1
d7-N-MeFOSE-M	48		10 - 150	07/06/23 04:40	07/13/23 18:29	1
d9-N-EtFOSE-M	58		10 - 150	07/06/23 04:40	07/13/23 18:29	1
M2-4:2 FTS	92		25 - 150	07/06/23 04:40	07/13/23 18:29	1
M2-6:2 FTS	94		25 - 150	07/06/23 04:40	07/13/23 18:29	1
M2-8:2 FTS	98		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C3 HFPO-DA	96		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C2 10:2 FTS	82		25 - 150	07/06/23 04:40	07/13/23 18:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	94.2		0.1	0.1	%			06/28/23 11:44	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: BioB20230621

Lab Sample ID: 320-101930-9

Date Collected: 06/21/23 07:00

Matrix: Solid

Date Received: 06/26/23 09:10

Percent Solids: 5.8

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (ASTM D 2216)	5.8		0.1	0.1	%			06/28/23 11:44	1

Client Sample ID: EB0120230621

Lab Sample ID: 320-101930-10

Date Collected: 06/21/23 07:24

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.4	2.1	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluoropentanoic acid (PFPA)	ND		1.8	0.43	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.51	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.22	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.75	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.27	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.97	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.48	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.8	1.1	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.64	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.8	0.26	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.50	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.48	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.33	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.28	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.85	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.86	ng/L		07/06/23 18:44	07/14/23 02:07	1
NEtFOSA	ND		1.8	0.77	ng/L		07/06/23 18:44	07/14/23 02:07	1
NMeFOSA	ND		1.8	0.38	ng/L		07/06/23 18:44	07/14/23 02:07	1
NMeFOSAA	ND		4.4	1.1	ng/L		07/06/23 18:44	07/14/23 02:07	1
NEtFOSAA	ND		4.4	1.1	ng/L		07/06/23 18:44	07/14/23 02:07	1
NMeFOSE	ND		3.5	1.2	ng/L		07/06/23 18:44	07/14/23 02:07	1
NEtFOSE	ND		1.8	0.75	ng/L		07/06/23 18:44	07/14/23 02:07	1
4:2 FTS	ND		1.8	0.21	ng/L		07/06/23 18:44	07/14/23 02:07	1
6:2 FTS	ND		4.4	2.2	ng/L		07/06/23 18:44	07/14/23 02:07	1
8:2 FTS	ND		1.8	0.41	ng/L		07/06/23 18:44	07/14/23 02:07	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.35	ng/L		07/06/23 18:44	07/14/23 02:07	1
HFPO-DA (GenX)	ND		3.5	1.3	ng/L		07/06/23 18:44	07/14/23 02:07	1
9CI-PF3ONS	ND		1.8	0.21	ng/L		07/06/23 18:44	07/14/23 02:07	1
11CI-PF3OUdS	ND		1.8	0.28	ng/L		07/06/23 18:44	07/14/23 02:07	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	46		25 - 150				07/06/23 18:44	07/14/23 02:07	1
13C5 PFPeA	47		25 - 150				07/06/23 18:44	07/14/23 02:07	1
13C2 PFHxA	48		25 - 150				07/06/23 18:44	07/14/23 02:07	1
13C4 PFHpA	47		25 - 150				07/06/23 18:44	07/14/23 02:07	1
13C4 PFOA	51		25 - 150				07/06/23 18:44	07/14/23 02:07	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: EB0120230621

Lab Sample ID: 320-101930-10

Date Collected: 06/21/23 07:24

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C5 PFNA	49		25 - 150	07/06/23 18:44	07/14/23 02:07	1
13C2 PFDA	53		25 - 150	07/06/23 18:44	07/14/23 02:07	1
13C2 PFUnA	52		25 - 150	07/06/23 18:44	07/14/23 02:07	1
13C2 PFDoA	50		25 - 150	07/06/23 18:44	07/14/23 02:07	1
13C2 PFTeDA	49		25 - 150	07/06/23 18:44	07/14/23 02:07	1
13C3 PFBS	43		25 - 150	07/06/23 18:44	07/14/23 02:07	1
18O2 PFHxS	48		25 - 150	07/06/23 18:44	07/14/23 02:07	1
13C4 PFOS	48		25 - 150	07/06/23 18:44	07/14/23 02:07	1
13C8 FOSA	52		10 - 150	07/06/23 18:44	07/14/23 02:07	1
d3-NMeFOSAA	44		25 - 150	07/06/23 18:44	07/14/23 02:07	1
d5-NEtFOSAA	48		25 - 150	07/06/23 18:44	07/14/23 02:07	1
d-N-MeFOSA-M	41		10 - 150	07/06/23 18:44	07/14/23 02:07	1
d-N-EtFOSA-M	45		10 - 150	07/06/23 18:44	07/14/23 02:07	1
d7-N-MeFOSE-M	45		10 - 150	07/06/23 18:44	07/14/23 02:07	1
d9-N-EtFOSE-M	46		10 - 150	07/06/23 18:44	07/14/23 02:07	1
M2-4:2 FTS	44		25 - 150	07/06/23 18:44	07/14/23 02:07	1
M2-6:2 FTS	49		25 - 150	07/06/23 18:44	07/14/23 02:07	1
M2-8:2 FTS	55		25 - 150	07/06/23 18:44	07/14/23 02:07	1
13C3 HFPO-DA	41		25 - 150	07/06/23 18:44	07/14/23 02:07	1
13C2 10:2 FTS	55		25 - 150	07/06/23 18:44	07/14/23 02:07	1

Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Solid

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-101930-8	BioA20230621	77	85	78	85	87	77	74	61
320-101930-9	BioB20230621	83	92	90	88	88	90	87	68
LCS 320-688343/2-A	Lab Control Sample	100	104	114	103	98	105	104	103
LCS 320-692232/2-A	Lab Control Sample	84	95	87	91	88	82	81	82
MB 320-688343/1-A	Method Blank	108	107	112	105	98	108	104	108
MB 320-692232/1-A	Method Blank	86	87	91	89	85	93	82	80

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDaA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
320-101930-8	BioA20230621	51	42	83	80	76	79	60	57
320-101930-9	BioB20230621	69	36	94	87	88	92	60	60
LCS 320-688343/2-A	Lab Control Sample	96	98	112	99	102	101	98	102
LCS 320-692232/2-A	Lab Control Sample	79	80	83	81	84	79	87	96
MB 320-688343/1-A	Method Blank	101	99	108	97	104	101	103	116
MB 320-692232/1-A	Method Blank	87	87	85	86	87	85	84	87

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	dMeFOSA (10-150)	dEtFOSA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	HFPODA (25-150)
320-101930-8	BioA20230621	44	34	44	42	87	93	82	80
320-101930-9	BioB20230621	49	43	48	58	92	94	98	96
LCS 320-688343/2-A	Lab Control Sample	76	78	90	92	112	99	110	106
LCS 320-692232/2-A	Lab Control Sample	71	71	81	78	87	85	78	82
MB 320-688343/1-A	Method Blank	67	67	98	98	101	95	99	104
MB 320-692232/1-A	Method Blank	76	78	75	86	90	67	79	87

		Percent Isotope Dilution Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	M102FTS (25-150)
320-101930-8	BioA20230621	67
320-101930-9	BioB20230621	82
LCS 320-688343/2-A	Lab Control Sample	97
LCS 320-692232/2-A	Lab Control Sample	88
MB 320-688343/1-A	Method Blank	98
MB 320-692232/1-A	Method Blank	102

Surrogate Legend

- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- C4PFHA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDaA = 13C2 PFDaA
- PFTDA = 13C2 PFTeDA
- C3PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- PFOSA = 13C8 FOSA

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Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

d3NMFOS = d3-NMeFOSAA
 d5NEFOS = d5-NEtFOSAA
 dMeFOSA = d-N-MeFOSA-M
 dEtFOSA = d-N-EtFOSA-M
 NMFm = d7-N-MeFOSE-M
 NEFM = d9-N-EtFOSE-M
 M242FTS = M2-4:2 FTS
 M262FTS = M2-6:2 FTS
 M282FTS = M2-8:2 FTS
 HFPODA = 13C3 HFPO-DA
 M102FTS = 13C2 10:2 FTS

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-101930-1	Inf0220230619	48	60	57	71	69	73	75	56
320-101930-2	Inf0720230619	57	67	58	73	72	74	73	55
320-101930-3	Inf0820230619	39	39	44	50	57	54	54	46
320-101930-4	Inf1120230619	42	50	50	59	59	59	61	43
320-101930-5	Inf1820230619	45	54	46	54	55	54	58	44
320-101930-6	Eff20230620	54	65	71	79	85	79	86	81
320-101930-7	Inf Comp 20230619	55	62	54	66	65	69	72	58
320-101930-10	EB0120230621	46	47	48	47	51	49	53	52
LCS 320-688614/2-A	Lab Control Sample	61	62	62	66	67	66	69	68
LCSD 320-688614/3-A	Lab Control Sample Dup	75	72	72	81	79	80	84	80
MB 320-688614/1-A	Method Blank	76	75	78	80	84	82	80	79

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDaA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
320-101930-1	Inf0220230619	35	20 *5-	63	66	62	56	36	44
320-101930-2	Inf0720230619	30	16 *5-	64	67	63	52	31	45
320-101930-3	Inf0820230619	27	11 *5-	46	52	47	43	27	36
320-101930-4	Inf1120230619	24 *5-	13 *5-	56	56	51	46	23 *5-	34
320-101930-5	Inf1820230619	27	15 *5-	50	53	45	42	26	36
320-101930-6	Eff20230620	74	53	69	70	72	81	71	79
320-101930-7	Inf Comp 20230619	33	18 *5-	66	67	60	54	32	44
320-101930-10	EB0120230621	50	49	43	48	48	52	44	48
LCS 320-688614/2-A	Lab Control Sample	65	59	61	63	62	62	54	56
LCSD 320-688614/3-A	Lab Control Sample Dup	76	72	71	72	75	78	68	67
MB 320-688614/1-A	Method Blank	76	75	70	77	76	76	66	64

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	dMeFOSA (10-150)	dEtFOSA (10-150)	NMFm (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	HFPODA (25-150)
320-101930-1	Inf0220230619	16	32	19	38	71	138	114	60
320-101930-2	Inf0720230619	15	32	17	37	72	139	106	61
320-101930-3	Inf0820230619	13	24	18	28	57	107	78	41
320-101930-4	Inf1120230619	13	25	14	28	89	130	90	51
320-101930-5	Inf1820230619	14	28	14	33	53	105	93	42
320-101930-6	Eff20230620	62	58	66	65	97	111	106	65
320-101930-7	Inf Comp 20230619	16	32	17	36	74	141	113	54
320-101930-10	EB0120230621	41	45	45	46	44	49	55	41
LCS 320-688614/2-A	Lab Control Sample	55	56	57	58	64	61	64	62
LCSD 320-688614/3-A	Lab Control Sample Dup	70	65	70	72	72	76	81	70

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Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	dMeFOSA (10-150)	dEtFOSA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	HFPODA (25-150)
MB 320-688614/1-A	Method Blank	71	66	69	69	79	88	88	71

		M102FTS (25-150)
320-101930-1	Inf0220230619	45
320-101930-2	Inf0720230619	43
320-101930-3	Inf0820230619	41
320-101930-4	Inf1120230619	34
320-101930-5	Inf1820230619	36
320-101930-6	Eff20230620	83
320-101930-7	Inf Comp 20230619	46
320-101930-10	EB0120230621	55
LCS 320-688614/2-A	Lab Control Sample	62
LCS 320-688614/3-A	Lab Control Sample Dup	84
MB 320-688614/1-A	Method Blank	79

Surrogate Legend

- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- C4PFHA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDaA = 13C2 PFDaA
- PFTDA = 13C2 PFTeDA
- C3PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- PFOSA = 13C8 FOSA
- d3NMFOA = d3-NMeFOA
- d5NEFOA = d5-NEtFOA
- dMeFOA = d-N-MeFOA-M
- dEtFOA = d-N-EtFOA-M
- NMFM = d7-N-MeFOSE-M
- NEFM = d9-N-EtFOSE-M
- M242FTS = M2-4:2 FTS
- M262FTS = M2-6:2 FTS
- M282FTS = M2-8:2 FTS
- HFPODA = 13C3 HFPO-DA
- M102FTS = 13C2 10:2 FTS

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-688343/1-A

Matrix: Solid

Analysis Batch: 690566

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 688343

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.20	0.046	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
Perfluoropentanoic acid (PFPA)	ND		0.20	0.041	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.031	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.038	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.053	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.022	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.048	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.042	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.030	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.20	0.021	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.037	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.038	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.20	0.037	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.029	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.20	0.049	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.20	0.043	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
Perfluorononanesulfonic acid (PFNS)	ND		0.20	0.029	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.20	0.052	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.20	0.047	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
Perfluorooctanesulfonamide (FOSA)	ND		0.20	0.033	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
NEtFOSA	ND		0.20	0.047	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
NMeFOSA	ND		0.20	0.049	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
NMeFOSAA	ND		0.20	0.023	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
NEtFOSAA	ND		0.20	0.048	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
NMeFOSE	ND		0.20	0.047	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
NEtFOSE	ND		0.20	0.028	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
4:2 FTS	ND		0.20	0.051	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
6:2 FTS	ND		0.20	0.027	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
8:2 FTS	ND		0.20	0.035	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.039	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
HFPO-DA (GenX)	ND		0.20	0.041	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
9Cl-PF3ONS	ND		0.20	0.035	ug/Kg		07/06/23 04:40	07/13/23 17:38	1
11Cl-PF3OUdS	ND		0.20	0.031	ug/Kg		07/06/23 04:40	07/13/23 17:38	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	108		25 - 150	07/06/23 04:40	07/13/23 17:38	1
13C5 PFPeA	107		25 - 150	07/06/23 04:40	07/13/23 17:38	1
13C2 PFHxA	112		25 - 150	07/06/23 04:40	07/13/23 17:38	1
13C4 PFHpA	105		25 - 150	07/06/23 04:40	07/13/23 17:38	1
13C4 PFOA	98		25 - 150	07/06/23 04:40	07/13/23 17:38	1
13C5 PFNA	108		25 - 150	07/06/23 04:40	07/13/23 17:38	1
13C2 PFDA	104		25 - 150	07/06/23 04:40	07/13/23 17:38	1
13C2 PFUnA	108		25 - 150	07/06/23 04:40	07/13/23 17:38	1
13C2 PFDoA	101		25 - 150	07/06/23 04:40	07/13/23 17:38	1
13C2 PFTeDA	99		25 - 150	07/06/23 04:40	07/13/23 17:38	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-688343/1-A
Matrix: Solid
Analysis Batch: 690566

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 688343

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 PFBS	108		25 - 150	07/06/23 04:40	07/13/23 17:38	1
18O2 PFHxS	97		25 - 150	07/06/23 04:40	07/13/23 17:38	1
13C4 PFOS	104		25 - 150	07/06/23 04:40	07/13/23 17:38	1
13C8 FOSA	101		10 - 150	07/06/23 04:40	07/13/23 17:38	1
d3-NMeFOSAA	103		25 - 150	07/06/23 04:40	07/13/23 17:38	1
d5-NEtFOSAA	116		25 - 150	07/06/23 04:40	07/13/23 17:38	1
d-N-MeFOSA-M	67		10 - 150	07/06/23 04:40	07/13/23 17:38	1
d-N-EtFOSA-M	67		10 - 150	07/06/23 04:40	07/13/23 17:38	1
d7-N-MeFOSE-M	98		10 - 150	07/06/23 04:40	07/13/23 17:38	1
d9-N-EtFOSE-M	98		10 - 150	07/06/23 04:40	07/13/23 17:38	1
M2-4:2 FTS	101		25 - 150	07/06/23 04:40	07/13/23 17:38	1
M2-6:2 FTS	95		25 - 150	07/06/23 04:40	07/13/23 17:38	1
M2-8:2 FTS	99		25 - 150	07/06/23 04:40	07/13/23 17:38	1
13C3 HFPO-DA	104		25 - 150	07/06/23 04:40	07/13/23 17:38	1
13C2 10:2 FTS	98		25 - 150	07/06/23 04:40	07/13/23 17:38	1

Lab Sample ID: LCS 320-688343/2-A
Matrix: Solid
Analysis Batch: 690566

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 688343

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	2.00	2.13		ug/Kg		107	60 - 135
Perfluoropentanoic acid (PFPA)	2.00	2.15		ug/Kg		108	60 - 135
Perfluorohexanoic acid (PFHxA)	2.00	1.87		ug/Kg		93	60 - 135
Perfluoroheptanoic acid (PFHpA)	2.00	2.08		ug/Kg		104	60 - 135
Perfluorooctanoic acid (PFOA)	2.00	2.20		ug/Kg		110	60 - 135
Perfluorononanoic acid (PFNA)	2.00	2.01		ug/Kg		101	60 - 135
Perfluorodecanoic acid (PFDA)	2.00	1.98		ug/Kg		99	60 - 135
Perfluoroundecanoic acid (PFUnA)	2.00	2.01		ug/Kg		101	60 - 135
Perfluorododecanoic acid (PFDoA)	2.00	2.06		ug/Kg		103	60 - 135
Perfluorotridecanoic acid (PFTrDA)	2.00	1.89		ug/Kg		95	60 - 135
Perfluorotetradecanoic acid (PFTeA)	2.00	1.92		ug/Kg		96	60 - 135
Perfluorobutanesulfonic acid (PFBS)	1.78	1.71		ug/Kg		96	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	1.88	1.78		ug/Kg		95	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.89		ug/Kg		103	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	1.91	1.82		ug/Kg		96	60 - 135
Perfluorooctanesulfonic acid (PFOS)	1.86	1.83		ug/Kg		98	60 - 135
Perfluorononanesulfonic acid (PFNS)	1.92	1.91		ug/Kg		99	60 - 135
Perfluorodecanesulfonic acid (PFDS)	1.93	1.83		ug/Kg		95	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	1.94	1.71		ug/Kg		88	60 - 135

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-688343/2-A
Matrix: Solid
Analysis Batch: 690566

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 688343

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	2.00	2.00		ug/Kg		100	60 - 135
NEtFOSA	2.00	1.85		ug/Kg		93	60 - 135
NMeFOSA	2.00	1.92		ug/Kg		96	60 - 135
NMeFOSAA	2.00	1.98		ug/Kg		99	60 - 135
NEtFOSAA	2.00	2.04		ug/Kg		102	60 - 135
NMeFOSE	2.00	1.99		ug/Kg		100	60 - 135
NEtFOSE	2.00	2.03		ug/Kg		101	60 - 135
4:2 FTS	1.88	1.83		ug/Kg		98	60 - 135
6:2 FTS	1.90	2.04		ug/Kg		107	60 - 135
8:2 FTS	1.92	1.85		ug/Kg		96	60 - 135
4,8-Dioxa-3H-perfluoronanoic acid (ADONA)	1.89	2.05		ug/Kg		108	60 - 135
HFPO-DA (GenX)	2.00	2.04		ug/Kg		102	60 - 135
9Cl-PF3ONS	1.87	1.91		ug/Kg		102	60 - 135
11Cl-PF3OUdS	1.89	1.77		ug/Kg		94	60 - 135

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	100		25 - 150
13C5 PFPeA	104		25 - 150
13C2 PFHxA	114		25 - 150
13C4 PFHpA	103		25 - 150
13C4 PFOA	98		25 - 150
13C5 PFNA	105		25 - 150
13C2 PFDA	104		25 - 150
13C2 PFUnA	103		25 - 150
13C2 PFDoA	96		25 - 150
13C2 PFTeDA	98		25 - 150
13C3 PFBS	112		25 - 150
18O2 PFHxS	99		25 - 150
13C4 PFOS	102		25 - 150
13C8 FOSA	101		10 - 150
d3-NMeFOSAA	98		25 - 150
d5-NEtFOSAA	102		25 - 150
d-N-MeFOSA-M	76		10 - 150
d-N-EtFOSA-M	78		10 - 150
d7-N-MeFOSE-M	90		10 - 150
d9-N-EtFOSE-M	92		10 - 150
M2-4:2 FTS	112		25 - 150
M2-6:2 FTS	99		25 - 150
M2-8:2 FTS	110		25 - 150
13C3 HFPO-DA	106		25 - 150
13C2 10:2 FTS	97		25 - 150

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-688614/1-A
Matrix: Water
Analysis Batch: 690399

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 688614

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		07/06/23 18:44	07/13/23 21:36	1
Perfluoropentanoic acid (PFPA)	ND		2.0	0.49	ng/L		07/06/23 18:44	07/13/23 21:36	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		07/06/23 18:44	07/13/23 21:36	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		07/06/23 18:44	07/13/23 21:36	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		07/06/23 18:44	07/13/23 21:36	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		07/06/23 18:44	07/13/23 21:36	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		07/06/23 18:44	07/13/23 21:36	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		07/06/23 18:44	07/13/23 21:36	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		07/06/23 18:44	07/13/23 21:36	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		07/06/23 18:44	07/13/23 21:36	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		07/06/23 18:44	07/13/23 21:36	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		07/06/23 18:44	07/13/23 21:36	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.30	ng/L		07/06/23 18:44	07/13/23 21:36	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		07/06/23 18:44	07/13/23 21:36	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.19	ng/L		07/06/23 18:44	07/13/23 21:36	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		07/06/23 18:44	07/13/23 21:36	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.37	ng/L		07/06/23 18:44	07/13/23 21:36	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		07/06/23 18:44	07/13/23 21:36	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.97	ng/L		07/06/23 18:44	07/13/23 21:36	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		07/06/23 18:44	07/13/23 21:36	1
NEtFOSA	ND		2.0	0.87	ng/L		07/06/23 18:44	07/13/23 21:36	1
NMeFOSA	ND		2.0	0.43	ng/L		07/06/23 18:44	07/13/23 21:36	1
NMeFOSAA	ND		5.0	1.2	ng/L		07/06/23 18:44	07/13/23 21:36	1
NEtFOSAA	ND		5.0	1.3	ng/L		07/06/23 18:44	07/13/23 21:36	1
NMeFOSE	ND		4.0	1.4	ng/L		07/06/23 18:44	07/13/23 21:36	1
NEtFOSE	ND		2.0	0.85	ng/L		07/06/23 18:44	07/13/23 21:36	1
4:2 FTS	ND		2.0	0.24	ng/L		07/06/23 18:44	07/13/23 21:36	1
6:2 FTS	ND		5.0	2.5	ng/L		07/06/23 18:44	07/13/23 21:36	1
8:2 FTS	ND		2.0	0.46	ng/L		07/06/23 18:44	07/13/23 21:36	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.40	ng/L		07/06/23 18:44	07/13/23 21:36	1
HFPO-DA (GenX)	ND		4.0	1.5	ng/L		07/06/23 18:44	07/13/23 21:36	1
9Cl-PF3ONS	ND		2.0	0.24	ng/L		07/06/23 18:44	07/13/23 21:36	1
11Cl-PF3OUdS	ND		2.0	0.32	ng/L		07/06/23 18:44	07/13/23 21:36	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C4 PFBA	76		25 - 150	07/06/23 18:44	07/13/23 21:36	1
13C5 PFPeA	75		25 - 150	07/06/23 18:44	07/13/23 21:36	1
13C2 PFHxA	78		25 - 150	07/06/23 18:44	07/13/23 21:36	1
13C4 PFHpA	80		25 - 150	07/06/23 18:44	07/13/23 21:36	1
13C4 PFOA	84		25 - 150	07/06/23 18:44	07/13/23 21:36	1
13C5 PFNA	82		25 - 150	07/06/23 18:44	07/13/23 21:36	1
13C2 PFDA	80		25 - 150	07/06/23 18:44	07/13/23 21:36	1
13C2 PFUnA	79		25 - 150	07/06/23 18:44	07/13/23 21:36	1
13C2 PFDoA	76		25 - 150	07/06/23 18:44	07/13/23 21:36	1
13C2 PFTeDA	75		25 - 150	07/06/23 18:44	07/13/23 21:36	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-688614/1-A
Matrix: Water
Analysis Batch: 690399

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 688614

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 PFBS	70		25 - 150	07/06/23 18:44	07/13/23 21:36	1
18O2 PFHxS	77		25 - 150	07/06/23 18:44	07/13/23 21:36	1
13C4 PFOS	76		25 - 150	07/06/23 18:44	07/13/23 21:36	1
13C8 FOSA	76		10 - 150	07/06/23 18:44	07/13/23 21:36	1
d3-NMeFOSAA	66		25 - 150	07/06/23 18:44	07/13/23 21:36	1
d5-NEtFOSAA	64		25 - 150	07/06/23 18:44	07/13/23 21:36	1
d-N-MeFOSA-M	71		10 - 150	07/06/23 18:44	07/13/23 21:36	1
d-N-EtFOSA-M	66		10 - 150	07/06/23 18:44	07/13/23 21:36	1
d7-N-MeFOSE-M	69		10 - 150	07/06/23 18:44	07/13/23 21:36	1
d9-N-EtFOSE-M	69		10 - 150	07/06/23 18:44	07/13/23 21:36	1
M2-4:2 FTS	79		25 - 150	07/06/23 18:44	07/13/23 21:36	1
M2-6:2 FTS	88		25 - 150	07/06/23 18:44	07/13/23 21:36	1
M2-8:2 FTS	88		25 - 150	07/06/23 18:44	07/13/23 21:36	1
13C3 HFPO-DA	71		25 - 150	07/06/23 18:44	07/13/23 21:36	1
13C2 10:2 FTS	79		25 - 150	07/06/23 18:44	07/13/23 21:36	1

Lab Sample ID: LCS 320-688614/2-A
Matrix: Water
Analysis Batch: 690399

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 688614

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	40.0	43.6		ng/L		109	60 - 135
Perfluoropentanoic acid (PFPA)	40.0	39.8		ng/L		100	60 - 135
Perfluorohexanoic acid (PFHxA)	40.0	40.6		ng/L		101	60 - 135
Perfluoroheptanoic acid (PFHpA)	40.0	41.9		ng/L		105	60 - 135
Perfluorooctanoic acid (PFOA)	40.0	39.2		ng/L		98	60 - 135
Perfluorononanoic acid (PFNA)	40.0	41.4		ng/L		103	60 - 135
Perfluorodecanoic acid (PFDA)	40.0	41.2		ng/L		103	60 - 135
Perfluoroundecanoic acid (PFUnA)	40.0	41.4		ng/L		103	60 - 135
Perfluorododecanoic acid (PFDoA)	40.0	41.5		ng/L		104	60 - 135
Perfluorotridecanoic acid (PFTrDA)	40.0	39.0		ng/L		97	60 - 135
Perfluorotetradecanoic acid (PFTeA)	40.0	39.6		ng/L		99	60 - 135
Perfluorobutanesulfonic acid (PFBS)	35.5	35.0		ng/L		99	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	37.6	36.3		ng/L		96	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	36.5	34.0		ng/L		93	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	38.2	37.6		ng/L		98	60 - 135
Perfluorooctanesulfonic acid (PFOS)	37.2	36.4		ng/L		98	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.5	39.3		ng/L		102	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	36.1		ng/L		94	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.8	30.1		ng/L		78	60 - 135

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-688614/2-A
Matrix: Water
Analysis Batch: 690399

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 688614

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	40.0	39.9		ng/L		100	60 - 135
NEtFOSA	40.0	39.0		ng/L		98	60 - 135
NMeFOSA	40.0	41.9		ng/L		105	60 - 135
NMeFOSAA	40.0	43.9		ng/L		110	60 - 135
NEtFOSAA	40.0	39.4		ng/L		98	60 - 135
NMeFOSE	40.0	42.3		ng/L		106	60 - 135
NEtFOSE	40.0	40.7		ng/L		102	60 - 135
4:2 FTS	37.5	35.8		ng/L		95	60 - 135
6:2 FTS	38.1	42.6		ng/L		112	60 - 135
8:2 FTS	38.4	45.2		ng/L		118	60 - 135
4,8-Dioxa-3H-perfluoronanoic acid (ADONA)	37.8	39.5		ng/L		104	60 - 135
HFPO-DA (GenX)	40.0	40.7		ng/L		102	60 - 135
9Cl-PF3ONS	37.4	36.0		ng/L		96	60 - 135
11Cl-PF3OUdS	37.8	36.9		ng/L		98	60 - 135

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	61		25 - 150
13C5 PFPeA	62		25 - 150
13C2 PFHxA	62		25 - 150
13C4 PFHpA	66		25 - 150
13C4 PFOA	67		25 - 150
13C5 PFNA	66		25 - 150
13C2 PFDA	69		25 - 150
13C2 PFUnA	68		25 - 150
13C2 PFDoA	65		25 - 150
13C2 PFTeDA	59		25 - 150
13C3 PFBS	61		25 - 150
18O2 PFHxS	63		25 - 150
13C4 PFOS	62		25 - 150
13C8 FOSA	62		10 - 150
d3-NMeFOSAA	54		25 - 150
d5-NEtFOSAA	56		25 - 150
d-N-MeFOSA-M	55		10 - 150
d-N-EtFOSA-M	56		10 - 150
d7-N-MeFOSE-M	57		10 - 150
d9-N-EtFOSE-M	58		10 - 150
M2-4:2 FTS	64		25 - 150
M2-6:2 FTS	61		25 - 150
M2-8:2 FTS	64		25 - 150
13C3 HFPO-DA	62		25 - 150
13C2 10:2 FTS	62		25 - 150

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-688614/3-A

Matrix: Water

Analysis Batch: 690399

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 688614

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Perfluorobutanoic acid (PFBA)	40.0	40.0		ng/L		100	60 - 135	9	30	
Perfluoropentanoic acid (PFPA)	40.0	39.7		ng/L		99	60 - 135	0	30	
Perfluorohexanoic acid (PFHxA)	40.0	40.2		ng/L		100	60 - 135	1	30	
Perfluoroheptanoic acid (PFHpA)	40.0	38.1		ng/L		95	60 - 135	9	30	
Perfluorooctanoic acid (PFOA)	40.0	38.9		ng/L		97	60 - 135	1	30	
Perfluorononanoic acid (PFNA)	40.0	40.9		ng/L		102	60 - 135	1	30	
Perfluorodecanoic acid (PFDA)	40.0	37.6		ng/L		94	60 - 135	9	30	
Perfluoroundecanoic acid (PFUnA)	40.0	38.1		ng/L		95	60 - 135	8	30	
Perfluorododecanoic acid (PFDoA)	40.0	41.0		ng/L		102	60 - 135	1	30	
Perfluorotridecanoic acid (PFTTrDA)	40.0	39.8		ng/L		99	60 - 135	2	30	
Perfluorotetradecanoic acid (PFTeA)	40.0	38.4		ng/L		96	60 - 135	3	30	
Perfluorobutanesulfonic acid (PFBS)	35.5	33.5		ng/L		94	60 - 135	5	30	
Perfluoropentanesulfonic acid (PFPeS)	37.6	38.7		ng/L		103	60 - 135	6	30	
Perfluorohexanesulfonic acid (PFHxS)	36.5	35.0		ng/L		96	60 - 135	3	30	
Perfluoroheptanesulfonic acid (PFHpS)	38.2	36.3		ng/L		95	60 - 135	4	30	
Perfluorooctanesulfonic acid (PFOS)	37.2	35.4		ng/L		95	60 - 135	3	30	
Perfluorononanesulfonic acid (PFNS)	38.5	36.8		ng/L		96	60 - 135	6	30	
Perfluorodecanesulfonic acid (PFDS)	38.6	36.7		ng/L		95	60 - 135	2	30	
Perfluorododecanesulfonic acid (PFDoS)	38.8	29.7		ng/L		77	60 - 135	1	30	
Perfluorooctanesulfonamide (FOSA)	40.0	37.2		ng/L		93	60 - 135	7	30	
NEtFOSA	40.0	40.2		ng/L		101	60 - 135	3	30	
NMeFOSA	40.0	39.1		ng/L		98	60 - 135	7	30	
NMeFOSAA	40.0	39.4		ng/L		98	60 - 135	11	30	
NEtFOSAA	40.0	39.5		ng/L		99	60 - 135	0	30	
NMeFOSE	40.0	41.5		ng/L		104	60 - 135	2	30	
NEtFOSE	40.0	39.4		ng/L		98	60 - 135	3	30	
4:2 FTS	37.5	36.8		ng/L		98	60 - 135	3	30	
6:2 FTS	38.1	39.5		ng/L		104	60 - 135	7	30	
8:2 FTS	38.4	40.4		ng/L		105	60 - 135	11	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	39.4		ng/L		104	60 - 135	0	30	
HFPO-DA (GenX)	40.0	41.2		ng/L		103	60 - 135	1	30	
9CI-PF3ONS	37.4	37.0		ng/L		99	60 - 135	3	30	
11CI-PF3OUdS	37.8	34.1		ng/L		90	60 - 135	8	30	

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C4 PFBA	75		25 - 150
13C5 PFPeA	72		25 - 150
13C2 PFHxA	72		25 - 150

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-688614/3-A
Matrix: Water
Analysis Batch: 690399

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 688614

Isotope Dilution	LCSD LCSD		Limits
	%Recovery	Qualifier	
13C4 PFHpA	81		25 - 150
13C4 PFOA	79		25 - 150
13C5 PFNA	80		25 - 150
13C2 PFDA	84		25 - 150
13C2 PFUnA	80		25 - 150
13C2 PFDoA	76		25 - 150
13C2 PFTeDA	72		25 - 150
13C3 PFBS	71		25 - 150
18O2 PFHxS	72		25 - 150
13C4 PFOS	75		25 - 150
13C8 FOSA	78		10 - 150
d3-NMeFOSAA	68		25 - 150
d5-NEtFOSAA	67		25 - 150
d-N-MeFOSA-M	70		10 - 150
d-N-EtFOSA-M	65		10 - 150
d7-N-MeFOSE-M	70		10 - 150
d9-N-EtFOSE-M	72		10 - 150
M2-4:2 FTS	72		25 - 150
M2-6:2 FTS	76		25 - 150
M2-8:2 FTS	81		25 - 150
13C3 HFPO-DA	70		25 - 150
13C2 10:2 FTS	84		25 - 150

Lab Sample ID: MB 320-692232/1-A
Matrix: Solid
Analysis Batch: 692410

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 692232

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	ND		0.20	0.046	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
Perfluoropentanoic acid (PFPA)	ND		0.20	0.041	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.031	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.038	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.053	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.022	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.048	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.042	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.030	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
Perfluorotridecanoic acid (PFTTrDA)	ND		0.20	0.021	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.037	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.038	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.20	0.037	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.029	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.20	0.049	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.20	0.043	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
Perfluorononanesulfonic acid (PFNS)	ND		0.20	0.029	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.20	0.052	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.20	0.047	ug/Kg		07/19/23 19:11	07/20/23 19:08	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-692232/1-A
Matrix: Solid
Analysis Batch: 692410

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 692232

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (FOSA)	ND		0.20	0.033	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
NEtFOSA	ND		0.20	0.047	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
NMeFOSA	ND		0.20	0.049	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
NMeFOSAA	ND		0.20	0.023	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
NEtFOSAA	ND		0.20	0.048	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
NMeFOSE	ND		0.20	0.047	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
NEtFOSE	ND		0.20	0.028	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
4:2 FTS	ND		0.20	0.051	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
6:2 FTS	ND		0.20	0.027	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
8:2 FTS	ND		0.20	0.035	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.039	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
HFPO-DA (GenX)	ND		0.20	0.041	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
9Cl-PF3ONS	ND		0.20	0.035	ug/Kg		07/19/23 19:11	07/20/23 19:08	1
11Cl-PF3OUdS	ND		0.20	0.031	ug/Kg		07/19/23 19:11	07/20/23 19:08	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	86		25 - 150	07/19/23 19:11	07/20/23 19:08	1
13C5 PFPeA	87		25 - 150	07/19/23 19:11	07/20/23 19:08	1
13C2 PFHxA	91		25 - 150	07/19/23 19:11	07/20/23 19:08	1
13C4 PFHpA	89		25 - 150	07/19/23 19:11	07/20/23 19:08	1
13C4 PFOA	85		25 - 150	07/19/23 19:11	07/20/23 19:08	1
13C5 PFNA	93		25 - 150	07/19/23 19:11	07/20/23 19:08	1
13C2 PFDA	82		25 - 150	07/19/23 19:11	07/20/23 19:08	1
13C2 PFUnA	80		25 - 150	07/19/23 19:11	07/20/23 19:08	1
13C2 PFDoA	87		25 - 150	07/19/23 19:11	07/20/23 19:08	1
13C2 PFTeDA	87		25 - 150	07/19/23 19:11	07/20/23 19:08	1
13C3 PFBS	85		25 - 150	07/19/23 19:11	07/20/23 19:08	1
18O2 PFHxS	86		25 - 150	07/19/23 19:11	07/20/23 19:08	1
13C4 PFOS	87		25 - 150	07/19/23 19:11	07/20/23 19:08	1
13C8 FOSA	85		10 - 150	07/19/23 19:11	07/20/23 19:08	1
d3-NMeFOSAA	84		25 - 150	07/19/23 19:11	07/20/23 19:08	1
d5-NEtFOSAA	87		25 - 150	07/19/23 19:11	07/20/23 19:08	1
d-N-MeFOSA-M	76		10 - 150	07/19/23 19:11	07/20/23 19:08	1
d-N-EtFOSA-M	78		10 - 150	07/19/23 19:11	07/20/23 19:08	1
d7-N-MeFOSE-M	75		10 - 150	07/19/23 19:11	07/20/23 19:08	1
d9-N-EtFOSE-M	86		10 - 150	07/19/23 19:11	07/20/23 19:08	1
M2-4:2 FTS	90		25 - 150	07/19/23 19:11	07/20/23 19:08	1
M2-6:2 FTS	67		25 - 150	07/19/23 19:11	07/20/23 19:08	1
M2-8:2 FTS	79		25 - 150	07/19/23 19:11	07/20/23 19:08	1
13C3 HFPO-DA	87		25 - 150	07/19/23 19:11	07/20/23 19:08	1
13C2 10:2 FTS	102		25 - 150	07/19/23 19:11	07/20/23 19:08	1

Lab Sample ID: LCS 320-692232/2-A
Matrix: Solid
Analysis Batch: 693342

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 692232

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	2.00	1.89		ug/Kg		94	60 - 135

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-692232/2-A
Matrix: Solid
Analysis Batch: 693342

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 692232

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanoic acid (PFPA)	2.00	1.89		ug/Kg		94	60 - 135
Perfluorohexanoic acid (PFHxA)	2.00	2.00		ug/Kg		100	60 - 135
Perfluoroheptanoic acid (PFHpA)	2.00	1.99		ug/Kg		99	60 - 135
Perfluorooctanoic acid (PFOA)	2.00	1.91		ug/Kg		95	60 - 135
Perfluorononanoic acid (PFNA)	2.00	2.14		ug/Kg		107	60 - 135
Perfluorodecanoic acid (PFDA)	2.00	2.00		ug/Kg		100	60 - 135
Perfluoroundecanoic acid (PFUnA)	2.00	2.14		ug/Kg		107	60 - 135
Perfluorododecanoic acid (PFDoA)	2.00	2.23		ug/Kg		111	60 - 135
Perfluorotridecanoic acid (PFTrDA)	2.00	2.07		ug/Kg		103	60 - 135
Perfluorotetradecanoic acid (PFTeA)	2.00	1.96		ug/Kg		98	60 - 135
Perfluorobutanesulfonic acid (PFBS)	1.78	1.69		ug/Kg		95	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	1.88	2.00		ug/Kg		106	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.78		ug/Kg		98	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	1.91	1.78		ug/Kg		93	60 - 135
Perfluorooctanesulfonic acid (PFOS)	1.86	1.79		ug/Kg		96	60 - 135
Perfluorononanesulfonic acid (PFNS)	1.92	1.94		ug/Kg		101	60 - 135
Perfluorodecanesulfonic acid (PFDS)	1.93	1.99		ug/Kg		103	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	1.94	2.10		ug/Kg		108	60 - 135
Perfluorooctanesulfonamide (FOSA)	2.00	2.02		ug/Kg		101	60 - 135
NEtFOSA	2.00	2.02		ug/Kg		101	60 - 135
NMeFOSA	2.00	2.07		ug/Kg		104	60 - 135
NMeFOSAA	2.00	1.98		ug/Kg		99	60 - 135
NEtFOSAA	2.00	1.88		ug/Kg		94	60 - 135
NMeFOSE	2.00	1.97		ug/Kg		99	60 - 135
NEtFOSE	2.00	1.90		ug/Kg		95	60 - 135
4:2 FTS	1.88	1.88		ug/Kg		100	60 - 135
6:2 FTS	1.90	1.87		ug/Kg		98	60 - 135
8:2 FTS	1.92	1.81		ug/Kg		94	60 - 135
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.89	1.94		ug/Kg		102	60 - 135
HFPO-DA (GenX)	2.00	2.00		ug/Kg		100	60 - 135
9Cl-PF3ONS	1.87	1.78		ug/Kg		95	60 - 135
11Cl-PF3OUdS	1.89	1.92		ug/Kg		102	60 - 135

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	84		25 - 150
13C5 PFPeA	95		25 - 150
13C2 PFHxA	87		25 - 150
13C4 PFHpA	91		25 - 150

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-692232/2-A

Matrix: Solid

Analysis Batch: 693342

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 692232

Isotope Dilution	LCS		Limits
	%Recovery	Qualifier	
13C4 PFOA	88		25 - 150
13C5 PFNA	82		25 - 150
13C2 PFDA	81		25 - 150
13C2 PFUnA	82		25 - 150
13C2 PFDoA	79		25 - 150
13C2 PFTeDA	80		25 - 150
13C3 PFBS	83		25 - 150
18O2 PFHxS	81		25 - 150
13C4 PFOS	84		25 - 150
13C8 FOSA	79		10 - 150
d3-NMeFOSAA	87		25 - 150
d5-NEtFOSAA	96		25 - 150
d-N-MeFOSA-M	71		10 - 150
d-N-EtFOSA-M	71		10 - 150
d7-N-MeFOSE-M	81		10 - 150
d9-N-EtFOSE-M	78		10 - 150
M2-4:2 FTS	87		25 - 150
M2-6:2 FTS	85		25 - 150
M2-8:2 FTS	78		25 - 150
13C3 HFPO-DA	82		25 - 150
13C2 10:2 FTS	88		25 - 150

QC Association Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

LCMS

Prep Batch: 688343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-101930-9	BioB20230621	Total/NA	Solid	SHAKE	
MB 320-688343/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-688343/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Prep Batch: 688614

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-101930-1	Inf0220230619	Total/NA	Water	3535	
320-101930-2	Inf0720230619	Total/NA	Water	3535	
320-101930-3	Inf0820230619	Total/NA	Water	3535	
320-101930-4	Inf1120230619	Total/NA	Water	3535	
320-101930-5	Inf1820230619	Total/NA	Water	3535	
320-101930-6	Eff20230620	Total/NA	Water	3535	
320-101930-7	Inf Comp 20230619	Total/NA	Water	3535	
320-101930-10	EB0120230621	Total/NA	Water	3535	
MB 320-688614/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-688614/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-688614/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 690399

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-101930-1	Inf0220230619	Total/NA	Water	537 (modified)	688614
320-101930-2	Inf0720230619	Total/NA	Water	537 (modified)	688614
320-101930-3	Inf0820230619	Total/NA	Water	537 (modified)	688614
320-101930-4	Inf1120230619	Total/NA	Water	537 (modified)	688614
320-101930-5	Inf1820230619	Total/NA	Water	537 (modified)	688614
320-101930-6	Eff20230620	Total/NA	Water	537 (modified)	688614
320-101930-7	Inf Comp 20230619	Total/NA	Water	537 (modified)	688614
320-101930-10	EB0120230621	Total/NA	Water	537 (modified)	688614
MB 320-688614/1-A	Method Blank	Total/NA	Water	537 (modified)	688614
LCS 320-688614/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	688614
LCSD 320-688614/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	688614

Analysis Batch: 690566

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-101930-9	BioB20230621	Total/NA	Solid	537 (modified)	688343
MB 320-688343/1-A	Method Blank	Total/NA	Solid	537 (modified)	688343
LCS 320-688343/2-A	Lab Control Sample	Total/NA	Solid	537 (modified)	688343

Prep Batch: 692232

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-101930-8	BioA20230621	Total/NA	Solid	SHAKE	
MB 320-692232/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-692232/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Analysis Batch: 692410

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-101930-8	BioA20230621	Total/NA	Solid	537 (modified)	692232
MB 320-692232/1-A	Method Blank	Total/NA	Solid	537 (modified)	692232

Eurofins Sacramento

QC Association Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD Phase 3

Job ID: 320-101930-2

LCMS

Analysis Batch: 693342

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 320-692232/2-A	Lab Control Sample	Total/NA	Solid	537 (modified)	692232

General Chemistry

Analysis Batch: 686649

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-101930-8	BioA20230621	Total/NA	Solid	D 2216	
320-101930-9	BioB20230621	Total/NA	Solid	D 2216	

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Lab Chronicle

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: Inf0220230619

Lab Sample ID: 320-101930-1

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			284 mL	10.0 mL	688614	07/06/23 18:44	ERR	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	690399	07/14/23 00:25	D1R	EET SAC

Client Sample ID: Inf0720230619

Lab Sample ID: 320-101930-2

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			290.1 mL	10.0 mL	688614	07/06/23 18:44	ERR	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	690399	07/14/23 00:36	D1R	EET SAC

Client Sample ID: Inf0820230619

Lab Sample ID: 320-101930-3

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			266.5 mL	10.0 mL	688614	07/06/23 18:44	ERR	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	690399	07/14/23 00:48	D1R	EET SAC

Client Sample ID: Inf1120230619

Lab Sample ID: 320-101930-4

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			286.7 mL	10.0 mL	688614	07/06/23 18:44	ERR	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	690399	07/14/23 00:59	D1R	EET SAC

Client Sample ID: Inf1820230619

Lab Sample ID: 320-101930-5

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			290.3 mL	10.0 mL	688614	07/06/23 18:44	ERR	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	690399	07/14/23 01:10	D1R	EET SAC

Client Sample ID: Eff20230620

Lab Sample ID: 320-101930-6

Date Collected: 06/20/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			278.9 mL	10.0 mL	688614	07/06/23 18:44	ERR	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	690399	07/14/23 01:21	D1R	EET SAC

Lab Chronicle

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: Inf Comp 20230619

Lab Sample ID: 320-101930-7

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			288.7 mL	10.0 mL	688614	07/06/23 18:44	ERR	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	690399	07/14/23 01:33	D1R	EET SAC

Client Sample ID: BioA20230621

Lab Sample ID: 320-101930-8

Date Collected: 06/21/23 07:45

Matrix: Solid

Date Received: 06/26/23 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			686649	06/28/23 11:44	TCS	EET SAC

Client Sample ID: BioA20230621

Lab Sample ID: 320-101930-8

Date Collected: 06/21/23 07:45

Matrix: Solid

Date Received: 06/26/23 09:10

Percent Solids: 21.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			1.08 g	10.0 mL	692232	07/19/23 19:11	AM	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	692410	07/20/23 19:59	K1S	EET SAC

Client Sample ID: BioB20230621

Lab Sample ID: 320-101930-9

Date Collected: 06/21/23 07:00

Matrix: Solid

Date Received: 06/26/23 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			686649	06/28/23 11:44	TCS	EET SAC

Client Sample ID: BioB20230621

Lab Sample ID: 320-101930-9

Date Collected: 06/21/23 07:00

Matrix: Solid

Date Received: 06/26/23 09:10

Percent Solids: 5.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.33 g	10.0 mL	688343	07/06/23 04:40	EJR	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	690566	07/13/23 18:29	K1S	EET SAC

Client Sample ID: EB0120230621

Lab Sample ID: 320-101930-10

Date Collected: 06/21/23 07:24

Matrix: Water

Date Received: 06/26/23 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			283.9 mL	10.0 mL	688614	07/06/23 18:44	ERR	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	690399	07/14/23 02:07	D1R	EET SAC

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Laboratory: Eurofins Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4040	01-29-24

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
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids
Wisconsin	State	998204680	08-31-23

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
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids



Method Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	EET SAC
D 2216	Percent Moisture	ASTM	EET SAC
3535	Solid-Phase Extraction (SPE)	SW846	EET SAC
SHAKE	Shake Extraction with Ultrasonic Bath Extraction	SW846	EET SAC

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-101930-1	Inf0220230619	Water	06/19/23 23:59	06/26/23 09:10
320-101930-2	Inf0720230619	Water	06/19/23 23:59	06/26/23 09:10
320-101930-3	Inf0820230619	Water	06/19/23 23:59	06/26/23 09:10
320-101930-4	Inf1120230619	Water	06/19/23 23:59	06/26/23 09:10
320-101930-5	Inf1820230619	Water	06/19/23 23:59	06/26/23 09:10
320-101930-6	Eff20230620	Water	06/20/23 23:59	06/26/23 09:10
320-101930-7	Inf Comp 20230619	Water	06/19/23 23:59	06/26/23 09:10
320-101930-8	BioA20230621	Solid	06/21/23 07:45	06/26/23 09:10
320-101930-9	BioB20230621	Solid	06/21/23 07:00	06/26/23 09:10
320-101930-10	EB0120230621	Water	06/21/23 07:24	06/26/23 09:10

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Mike Ursin *mursinmetro.com* Chain of Custody Record

703293



Environment Testing America

Address: TBC
999 Fourier Dr Suite 101
Madison, WI 53717

TAL-8210

Regulatory Program: DW NPDES RCRA Other:

Client Contact
 Company Name: Madison Metropolitan Sewerage Dist
 Address: 1610 Moorland Rd
 City/State/Zip: Madison, WI 53713 - 3398
 Phone: 608 233-1201
 Project Name: MMSD Phase 3
 Site: MMSD
 P O #: 220422

Project Manager: Mary Powers
 Tel/Email: mary.powers@metro.wisc.gov
 Analysis Turnaround Time
 CALENDAR DAYS
 WORKING DAYS
 TAT if different from Below
 2 weeks
 1 week
 2 days
 1 day

Site Contact: Mary Powers
 Lab Contact: Jenny Faust
 Date: 6-23-23
 Carrier: Fed Ex
 COC No: 703293
 of COCs

Sample Identification	Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Sample Specific Notes:
<u>Inf 0230230619</u>	<u>6/19/23</u>	<u>23:59</u>	<u>C</u>	<u>WW</u>	<u>6</u>	<u>X</u>	<u>X</u>	
<u>Inf 0726230619</u>	<u>↓</u>	<u>↓</u>	<u>C</u>	<u>WW</u>	<u>6</u>	<u>X</u>	<u>X</u>	
<u>Inf 0826230619</u>	<u>↓</u>	<u>↓</u>	<u>C</u>	<u>WW</u>	<u>6</u>	<u>X</u>	<u>X</u>	
<u>Inf 1126230619</u>	<u>↓</u>	<u>↓</u>	<u>C</u>	<u>WW</u>	<u>6</u>	<u>X</u>	<u>X</u>	
<u>Inf 1826230619</u>	<u>↓</u>	<u>↓</u>	<u>C</u>	<u>WW</u>	<u>6</u>	<u>X</u>	<u>X</u>	
<u>EFF 20230630</u>	<u>6/20/23</u>	<u>↓</u>	<u>C</u>	<u>WW</u>	<u>6</u>	<u>X</u>	<u>X</u>	
<u>Inf Comp 20230619</u>	<u>6/19/23</u>	<u>↓</u>	<u>C</u>	<u>WW</u>	<u>3</u>	<u>X</u>	<u>X</u>	
<u>Bio A 22 20230621</u>	<u>6/21/23</u>	<u>07:45</u>	<u>G</u>	<u>SL</u>	<u>6</u>	<u>X</u>	<u>X</u>	
<u>Bio B 26 230621</u>	<u>↓</u>	<u>07:00</u>	<u>G</u>	<u>SL</u>	<u>6</u>	<u>X</u>	<u>X</u>	
<u>EB 01 20230621</u>	<u>↓</u>	<u>07:24</u>	<u>G</u>	<u>WT</u>	<u>3</u>	<u>X</u>	<u>X</u>	



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
 Return to Client Disposal by Lab Archive for _____ Months

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Special Instructions/QC Requirements & Comments:
For Inf Samples follow EPA-19-01 (WI AFAS method expectations) See V13 procedure for particulates in aqueous samples.
Centrifuge as needed

Cooler Temp. (°C): Obs'd 15.2 Cor'd: 15.2 Therm ID No: 606
 Custody Seal No.: _____
 Relinquished by: Jennifer Faust Company: MMSD Date/Time: 6/23/23 13:45
 Relinquished by: _____ Company: EEPA Date/Time: 6/26/23 0910
 Relinquished by: _____ Company: _____ Date/Time: _____



Login Sample Receipt Checklist

Client: Madison Metropolitan Sewerage District

Job Number: 320-101930-2

Login Number: 101930

List Source: Eurofins Sacramento

List Number: 1

Creator: Fisher, Jamyiah L

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	2109023
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.	False	Water present in cooler; indicates evidence of melted ice.
Cooler Temperature is acceptable.	False	Refer to Job Narrative for details.
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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



July 2023

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ANALYTICAL REPORT

PREPARED FOR

Attn: Julie Maas
Madison Metropolitan Sewerage District
1610 Moorland Road
Madison, Wisconsin 53713-3398

Generated 9/6/2023 6:14:00 PM Revision 2

JOB DESCRIPTION

PFAS Sampling

JOB NUMBER

320-102736-1

Eurofins Sacramento

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 Northern California, LLC Project Manager.

Authorization



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9/6/2023 6:14:00 PM
Revision 2

Authorized for release by
Micah Smith, Project Manager II
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Definitions/Glossary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.
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.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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

Case Narrative

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-1

Job ID: 320-102736-1

Laboratory: Eurofins Sacramento

Narrative

Job Narrative
320-102736-1

Comments

No additional comments.

Revision

The report being provided is a revision of the original report sent on 8/29/2023. The report (revision 2) is being revised to include the LCS/LCSD data for batch 699407.

Report revision history

Revision 1 - 8/30/2023 - Reason - Revised to include the Total Oxidation precursor report.

Receipt

The samples were received on 7/20/2023 3:42 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 was 2.4° C.

Receipt Exceptions

The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): Bio A 23-S-1 20230717 (320-102736-1), Bio A 23-S-2 20230717 (320-102736-2), Bio A 23-S-3 20230717 (320-102736-3), Bio A 23-S-4 20230717 (320-102736-4), Bio A-23-S-C 20230717 (320-102736-5), Bio A-23-D-1 20230717 (320-102736-6), Bio A-23-D-3 20230717 (320-102736-7), EB 01 20230717 (320-102736-8), INF COMP 20230717 (320-102736-9) and EFF 20230718 (320-102736-10).

Samples 1-9, all sample containers are missing 20230717.

Sample 3, 1 of the 2 containers has time 1336.

Sample 8, both containers have ID as Equip Blank 01. Also, containers do not have time and date.

Sample 10, containers have 20230718 missing. Also all containers have time 6:30.

Samples were logged in and labeled according to the IDs, dates and times listed on the COC.

LCMS

Method 537 (modified): The labeled analyte M2-4:2FTS is employed in this analysis as a "Reverse Surrogate". It is used to monitor the oxidation efficiency of the TOP assay. This analyte is fortified into all sample fractions prior to any processing. The recovery of this analyte should be 0% in Post-Treatment fractions, indicating complete oxidation of the sample. The following samples are associated with this narration: Bio A-23-S-C 20230717 (320-102736-5), (LCS 320-699406/2-A), (LCS 320-699407/2-A), (LCSD 320-699406/3-A), (LCSD 320-699407/3-A), (MB 320-699406/1-A) and (MB 320-699407/1-A).

Method 537 (modified): Zero percent recovery of precursor analytes (such as 4:2 FTS, 6:2 FTS, 8:2 FTS, FOSA, NMeFOSAA, NEtFOSAA, etc.) and enhanced recoveries of PFCA is observed in the Post-Treatment Laboratory Control Sample (LCS) and Post-Treatment Laboratory Control Sample Duplicate (LCSD) associated with these samples, consistent with the expected oxidation of precursor analytes. The existing LCS control limits are based upon our historical performance for a set of 24-36 analytes in the LCS solution. We have recently expanded to 70+ analytes. As the LCS solution now contains new/additional precursor analytes we are seeing enhanced recoveries for some PFCA vs. the historical limits as a result. The LCS results are flagged as being high and outside of the established limits for some analytes; however, this is a function of the new analytes in the LCS solution and not indicative of an "out of control" process. The following samples are associated with this narration: Bio A-23-S-C 20230717 (320-102736-5), (LCS 320-699407/2-A), (LCSD 320-699407/3-A) and (MB 320-699407/1-A).

Method 537 (modified): The "I" qualifier means the transition mass ratio for the indicated analyte was above the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte. The following sample is associated with this narration: Bio A-23-S-C 20230717 (320-102736-5).

Method 537 (modified): The labeled analyte M2-4:2FTS is converted to PFBA during the oxidation step of the TOP assay. The PFBA result in the Post-Treatment Method Blank (MB) indicates how much of a field sample's Post-Treatment PFBA result is contributed by the Reverse Surrogate, when adjusted for dilution factors. The following sample is associated with this narration: (MB 320-699407/1-A).

Case Narrative

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-1

Job ID: 320-102736-1 (Continued)

Laboratory: Eurofins Sacramento (Continued)

Method 537 (modified): The following laboratory control duplicate (LCSD) recovered slightly low for 11CI-PF3OUdS. The data are reported per the Vice President of Technical Services, Eurofins Environment Testing Northern California. The following sample is associated with this narration: (LCSD 320-699407/3-A).

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

Organic Prep

Method TOP Post-Prep: The following sample was prepared outside of preparation holding time due to laboratory contamination: Bio A-23-S-C 20230717 (320-102736-5).

Method TOP Pre-Prep: The following sample was prepared outside of preparation holding time due to laboratory contamination: Bio A-23-S-C 20230717 (320-102736-5).

Method TOP Pre-Prep: The following sample in preparation batch 320-699406 was yellow in color following extraction. Bio A-23-S-C 20230717 (320-102736-5).

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



Detection Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-1

Client Sample ID: Bio A-23-S-C 20230717

Lab Sample ID: 320-102736-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPA)	2.3	J H	3.8	0.79	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorohexanoic acid (PFHxA)	4.1	H	3.8	0.60	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorooctanoic acid (PFOA)	2.8	J H	3.8	1.0	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorononanoic acid (PFNA)	0.63	J H	3.8	0.42	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorodecanoic acid (PFDA)	6.3	H	3.8	0.92	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluoroundecanoic acid (PFUnA)	1.0	J H	3.8	0.81	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorododecanoic acid (PFDoA)	2.7	J H	3.8	0.58	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorotetradecanoic acid (PFTeA)	1.2	J H I	3.8	0.71	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorobutanesulfonic acid (PFBS)	2.5	J H	3.8	0.73	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorohexanesulfonic acid (PFHxS)	3.5	J H I	3.8	0.56	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorooctanesulfonic acid (PFOS)	14	H	3.8	0.83	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorodecanesulfonic acid (PFDS)	1.9	J H	3.8	1.0	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorooctanesulfonamide (FOSA)	1.0	J H	3.8	0.63	ug/Kg	1	✳	537 (modified)	Pre-Treatment
NMeFOSAA	12	H	3.8	0.44	ug/Kg	1	✳	537 (modified)	Pre-Treatment
NEtFOSAA	5.1	H	3.8	0.92	ug/Kg	1	✳	537 (modified)	Pre-Treatment
NMeFOSE	14	H	3.8	0.91	ug/Kg	1	✳	537 (modified)	Pre-Treatment
NEtFOSE	9.0	H	3.8	0.54	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	170	H B	4.0	0.92	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluoropentanoic acid (PFPA)	87	H **	4.0	0.82	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorohexanoic acid (PFHxA)	50	** H	4.0	0.62	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluoroheptanoic acid (PFHpA)	32	** H	4.0	0.76	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorooctanoic acid (PFOA)	40	H	4.0	1.1	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorononanoic acid (PFNA)	16	** H	4.0	0.44	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorodecanoic acid (PFDA)	16	** H	4.0	0.96	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluoroundecanoic acid (PFUnA)	7.1	H	4.0	0.84	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorododecanoic acid (PFDoA)	7.5	H	4.0	0.60	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorotridecanoic acid (PFTTrDA)	2.3	J H	4.0	0.42	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorotetradecanoic acid (PFTeA)	3.2	J H	4.0	0.74	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorobutanesulfonic acid (PFBS)	21	H	4.0	0.76	ug/Kg	1	✳	537 (modified)	Post-Treatment

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-1

Client Sample ID: Bio A-23-S-C 20230717 (Continued)

Lab Sample ID: 320-102736-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	2.0	J H	4.0	0.58	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorooctanesulfonic acid (PFOS)	17	H	4.0	0.86	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorodecanesulfonic acid (PFDS)	1.0	J H	4.0	1.0	ug/Kg	1	✳	537 (modified)	Post-Treatment
HFPO-DA (GenX)	18	H	4.0	0.82	ug/Kg	1	✳	537 (modified)	Post-Treatment

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento



Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-1

Client Sample ID: Bio A-23-S-C 20230717

Lab Sample ID: 320-102736-5

Date Collected: 07/17/23 14:12

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	H	3.8	0.88	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluoropentanoic acid (PFPA)	2.3	J H	3.8	0.79	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorohexanoic acid (PFHxA)	4.1	H	3.8	0.60	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluoroheptanoic acid (PFHpA)	ND	H	3.8	0.73	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorooctanoic acid (PFOA)	2.8	J H	3.8	1.0	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorononanoic acid (PFNA)	0.63	J H	3.8	0.42	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorodecanoic acid (PFDA)	6.3	H	3.8	0.92	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluoroundecanoic acid (PFUnA)	1.0	J H	3.8	0.81	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorododecanoic acid (PFDoA)	2.7	J H	3.8	0.58	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorotridecanoic acid (PFTTrDA)	ND	H	3.8	0.40	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorotetradecanoic acid (PFTTeA)	1.2	J H I	3.8	0.71	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorobutanesulfonic acid (PFBS)	2.5	J H	3.8	0.73	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluoropentanesulfonic acid (PFPeS)	ND	H	3.8	0.71	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorohexanesulfonic acid (PFHxS)	3.5	J H I	3.8	0.56	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	H	3.8	0.94	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorooctanesulfonic acid (PFOS)	14	H	3.8	0.83	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorononanesulfonic acid (PFNS)	ND	H	3.8	0.56	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorodecanesulfonic acid (PFDS)	1.9	J H	3.8	1.0	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorododecanesulfonic acid (PFDoS)	ND	H	3.8	0.91	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorooctanesulfonamide (FOSA)	1.0	J H	3.8	0.63	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
NMeFOSA	ND	H	3.8	0.94	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
NEtFOSA	ND	H	3.8	0.91	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
NMeFOSAA	12	H	3.8	0.44	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
NEtFOSAA	5.1	H	3.8	0.92	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
NMeFOSE	14	H	3.8	0.91	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
NEtFOSE	9.0	H	3.8	0.54	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
4:2 FTS	ND	H	3.8	0.98	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
6:2 FTS	ND	H	3.8	0.52	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
8:2 FTS	ND	H	3.8	0.67	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
HFPO-DA (GenX)	ND	H	3.8	0.79	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
9Cl-PF3ONS	ND	H	3.8	0.67	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
11Cl-PF3OUdS	ND	H	3.8	0.60	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H	3.8	0.75	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	70		25 - 150				08/17/23 00:00	08/20/23 20:57	1
13C5 PFPeA	83		25 - 150				08/17/23 00:00	08/20/23 20:57	1
13C2 PFHxA	92		25 - 150				08/17/23 00:00	08/20/23 20:57	1
13C4 PFHpA	99		25 - 150				08/17/23 00:00	08/20/23 20:57	1
13C4 PFOA	101		25 - 150				08/17/23 00:00	08/20/23 20:57	1
13C5 PFNA	101		25 - 150				08/17/23 00:00	08/20/23 20:57	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-1

Client Sample ID: Bio A-23-S-C 20230717

Lab Sample ID: 320-102736-5

Date Collected: 07/17/23 14:12

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDA	95		25 - 150	08/17/23 00:00	08/20/23 20:57	1
13C2 PFUnA	94		25 - 150	08/17/23 00:00	08/20/23 20:57	1
13C2 PFDoA	62		25 - 150	08/17/23 00:00	08/20/23 20:57	1
13C2 PFTeDA	13	*5-	25 - 150	08/17/23 00:00	08/20/23 20:57	1
13C3 PFBS	94		25 - 150	08/17/23 00:00	08/20/23 20:57	1
18O2 PFHxS	94		25 - 150	08/17/23 00:00	08/20/23 20:57	1
13C4 PFOS	84		25 - 150	08/17/23 00:00	08/20/23 20:57	1
13C8 FOSA	84		25 - 150	08/17/23 00:00	08/20/23 20:57	1
M2-4:2 FTS	131		25 - 150	08/17/23 00:00	08/20/23 20:57	1
M2-6:2 FTS	168	*5+	25 - 150	08/17/23 00:00	08/20/23 20:57	1
M2-8:2 FTS	109		25 - 150	08/17/23 00:00	08/20/23 20:57	1
13C2 10:2 FTS	86		25 - 150	08/17/23 00:00	08/20/23 20:57	1
13C3 HFPO-DA	105		25 - 150	08/17/23 00:00	08/20/23 20:57	1
d3-NMeFOSAA	61		25 - 150	08/17/23 00:00	08/20/23 20:57	1
d5-NEtFOSAA	70		25 - 150	08/17/23 00:00	08/20/23 20:57	1
d-N-MeFOSA-M	33		25 - 150	08/17/23 00:00	08/20/23 20:57	1
d-N-EtFOSA-M	38		25 - 150	08/17/23 00:00	08/20/23 20:57	1
d7-N-MeFOSE-M	33		25 - 150	08/17/23 00:00	08/20/23 20:57	1
d9-N-EtFOSE-M	33		25 - 150	08/17/23 00:00	08/20/23 20:57	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	170	H B	4.0	0.92	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluoropentanoic acid (PFPA)	87	H **	4.0	0.82	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluorohexanoic acid (PFHxA)	50	** H	4.0	0.62	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluoroheptanoic acid (PFHpA)	32	** H	4.0	0.76	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluorooctanoic acid (PFOA)	40	H	4.0	1.1	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluorononanoic acid (PFNA)	16	** H	4.0	0.44	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluorodecanoic acid (PFDA)	16	** H	4.0	0.96	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluoroundecanoic acid (PFUnA)	7.1	H	4.0	0.84	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluorododecanoic acid (PFDoA)	7.5	H	4.0	0.60	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluorotridecanoic acid (PFTTrDA)	2.3	J H	4.0	0.42	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluorotetradecanoic acid (PFTTeA)	3.2	J H	4.0	0.74	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluorobutanesulfonic acid (PFBS)	21	H	4.0	0.76	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluoropentanesulfonic acid (PFPeS)	ND	H	4.0	0.74	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluorohexanesulfonic acid (PFHxS)	2.0	J H	4.0	0.58	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	H	4.0	0.98	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluorooctanesulfonic acid (PFOS)	17	H	4.0	0.86	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluorononanesulfonic acid (PFNS)	ND	H	4.0	0.58	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluorodecanesulfonic acid (PFDS)	1.0	J H	4.0	1.0	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluorododecanesulfonic acid (PFDoS)	ND	H	4.0	0.94	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-1

Client Sample ID: Bio A-23-S-C 20230717

Lab Sample ID: 320-102736-5

Date Collected: 07/17/23 14:12

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (FOSA)	ND	H	4.0	0.66	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
NMeFOSAA	ND	H	4.0	0.46	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
NEtFOSAA	ND	H	4.0	0.96	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
4:2 FTS	ND	H	4.0	1.0	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
6:2 FTS	ND	H	4.0	0.54	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
8:2 FTS	ND	H	4.0	0.70	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
NEtFOSA	ND	H	4.0	0.94	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
NMeFOSA	ND	H	4.0	0.98	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
NMeFOSE	ND	H	4.0	0.94	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
NEtFOSE	ND	H	4.0	0.56	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
HFPO-DA (GenX)	18	H	4.0	0.82	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
9Cl-PF3ONS	ND	H	4.0	0.70	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
11Cl-PF3OUdS	ND	H *	4.0	0.62	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H	4.0	0.78	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	83		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C4 PFBA	83		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C5 PFPeA	83		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C2 PFHxA	92		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C4 PFHpA	97		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C4 PFOA	100		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C5 PFNA	97		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C2 PFDA	93		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C2 PFUnA	87		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C2 PFDoA	77		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C2 PFTeDA	78		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C3 PFBS	89		25 - 150	08/17/23 00:00	08/20/23 22:26	1
18O2 PFHxS	99		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C4 PFOS	81		25 - 150	08/17/23 00:00	08/20/23 22:26	1
d3-NMeFOSAA	73		25 - 150	08/17/23 00:00	08/20/23 22:26	1
d5-NEtFOSAA	75		25 - 150	08/17/23 00:00	08/20/23 22:26	1
M2-4:2 FTS	0		0 - 10	08/17/23 00:00	08/20/23 22:26	1
M2-6:2 FTS	118		25 - 150	08/17/23 00:00	08/20/23 22:26	1
M2-8:2 FTS	122		25 - 150	08/17/23 00:00	08/20/23 22:26	1
d-N-MeFOSA-M	76		25 - 150	08/17/23 00:00	08/20/23 22:26	1
d-N-EtFOSA-M	73		25 - 150	08/17/23 00:00	08/20/23 22:26	1
d7-N-MeFOSE-M	72		25 - 150	08/17/23 00:00	08/20/23 22:26	1
d9-N-EtFOSE-M	71		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C3 HFPO-DA	94		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C2 10:2 FTS	105		25 - 150	08/17/23 00:00	08/20/23 22:26	1

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Total Oxidation Precursors

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

TestAmerica Job ID: 320-102736-1

Client Sample ID: Bio A-23-S-C 20230717

Lab Sample ID: 320-102736-5
Matrix: Solid

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference ¹	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	ND		ug/Kg	170		ug/Kg	170	ug/Kg
Perfluoropentanoic acid (PFPA)	2.3	J	ug/Kg	87		ug/Kg	84	ug/Kg
Perfluorohexanoic acid (PFHxA)	4.1		ug/Kg	50		ug/Kg	46	ug/Kg
Perfluoroheptanoic acid (PFHpA)	ND		ug/Kg	32		ug/Kg	32	ug/Kg
Perfluorooctanoic acid (PFOA)	2.8	J	ug/Kg	40		ug/Kg	37	ug/Kg
Perfluorononanoic acid (PFNA)	0.63	J	ug/Kg	16		ug/Kg	15	ug/Kg
Total Perfluoroalkyl carboxylic acid	9.8		ug/Kg	400		ug/Kg	390	ug/Kg

¹ Difference = Post-Treatment - Pre-Treatment

Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Solid

Prep Type: Pre-Treatment

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-102736-5	Bio A-23-S-C 20230717	70	83	92	99	101	101	95	94
LCS 320-699406/2-A	Lab Control Sample	42	83	92	93	102	96	99	99
LCSD 320-699406/3-A	Lab Control Sample Dup	88	90	95	101	101	105	107	102
MB 320-699406/1-A	Method Blank	26	88	99	104	106	104	104	109

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (25-150)	M242FTS (25-150)	M262FTS (25-150)
320-102736-5	Bio A-23-S-C 20230717	62	13 *5-	94	94	84	84	131	168 *5+
LCS 320-699406/2-A	Lab Control Sample	87	86	88	88	83	93	106	109
LCSD 320-699406/3-A	Lab Control Sample Dup	96	94	95	101	92	103	116	114
MB 320-699406/1-A	Method Blank	98	91	93	97	89	102	109	117

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M282FTS (25-150)	M102FTS (25-150)	HFPODA (25-150)	d3NMFOS (25-150)	d5NEFOS (25-150)	dMeFOSA (25-150)	dEtFOSA (25-150)	NMFM (25-150)
320-102736-5	Bio A-23-S-C 20230717	109	86	105	61	70	33	38	33
LCS 320-699406/2-A	Lab Control Sample	115	108	102	78	76	86	86	82
LCSD 320-699406/3-A	Lab Control Sample Dup	124	113	111	86	90	93	92	93
MB 320-699406/1-A	Method Blank	125	117	108	84	87	91	91	88

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	NEFM (25-150)
320-102736-5	Bio A-23-S-C 20230717	33
LCS 320-699406/2-A	Lab Control Sample	82
LCSD 320-699406/3-A	Lab Control Sample Dup	95
MB 320-699406/1-A	Method Blank	90

Surrogate Legend

- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- C4PFHA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDoA = 13C2 PFDoA
- PFTDA = 13C2 PFTeDA
- C3PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- PFOSA = 13C8 FOSA
- M242FTS = M2-4:2 FTS
- M262FTS = M2-6:2 FTS
- M282FTS = M2-8:2 FTS
- M102FTS = 13C2 10:2 FTS
- HFPODA = 13C3 HFPO-DA
- d3NMFOS = d3-NMeFOSAA
- d5NEFOS = d5-NEtFOSAA
- dMeFOSA = d-N-MeFOSA-M

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Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District

Job ID: 320-102736-1

Project/Site: PFAS Sampling

dEtFOSA = d-N-EtFOSA-M

NMFM = d7-N-MeFOSE-M

NEFM = d9-N-EtFOSE-M

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Solid

Prep Type: Post-Treatment

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFOSA (25-150)	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)
320-102736-5	Bio A-23-S-C 20230717	83	83	83	92	97	100	97	93
LCS 320-699407/2-A	Lab Control Sample	98	71	91	100	104	101	102	103
LCSD 320-699407/3-A	Lab Control Sample Dup	105	51	90	98	98	102	105	105
MB 320-699407/1-A	Method Blank	99	57	85	93	102	103	103	103

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFUnA (25-150)	PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
320-102736-5	Bio A-23-S-C 20230717	87	77	78	89	99	81	73	75
LCS 320-699407/2-A	Lab Control Sample	104	99	95	97	102	92	88	89
LCSD 320-699407/3-A	Lab Control Sample Dup	108	98	96	99	103	97	90	89
MB 320-699407/1-A	Method Blank	102	97	97	92	99	90	82	86

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M242FTS (0-10)	M262FTS (25-150)	M282FTS (25-150)	dMeFOSA (25-150)	dEtFOSA (25-150)	NMFM (25-150)	NEFM (25-150)	HFPODA (25-150)
320-102736-5	Bio A-23-S-C 20230717	0	118	122	76	73	72	71	94
LCS 320-699407/2-A	Lab Control Sample	0	114	127	90	88	90	86	111
LCSD 320-699407/3-A	Lab Control Sample Dup	0	125	122	93	93	90	87	112
MB 320-699407/1-A	Method Blank	0	123	126	86	86	92	88	106

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M102FTS (25-150)
320-102736-5	Bio A-23-S-C 20230717	105
LCS 320-699407/2-A	Lab Control Sample	121
LCSD 320-699407/3-A	Lab Control Sample Dup	135
MB 320-699407/1-A	Method Blank	121

Surrogate Legend

- PFOSA = 13C8 FOSA
- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- C4PFHA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDoA = 13C2 PFDoA
- PFTDA = 13C2 PFTeDA
- C3PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- d3NMFOS = d3-NMeFOSAA
- d5NEFOS = d5-NEtFOSAA
- M242FTS = M2-4:2 FTS
- M262FTS = M2-6:2 FTS
- M282FTS = M2-8:2 FTS

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Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District

Job ID: 320-102736-1

Project/Site: PFAS Sampling

dMeFOSA = d-N-MeFOSA-M

dEtFOSA = d-N-EtFOSA-M

NMFM = d7-N-MeFOSE-M

NEFM = d9-N-EtFOSE-M

HFPODA = 13C3 HFPO-DA

M102FTS = 13C2 10:2 FTS

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-699406/1-A

Matrix: Solid

Analysis Batch: 700420

Client Sample ID: Method Blank

Prep Type: Pre-Treatment

Prep Batch: 699406

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.0	0.23	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
Perfluoropentanoic acid (PFPA)	ND		1.0	0.21	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
Perfluorohexanoic acid (PFHxA)	ND		1.0	0.16	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
Perfluoroheptanoic acid (PFHpA)	ND		1.0	0.19	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
Perfluorooctanoic acid (PFOA)	ND		1.0	0.27	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
Perfluorononanoic acid (PFNA)	ND		1.0	0.11	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
Perfluorodecanoic acid (PFDA)	ND		1.0	0.24	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
Perfluoroundecanoic acid (PFUnA)	ND		1.0	0.21	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
Perfluorododecanoic acid (PFDoA)	ND		1.0	0.15	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.0	0.11	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.0	0.19	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.0	0.19	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.0	0.19	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.0	0.15	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.0	0.25	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.0	0.22	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
Perfluorononanesulfonic acid (PFNS)	ND		1.0	0.15	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.0	0.26	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.0	0.24	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
Perfluorooctanesulfonamide (FOSA)	ND		1.0	0.17	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
NMeFOSAA	ND		1.0	0.12	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
NEtFOSAA	ND		1.0	0.24	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
4:2 FTS	ND		1.0	0.26	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
6:2 FTS	ND		1.0	0.14	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
8:2 FTS	ND		1.0	0.18	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
NEtFOSA	ND		1.0	0.24	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
NMeFOSA	ND		1.0	0.25	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
NMeFOSE	ND		1.0	0.24	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
NEtFOSE	ND		1.0	0.14	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
HFPO-DA (GenX)	ND		1.0	0.21	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
9Cl-PF3ONS	ND		1.0	0.18	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
11Cl-PF3OUdS	ND		1.0	0.16	ug/Kg		08/17/23 00:00	08/20/23 20:01	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.0	0.20	ug/Kg		08/17/23 00:00	08/20/23 20:01	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	26		25 - 150	08/17/23 00:00	08/20/23 20:01	1
13C5 PFPeA	88		25 - 150	08/17/23 00:00	08/20/23 20:01	1
13C2 PFHxA	99		25 - 150	08/17/23 00:00	08/20/23 20:01	1
13C4 PFHpA	104		25 - 150	08/17/23 00:00	08/20/23 20:01	1
13C4 PFOA	106		25 - 150	08/17/23 00:00	08/20/23 20:01	1
13C5 PFNA	104		25 - 150	08/17/23 00:00	08/20/23 20:01	1
13C2 PFDA	104		25 - 150	08/17/23 00:00	08/20/23 20:01	1
13C2 PFUnA	109		25 - 150	08/17/23 00:00	08/20/23 20:01	1
13C2 PFDoA	98		25 - 150	08/17/23 00:00	08/20/23 20:01	1
13C2 PFTeDA	91		25 - 150	08/17/23 00:00	08/20/23 20:01	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-699406/1-A
Matrix: Solid
Analysis Batch: 700420

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 699406

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 PFBS	93		25 - 150	08/17/23 00:00	08/20/23 20:01	1
18O2 PFHxS	97		25 - 150	08/17/23 00:00	08/20/23 20:01	1
13C4 PFOS	89		25 - 150	08/17/23 00:00	08/20/23 20:01	1
13C8 FOSA	102		25 - 150	08/17/23 00:00	08/20/23 20:01	1
M2-4:2 FTS	109		25 - 150	08/17/23 00:00	08/20/23 20:01	1
M2-6:2 FTS	117		25 - 150	08/17/23 00:00	08/20/23 20:01	1
M2-8:2 FTS	125		25 - 150	08/17/23 00:00	08/20/23 20:01	1
d3-NMeFOSAA	84		25 - 150	08/17/23 00:00	08/20/23 20:01	1
d5-NEtFOSAA	87		25 - 150	08/17/23 00:00	08/20/23 20:01	1
d-N-MeFOSA-M	91		25 - 150	08/17/23 00:00	08/20/23 20:01	1
d-N-EtFOSA-M	91		25 - 150	08/17/23 00:00	08/20/23 20:01	1
13C3 HFPO-DA	108		25 - 150	08/17/23 00:00	08/20/23 20:01	1
d7-N-MeFOSE-M	88		25 - 150	08/17/23 00:00	08/20/23 20:01	1
13C2 10:2 FTS	117		25 - 150	08/17/23 00:00	08/20/23 20:01	1
d9-N-EtFOSE-M	90		25 - 150	08/17/23 00:00	08/20/23 20:01	1

Lab Sample ID: LCS 320-699406/2-A
Matrix: Solid
Analysis Batch: 700420

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 699406

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	10.0	11.4		ug/Kg		114	76 - 136
Perfluoropentanoic acid (PFPA)	10.0	11.2		ug/Kg		112	69 - 129
Perfluorohexanoic acid (PFHxA)	10.0	11.5		ug/Kg		115	71 - 131
Perfluoroheptanoic acid (PFHpA)	10.0	11.4		ug/Kg		114	71 - 131
Perfluorooctanoic acid (PFOA)	10.0	11.0		ug/Kg		110	72 - 132
Perfluorononanoic acid (PFNA)	10.0	10.5		ug/Kg		105	73 - 133
Perfluorodecanoic acid (PFDA)	10.0	11.1		ug/Kg		111	72 - 132
Perfluoroundecanoic acid (PFUnA)	10.0	11.1		ug/Kg		111	66 - 126
Perfluorododecanoic acid (PFDoA)	10.0	11.7		ug/Kg		117	71 - 131
Perfluorotridecanoic acid (PFTrDA)	10.0	11.5		ug/Kg		115	71 - 131
Perfluorotetradecanoic acid (PFTeA)	10.0	10.7		ug/Kg		107	67 - 127
Perfluorobutanesulfonic acid (PFBS)	8.88	9.44		ug/Kg		106	69 - 129
Perfluoropentanesulfonic acid (PFPeS)	9.40	10.0		ug/Kg		107	66 - 126
Perfluorohexanesulfonic acid (PFHxS)	9.12	10.2		ug/Kg		112	62 - 122
Perfluoroheptanesulfonic acid (PFHpS)	9.54	12.1		ug/Kg		127	76 - 136
Perfluorooctanesulfonic acid (PFOS)	9.30	10.7		ug/Kg		115	68 - 141
Perfluorononanesulfonic acid (PFNS)	9.62	10.3		ug/Kg		107	72 - 132
Perfluorodecanesulfonic acid (PFDS)	9.64	9.98		ug/Kg		104	71 - 131
Perfluorododecanesulfonic acid (PFDoS)	9.70	9.40		ug/Kg		97	70 - 130

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-699406/2-A
Matrix: Solid
Analysis Batch: 700420

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 699406

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	10.0	10.2		ug/Kg		102	77 - 137
NMeFOSAA	10.0	11.4		ug/Kg		114	72 - 132
NEtFOSAA	10.0	11.1		ug/Kg		111	72 - 132
4:2 FTS	9.38	11.4		ug/Kg		121	68 - 143
6:2 FTS	9.52	9.74		ug/Kg		102	73 - 139
8:2 FTS	9.60	10.5		ug/Kg		109	75 - 135
NEtFOSA	10.0	10.6		ug/Kg		106	47 - 161
NMeFOSA	10.0	10.8		ug/Kg		108	63 - 148
NMeFOSE	10.0	10.7		ug/Kg		107	43 - 153
NEtFOSE	10.0	10.8		ug/Kg		108	44 - 155
HFPO-DA (GenX)	10.0	10.6		ug/Kg		106	53 - 158
9Cl-PF3ONS	9.34	11.2		ug/Kg		120	74 - 134
11Cl-PF3OUdS	9.44	10.0		ug/Kg		106	66 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.46	11.8		ug/Kg		125	79 - 139

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	42		25 - 150
13C5 PFPeA	83		25 - 150
13C2 PFHxA	92		25 - 150
13C4 PFHpA	93		25 - 150
13C4 PFOA	102		25 - 150
13C5 PFNA	96		25 - 150
13C2 PFDA	99		25 - 150
13C2 PFUnA	99		25 - 150
13C2 PFDoA	87		25 - 150
13C2 PFTeDA	86		25 - 150
13C3 PFBS	88		25 - 150
18O2 PFHxS	88		25 - 150
13C4 PFOS	83		25 - 150
13C8 FOSA	93		25 - 150
M2-4:2 FTS	106		25 - 150
M2-6:2 FTS	109		25 - 150
M2-8:2 FTS	115		25 - 150
d3-NMeFOSAA	78		25 - 150
d5-NEtFOSAA	76		25 - 150
d-N-MeFOSA-M	86		25 - 150
d-N-EtFOSA-M	86		25 - 150
13C3 HFPO-DA	102		25 - 150
d7-N-MeFOSE-M	82		25 - 150
13C2 10:2 FTS	108		25 - 150
d9-N-EtFOSE-M	82		25 - 150

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-699406/3-A

Matrix: Solid

Analysis Batch: 700420

Client Sample ID: Lab Control Sample Dup

Prep Type: Pre-Treatment

Prep Batch: 699406

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Perfluorobutanoic acid (PFBA)	10.0	11.4		ug/Kg		114	76 - 136	0	30	
Perfluoropentanoic acid (PFPA)	10.0	11.2		ug/Kg		112	69 - 129	0	30	
Perfluorohexanoic acid (PFHxA)	10.0	11.1		ug/Kg		111	71 - 131	3	30	
Perfluoroheptanoic acid (PFHpA)	10.0	10.9		ug/Kg		109	71 - 131	5	30	
Perfluorooctanoic acid (PFOA)	10.0	11.4		ug/Kg		114	72 - 132	3	30	
Perfluorononanoic acid (PFNA)	10.0	10.4		ug/Kg		104	73 - 133	1	30	
Perfluorodecanoic acid (PFDA)	10.0	11.2		ug/Kg		112	72 - 132	1	30	
Perfluoroundecanoic acid (PFUnA)	10.0	11.0		ug/Kg		110	66 - 126	1	30	
Perfluorododecanoic acid (PFDoA)	10.0	12.1		ug/Kg		121	71 - 131	3	30	
Perfluorotridecanoic acid (PFTTrDA)	10.0	11.0		ug/Kg		110	71 - 131	4	30	
Perfluorotetradecanoic acid (PFTeA)	10.0	10.5		ug/Kg		105	67 - 127	2	30	
Perfluorobutanesulfonic acid (PFBS)	8.88	9.56		ug/Kg		108	69 - 129	1	30	
Perfluoropentanesulfonic acid (PFPeS)	9.40	10.2		ug/Kg		108	66 - 126	1	30	
Perfluorohexanesulfonic acid (PFHxS)	9.12	9.55		ug/Kg		105	62 - 122	6	30	
Perfluoroheptanesulfonic acid (PFHpS)	9.54	11.2		ug/Kg		118	76 - 136	8	30	
Perfluorooctanesulfonic acid (PFOS)	9.30	10.4		ug/Kg		112	68 - 141	3	30	
Perfluorononanesulfonic acid (PFNS)	9.62	10.3		ug/Kg		107	72 - 132	0	30	
Perfluorodecanesulfonic acid (PFDS)	9.64	10.2		ug/Kg		105	71 - 131	2	30	
Perfluorododecanesulfonic acid (PFDoS)	9.70	9.66		ug/Kg		100	70 - 130	3	30	
Perfluorooctanesulfonamide (FOSA)	10.0	9.63		ug/Kg		96	77 - 137	6	30	
NMeFOSAA	10.0	10.7		ug/Kg		107	72 - 132	6	30	
NEtFOSAA	10.0	10.0		ug/Kg		100	72 - 132	10	30	
4:2 FTS	9.38	10.5		ug/Kg		111	68 - 143	8	30	
6:2 FTS	9.52	9.93		ug/Kg		104	73 - 139	2	30	
8:2 FTS	9.60	10.3		ug/Kg		107	75 - 135	2	30	
NEtFOSA	10.0	9.74		ug/Kg		97	47 - 161	8	30	
NMeFOSA	10.0	10.1		ug/Kg		101	63 - 148	6	30	
NMeFOSE	10.0	9.84		ug/Kg		98	43 - 153	8	30	
NEtFOSE	10.0	10.2		ug/Kg		102	44 - 155	6	30	
HFPO-DA (GenX)	10.0	10.4		ug/Kg		104	53 - 158	2	30	
9Cl-PF3ONS	9.34	11.0		ug/Kg		118	74 - 134	2	30	
11Cl-PF3OUdS	9.44	9.66		ug/Kg		102	66 - 136	3	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.46	11.0		ug/Kg		116	79 - 139	7	30	

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C4 PFBA	88		25 - 150
13C5 PFPeA	90		25 - 150
13C2 PFHxA	95		25 - 150

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-699406/3-A
Matrix: Solid
Analysis Batch: 700420

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 699406

<i>Isotope Dilution</i>	<i>LCSD %Recovery</i>	<i>LCSD Qualifier</i>	<i>Limits</i>
13C4 PFHpA	101		25 - 150
13C4 PFOA	101		25 - 150
13C5 PFNA	105		25 - 150
13C2 PFDA	107		25 - 150
13C2 PFUnA	102		25 - 150
13C2 PFDoA	96		25 - 150
13C2 PFTeDA	94		25 - 150
13C3 PFBS	95		25 - 150
18O2 PFHxS	101		25 - 150
13C4 PFOS	92		25 - 150
13C8 FOSA	103		25 - 150
M2-4:2 FTS	116		25 - 150
M2-6:2 FTS	114		25 - 150
M2-8:2 FTS	124		25 - 150
d3-NMeFOSAA	86		25 - 150
d5-NEtFOSAA	90		25 - 150
d-N-MeFOSA-M	93		25 - 150
d-N-EtFOSA-M	92		25 - 150
13C3 HFPO-DA	111		25 - 150
d7-N-MeFOSE-M	93		25 - 150
13C2 10:2 FTS	113		25 - 150
d9-N-EtFOSE-M	95		25 - 150

Lab Sample ID: MB 320-699407/1-A
Matrix: Solid
Analysis Batch: 700420

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 699407

<i>Analyte</i>	<i>MB Result</i>	<i>MB Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Perfluorobutanoic acid (PFBA)	0.912	J	1.0	0.23	ug/Kg	-	08/17/23 00:00	08/20/23 21:30	1
Perfluoropentanoic acid (PFPA)	ND		1.0	0.21	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
Perfluorohexanoic acid (PFHxA)	ND		1.0	0.16	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
Perfluoroheptanoic acid (PFHpA)	ND		1.0	0.19	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
Perfluorooctanoic acid (PFOA)	ND		1.0	0.27	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
Perfluorononanoic acid (PFNA)	ND		1.0	0.11	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
Perfluorodecanoic acid (PFDA)	ND		1.0	0.24	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
Perfluoroundecanoic acid (PFUnA)	ND		1.0	0.21	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
Perfluorododecanoic acid (PFDoA)	ND		1.0	0.15	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.0	0.11	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.0	0.19	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.0	0.19	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.0	0.19	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.0	0.15	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.0	0.25	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.0	0.22	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
Perfluorononanesulfonic acid (PFNS)	ND		1.0	0.15	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.0	0.26	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.0	0.24	ug/Kg		08/17/23 00:00	08/20/23 21:30	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-699407/1-A
Matrix: Solid
Analysis Batch: 700420

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 699407

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (FOSA)	ND		1.0	0.17	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
NMeFOSAA	ND		1.0	0.12	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
NEtFOSAA	ND		1.0	0.24	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
4:2 FTS	ND		1.0	0.26	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
6:2 FTS	ND		1.0	0.14	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
8:2 FTS	ND		1.0	0.18	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
NEtFOSA	ND		1.0	0.24	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
NMeFOSA	ND		1.0	0.25	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
NMeFOSE	ND		1.0	0.24	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
NEtFOSE	ND		1.0	0.14	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
HFPO-DA (GenX)	ND		1.0	0.21	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
9Cl-PF3ONS	ND		1.0	0.18	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
11Cl-PF3OUdS	ND		1.0	0.16	ug/Kg		08/17/23 00:00	08/20/23 21:30	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.0	0.20	ug/Kg		08/17/23 00:00	08/20/23 21:30	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	57		25 - 150	08/17/23 00:00	08/20/23 21:30	1
13C5 PFPeA	85		25 - 150	08/17/23 00:00	08/20/23 21:30	1
13C2 PFHxA	93		25 - 150	08/17/23 00:00	08/20/23 21:30	1
13C4 PFHpA	102		25 - 150	08/17/23 00:00	08/20/23 21:30	1
13C4 PFOA	103		25 - 150	08/17/23 00:00	08/20/23 21:30	1
13C5 PFNA	103		25 - 150	08/17/23 00:00	08/20/23 21:30	1
13C2 PFDA	103		25 - 150	08/17/23 00:00	08/20/23 21:30	1
13C2 PFUnA	102		25 - 150	08/17/23 00:00	08/20/23 21:30	1
13C2 PFDoA	97		25 - 150	08/17/23 00:00	08/20/23 21:30	1
13C2 PFTeDA	97		25 - 150	08/17/23 00:00	08/20/23 21:30	1
13C3 PFBS	92		25 - 150	08/17/23 00:00	08/20/23 21:30	1
18O2 PFHxS	99		25 - 150	08/17/23 00:00	08/20/23 21:30	1
13C4 PFOS	90		25 - 150	08/17/23 00:00	08/20/23 21:30	1
13C8 FOSA	99		25 - 150	08/17/23 00:00	08/20/23 21:30	1
M2-4:2 FTS	0		0 - 10	08/17/23 00:00	08/20/23 21:30	1
M2-6:2 FTS	123		25 - 150	08/17/23 00:00	08/20/23 21:30	1
M2-8:2 FTS	126		25 - 150	08/17/23 00:00	08/20/23 21:30	1
d3-NMeFOSAA	82		25 - 150	08/17/23 00:00	08/20/23 21:30	1
d5-NEtFOSAA	86		25 - 150	08/17/23 00:00	08/20/23 21:30	1
d-N-MeFOSA-M	86		25 - 150	08/17/23 00:00	08/20/23 21:30	1
d-N-EtFOSA-M	86		25 - 150	08/17/23 00:00	08/20/23 21:30	1
13C3 HFPO-DA	106		25 - 150	08/17/23 00:00	08/20/23 21:30	1
d7-N-MeFOSE-M	92		25 - 150	08/17/23 00:00	08/20/23 21:30	1
13C2 10:2 FTS	121		25 - 150	08/17/23 00:00	08/20/23 21:30	1
d9-N-EtFOSE-M	88		25 - 150	08/17/23 00:00	08/20/23 21:30	1

Lab Sample ID: LCS 320-699407/2-A
Matrix: Solid
Analysis Batch: 700586

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 699407

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	10.0	16.1		ug/Kg		161	96 - 183

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-699407/2-A
Matrix: Solid
Analysis Batch: 700586

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 699407

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluoropentanoic acid (PFPA)	10.0	14.9	*+	ug/Kg		149	81 - 141
Perfluorohexanoic acid (PFHxA)	10.0	18.4	*+	ug/Kg		184	92 - 152
Perfluoroheptanoic acid (PFHpA)	10.0	18.3	*+	ug/Kg		183	100 - 160
Perfluorooctanoic acid (PFOA)	10.0	36.2		ug/Kg		362	169 - 414
Perfluorononanoic acid (PFNA)	10.0	15.4	*+	ug/Kg		154	82 - 142
Perfluorodecanoic acid (PFDA)	10.0	17.0	*+	ug/Kg		170	81 - 141
Perfluoroundecanoic acid (PFUnA)	10.0	11.3		ug/Kg		113	70 - 130
Perfluorododecanoic acid (PFDoA)	10.0	11.3		ug/Kg		113	63 - 123
Perfluorotridecanoic acid (PFTrDA)	10.0	10.9		ug/Kg		109	63 - 123
Perfluorotetradecanoic acid (PFTeA)	10.0	9.58		ug/Kg		96	55 - 115
Perfluorobutanesulfonic acid (PFBS)	8.88	9.42		ug/Kg		106	74 - 134
Perfluoropentanesulfonic acid (PFPeS)	9.40	10.6		ug/Kg		112	68 - 134
Perfluorohexanesulfonic acid (PFHxS)	9.12	9.78		ug/Kg		107	61 - 121
Perfluoroheptanesulfonic acid (PFHpS)	9.54	11.3		ug/Kg		119	68 - 128
Perfluorooctanesulfonic acid (PFOS)	9.30	11.1		ug/Kg		119	70 - 138
Perfluorononanesulfonic acid (PFNS)	9.62	10.1		ug/Kg		105	66 - 126
Perfluorodecanesulfonic acid (PFDS)	9.64	10.0		ug/Kg		104	66 - 126
Perfluorododecanesulfonic acid (PFDoS)	9.70	11.1		ug/Kg		114	70 - 130
Perfluorooctanesulfonamide (FOSA)	10.0	ND		ug/Kg		0	0 - 10
NMeFOSAA	10.0	ND		ug/Kg		0	0 - 10
NEtFOSAA	10.0	ND		ug/Kg		0	0 - 10
4:2 FTS	9.38	ND		ug/Kg		0	0 - 10
6:2 FTS	9.52	ND		ug/Kg		0	0 - 10
8:2 FTS	9.60	ND		ug/Kg		0	0 - 10
NEtFOSA	10.0	ND		ug/Kg		0	0 - 10
NMeFOSA	10.0	ND		ug/Kg		0	0 - 10
NMeFOSE	10.0	ND		ug/Kg		0	0 - 10
NEtFOSE	10.0	ND		ug/Kg		0	0 - 10
HFPO-DA (GenX)	10.0	6.64		ug/Kg		66	53 - 158
9CI-PF3ONS	9.34	10.0		ug/Kg		108	74 - 134
11CI-PF3OUdS	9.44	6.28		ug/Kg		67	66 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.46	ND		ug/Kg		0	0 - 10

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	71		25 - 150
13C5 PFPeA	91		25 - 150
13C2 PFHxA	100		25 - 150
13C4 PFHpA	104		25 - 150

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-699407/2-A
Matrix: Solid
Analysis Batch: 700586

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 699407

Isotope Dilution	LCS		Limits
	%Recovery	Qualifier	
13C4 PFOA	101		25 - 150
13C5 PFNA	102		25 - 150
13C2 PFDA	103		25 - 150
13C2 PFUnA	104		25 - 150
13C2 PFDoA	99		25 - 150
13C2 PFTeDA	95		25 - 150
13C3 PFBS	97		25 - 150
18O2 PFHxS	102		25 - 150
13C4 PFOS	92		25 - 150
13C8 FOSA	98		25 - 150
M2-4:2 FTS	0		0 - 10
M2-6:2 FTS	114		25 - 150
M2-8:2 FTS	127		25 - 150
d3-NMeFOSAA	88		25 - 150
d5-NEtFOSAA	89		25 - 150
d-N-MeFOSA-M	90		25 - 150
d-N-EtFOSA-M	88		25 - 150
13C3 HFPO-DA	111		25 - 150
d7-N-MeFOSE-M	90		25 - 150
13C2 10:2 FTS	121		25 - 150
d9-N-EtFOSE-M	86		25 - 150

Lab Sample ID: LCSD 320-699407/3-A
Matrix: Solid
Analysis Batch: 700586

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 699407

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	
							Limits	RPD	Limit	
Perfluorobutanoic acid (PFBA)	10.0	14.5		ug/Kg		145	96 - 183	11	30	
Perfluoropentanoic acid (PFPA)	10.0	13.9		ug/Kg		139	81 - 141	7	30	
Perfluorohexanoic acid (PFHxA)	10.0	17.1	*+	ug/Kg		171	92 - 152	7	30	
Perfluoroheptanoic acid (PFHpA)	10.0	18.8	*+	ug/Kg		188	100 - 160	3	30	
Perfluorooctanoic acid (PFOA)	10.0	35.1		ug/Kg		351	169 - 414	3	30	
Perfluorononanoic acid (PFNA)	10.0	14.6	*+	ug/Kg		146	82 - 142	6	30	
Perfluorodecanoic acid (PFDA)	10.0	16.2	*+	ug/Kg		162	81 - 141	4	30	
Perfluoroundecanoic acid (PFUnA)	10.0	10.6		ug/Kg		106	70 - 130	6	30	
Perfluorododecanoic acid (PFDoA)	10.0	11.7		ug/Kg		117	63 - 123	4	30	
Perfluorotridecanoic acid (PFTTrDA)	10.0	10.9		ug/Kg		109	63 - 123	0	30	
Perfluorotetradecanoic acid (PFTeA)	10.0	9.54		ug/Kg		95	55 - 115	0	30	
Perfluorobutanesulfonic acid (PFBS)	8.88	9.32		ug/Kg		105	74 - 134	1	30	
Perfluoropentanesulfonic acid (PFPeS)	9.40	10.2		ug/Kg		109	68 - 134	3	30	
Perfluorohexanesulfonic acid (PFHxS)	9.12	9.92		ug/Kg		109	61 - 121	1	30	
Perfluoroheptanesulfonic acid (PFHpS)	9.54	11.2		ug/Kg		117	68 - 128	1	30	

Eurofins Sacramento

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-699407/3-A
Matrix: Solid
Analysis Batch: 700586

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 699407

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)	9.30	10.6		ug/Kg		114	70 - 138	4	30
Perfluorononanesulfonic acid (PFNS)	9.62	9.86		ug/Kg		103	66 - 126	3	30
Perfluorodecanesulfonic acid (PFDS)	9.64	10.3		ug/Kg		107	66 - 126	2	30
Perfluorododecanesulfonic acid (PFDoS)	9.70	9.35		ug/Kg		96	70 - 130	17	30
Perfluorooctanesulfonamide (FOSA)	10.0	ND		ug/Kg		0	0 - 10	NC	30
NMeFOSAA	10.0	ND		ug/Kg		0	0 - 10	NC	30
NEtFOSAA	10.0	ND		ug/Kg		0	0 - 10	NC	30
4:2 FTS	9.38	ND		ug/Kg		0	0 - 10	NC	30
6:2 FTS	9.52	ND		ug/Kg		0	0 - 10	NC	30
8:2 FTS	9.60	ND		ug/Kg		0	0 - 10	NC	30
NEtFOSA	10.0	ND		ug/Kg		0	0 - 10	NC	30
NMeFOSA	10.0	ND		ug/Kg		0	0 - 10	NC	30
NMeFOSE	10.0	ND		ug/Kg		0	0 - 10	NC	30
NEtFOSE	10.0	ND		ug/Kg		0	0 - 10	NC	30
HFPO-DA (GenX)	10.0	6.61		ug/Kg		66	53 - 158	0	30
9CI-PF3ONS	9.34	9.51		ug/Kg		102	74 - 134	5	30
11CI-PF3OUdS	9.44	5.88	*	ug/Kg		62	66 - 136	7	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.46	ND		ug/Kg		0	0 - 10	NC	30

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C4 PFBA	51		25 - 150
13C5 PFPeA	90		25 - 150
13C2 PFHxA	98		25 - 150
13C4 PFHpA	98		25 - 150
13C4 PFOA	102		25 - 150
13C5 PFNA	105		25 - 150
13C2 PFDA	105		25 - 150
13C2 PFUnA	108		25 - 150
13C2 PFDoA	98		25 - 150
13C2 PFTeDA	96		25 - 150
13C3 PFBS	99		25 - 150
18O2 PFHxS	103		25 - 150
13C4 PFOS	97		25 - 150
13C8 FOSA	105		25 - 150
M2-4:2 FTS	0		0 - 10
M2-6:2 FTS	125		25 - 150
M2-8:2 FTS	122		25 - 150
d3-NMeFOSAA	90		25 - 150
d5-NEtFOSAA	89		25 - 150
d-N-MeFOSA-M	93		25 - 150
d-N-EtFOSA-M	93		25 - 150
13C3 HFPO-DA	112		25 - 150
d7-N-MeFOSE-M	90		25 - 150
13C2 10:2 FTS	135		25 - 150

Eurofins Sacramento

QC Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-699407/3-A
Matrix: Solid
Analysis Batch: 700586

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 699407

<i>Isotope Dilution</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
<i>d9-N-EtFOSE-M</i>	87		25 - 150

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QC Association Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-1

LCMS

Prep Batch: 699406

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-102736-5	Bio A-23-S-C 20230717	Pre-Treatment	Solid	TOP Pre-Prep	
MB 320-699406/1-A	Method Blank	Pre-Treatment	Solid	TOP Pre-Prep	
LCS 320-699406/2-A	Lab Control Sample	Pre-Treatment	Solid	TOP Pre-Prep	
LCSD 320-699406/3-A	Lab Control Sample Dup	Pre-Treatment	Solid	TOP Pre-Prep	

Prep Batch: 699407

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-102736-5	Bio A-23-S-C 20230717	Post-Treatment	Solid	TOP Post-Prep	
MB 320-699407/1-A	Method Blank	Post-Treatment	Solid	TOP Post-Prep	
LCS 320-699407/2-A	Lab Control Sample	Post-Treatment	Solid	TOP Post-Prep	
LCSD 320-699407/3-A	Lab Control Sample Dup	Post-Treatment	Solid	TOP Post-Prep	

Analysis Batch: 700420

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-102736-5	Bio A-23-S-C 20230717	Post-Treatment	Solid	537 (modified)	699407
320-102736-5	Bio A-23-S-C 20230717	Pre-Treatment	Solid	537 (modified)	699406
MB 320-699406/1-A	Method Blank	Pre-Treatment	Solid	537 (modified)	699406
MB 320-699407/1-A	Method Blank	Post-Treatment	Solid	537 (modified)	699407
LCS 320-699406/2-A	Lab Control Sample	Pre-Treatment	Solid	537 (modified)	699406
LCSD 320-699406/3-A	Lab Control Sample Dup	Pre-Treatment	Solid	537 (modified)	699406

Analysis Batch: 700586

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 320-699407/2-A	Lab Control Sample	Post-Treatment	Solid	537 (modified)	699407
LCSD 320-699407/3-A	Lab Control Sample Dup	Post-Treatment	Solid	537 (modified)	699407

Lab Chronicle

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-1

Client Sample ID: Bio A-23-S-C 20230717

Lab Sample ID: 320-102736-5

Date Collected: 07/17/23 14:12

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOP Post-Prep			1.02 g	10.0 mL	699407	08/17/23 00:00	FX	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	700420	08/20/23 22:26	D1R	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep			1.06 g	10.0 mL	699406	08/17/23 00:00	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	700420	08/20/23 20:57	D1R	EET SAC

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Accreditation/Certification Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-1

Laboratory: Eurofins Sacramento

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4040	01-29-24
Wisconsin	State	998204680	08-31-23

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Method Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	EET SAC
TOP Post-Prep	Shake Extraction with Ultrasonic Bath Extraction	SW846	EET SAC
TOP Pre-Prep	Shake Extraction with Ultrasonic Bath Extraction	SW846	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-102736-5	Bio A-23-S-C 20230717	Solid	07/17/23 14:12	07/20/23 15:42

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703299

eurofins

Address: TRC
 999 Fournier Dr Suite 101
 Madison, WI 53717

All results to Mike Uson
 murs@trecomps.com

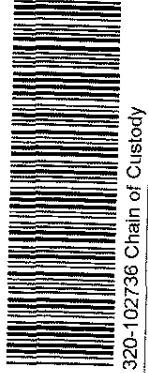
TAL-8210

Regulatory Program: DW NPDES RCRA Other

Client Contact: **Project Manager: Mary Powell**
 Company Name: **Madison Metro Sewerage Dept**
 Address: **1610 Moorland Rd**
 City/State/Zip: **Madison, WI 53713**
 Phone: **608 333-1201**
 Fax: **608 333-1201**
 Project Name: **Class A pile Cake Testing**
 Site: **MMSD**
 PO #

Site Contact: **Lab Contact: Mary Powers**
 Date: **Carrier: Fed Ex**
 COC No: **1** of **1** COCs
 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)	Sample Specific Notes:
Bio A 23-5-1 20230717	7/17/23	13:17	G	Sludge cake	2	N	X	
Bio A 23-5-2 20230717	7/17/23	13:40	G		2	X	X	
Bio A 23-5-3 20230717	7/17/23	13:46	G		2	X	X	
Bio A 23-5-4 20230717	7/17/23	14:05	G		2	X	X	
Bio A 23-5-C 20230717	7/17/23	14:12	C		6	X	X	
Bio A 23-D 1 20230717	7/17/23	13:28	G		2	X	X	
Bio A 23-D 3 20230717	7/17/23	13:55	G		2	X	X	
EB 01 20230717	7/17/23	13:10	G	Water	2	X	X	
INF COMP 20230717	7/17/23	23:59	C	WW	3	X	X	
Eff 20230718	7/18/23	03:59	C	WW	3	X	X	



Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other
 Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Unknown
 Special Instructions/QC Requirements & Comments

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Dispose by Lab Archive for: _____ Months
 Cooler Temp. (°C): Obs'd. **24** Corr'd. **24** Therm ID No.: **109**
 Relinquished by: **Company: MMSD** Date/Time: **7/19/23 07:51**
 Relinquished by: **Company: MMSD** Date/Time: **7/19/23**
 Relinquished by: **Company: MMSD** Date/Time: **7/20/23 10:00**





Environment Testing America

Sacramento Sample Receiving Notes

Place Field Sheet Label Here

Tracking # 5881 5596 3813

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: 109 Corr Factor (+/-) 0 °C
Ice X Wet _____ Gel _____ Other _____
Cooler Custody Seal 2109794/2109795
Cooler ID _____
Temp Observed 24 °C Corrected 24 °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: SP Date 7/20/23

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: SO Date 7/20/23

Notes
Sample 3, LODZ trace 1336
Sample 8 10. Equip Blank of
no trace, date
Sample #10, all samples trace 630
all samples okay, 2/230717/
2/230718

Trizma Lot #(s) _____
Ammonium
Acetate Lot #(s) _____

Login Completion Yes No NA
Receipt Temperature on COC?
NCM Filed?
Log Release checked in TALS?

Initials: SO Date 7/20/23

Login Sample Receipt Checklist

Client: Madison Metropolitan Sewerage District

Job Number: 320-102736-1

Login Number: 102736

List Source: Eurofins Sacramento

List Number: 1

Creator: Oropeza, Salvador

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	2109794/2109795
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?	False	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Julie Maas
Madison Metropolitan Sewerage District
1610 Moorland Road
Madison, Wisconsin 53713-3398

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JOB DESCRIPTION

PFAS Sampling

JOB NUMBER

320-102736-2

Eurofins Sacramento

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 Northern California, LLC Project Manager.

Authorization



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Revision 1

Authorized for release by
Micah Smith, Project Manager II
Micah.Smith@et.eurofinsus.com
(916)374-4302



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Definitions/Glossary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-2

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
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.

General Chemistry

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.

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

Case Narrative

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-2

Job ID: 320-102736-2

Laboratory: Eurofins Sacramento

Narrative

Job Narrative 320-102736-2

Comments

No additional comments.

Revision

The report being provided is a revision of the original report sent on 8/29/2023. The report (revision 1) is being revised to include a narration regarding the sediment for sample INF COMP 20230717 (320-102736-9).

Receipt

The samples were received on 7/20/2023 3:42 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 was 2.4° C.

Receipt Exceptions

The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): Bio A 23-S-1 20230717 (320-102736-1), Bio A 23-S-2 20230717 (320-102736-2), Bio A 23-S-3 20230717 (320-102736-3), Bio A 23-S-4 20230717 (320-102736-4), Bio A-23-S-C 20230717 (320-102736-5), Bio A-23-D-1 20230717 (320-102736-6), Bio A-23-D-3 20230717 (320-102736-7), EB 01 20230717 (320-102736-8), INF COMP 20230717 (320-102736-9) and EFF 20230718 (320-102736-10).

Samples 1-9, all sample containers are missing 20230717.

Sample 3, 1 of the 2 containers has time 1336.

Sample 8, both containers have ID as Equip Blank 01. Also, containers do not have time and date.

Sample 10, containers have 20230718 missing. Also all containers have time 6:30.

Samples were logged in and labeled according to the IDs, dates and times listed on the COC.

LCMS

Method 537 (modified): The "I" qualifier means the transition mass ratio for the indicated analyte was above the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte. The following sample is associated with this narration: Bio A-23-D-3 20230717 (320-102736-7).

Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: Bio A 23-S-4 20230717 (320-102736-4). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s).

Method 537 (modified): The "I" qualifier means the transition mass ratio for the indicated analyte was below the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty. The following sample is associated with this narration: Bio A 23-S-2 20230717 (320-102736-2).

Method 537 (modified): The following influent and effluent samples were re-analyzed because the effluent results were greater than the influent results: INF COMP 20230717 (320-102736-9) and EFF 20230718 (320-102736-10) The re-analysis confirmed. The best of data have been reported.

Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: INF COMP 20230717 (320-102736-9). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s).

Method 537 (modified): The "I" qualifier means the transition mass ratio for 8:2 FTS was above the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte. The following sample is associated with this narration: INF COMP 20230717 (320-102736-9).

Method 537 (modified): The "I" qualifier means the transition mass ratio Perfluorodecanoic acid (PFDA) was below the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty. However, analyst judgment was used to positively

Case Narrative

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-2

Job ID: 320-102736-2 (Continued)

Laboratory: Eurofins Sacramento (Continued)

identify the analyte. The following sample is associated with this narration: INF COMP 20230717 (320-102736-9).

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

General Chemistry

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

Organic Prep

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-693319.

Method 3535: The following sample in preparation batch 320-695760 was observed to have floating particulates present in the sample bottle prior to extraction: INF COMP 20230717 (320-102736-9).

Method 3535: The following sample in preparation batch 320-695760 was yellow in color prior to extraction and following concentration prior to extraction: INF COMP 20230717 (320-102736-9).

Method 3535: The following sample in preparation batch 320-698840 was light yellow in color prior to and following extraction. EFF 20230718 (320-102736-10).

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-698840.

Method SHAKE: The following samples in preparation batch 320-698681 were yellow in color following concentration. Bio A 23-S-1 20230717 (320-102736-1), Bio A 23-S-2 20230717 (320-102736-2), Bio A 23-S-3 20230717 (320-102736-3), Bio A 23-S-4 20230717 (320-102736-4), Bio A-23-S-C 20230717 (320-102736-5), Bio A-23-D-1 20230717 (320-102736-6) and Bio A-23-D-3 20230717 (320-102736-7).

Method SHAKE: Due to the matrix (Bio-Solids), the initial volumes used for the following samples deviated from the standard procedure: Bio A 23-S-1 20230717 (320-102736-1), Bio A 23-S-2 20230717 (320-102736-2), Bio A 23-S-3 20230717 (320-102736-3), Bio A 23-S-4 20230717 (320-102736-4), Bio A-23-S-C 20230717 (320-102736-5), Bio A-23-D-1 20230717 (320-102736-6) and Bio A-23-D-3 20230717 (320-102736-7). The reporting limits (RLs) have been adjusted proportionately.

Method 3535: During the solid phase extraction process, the following sample contained non-settable particulates which clogged the solid phase extraction column: EFF 20230718 (320-102736-10). Approximately 78% of the sample container was filtered through the SPE column at which point the SPE column became clogged. The remainder of the unfiltered sample was retained in the original sample bottle. The SPE column along with the particulates that clogged it were then extracted using the elution solvent.

Method 3535: During the solid phase extraction process, the following sample contained non-settable particulates which clogged the solid phase extraction column: INF COMP 20230717 (320-102736-9). Approximately 55% of the sample container was filtered through the SPE column at which point the SPE column became clogged. The remainder of the unfiltered sample was retained in the original sample bottle. The SPE column along with the particulates that clogged it were then extracted using the elution solvent.

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

Detection Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A 23-S-1 20230717

Lab Sample ID: 320-102736-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	4.0		2.4	0.54	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	11		2.4	0.49	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	33		2.4	0.37	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.9	J	2.4	0.45	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	23		2.4	0.63	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	1.3	J	2.4	0.26	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	13		2.4	0.57	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.5	J	2.4	0.50	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	4.8		2.4	0.36	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotridecanoic acid (PFTrDA)	0.59	J	2.4	0.25	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	1.3	J	2.4	0.44	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.5	J	2.4	0.45	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanesulfonic acid (PFDS)	3.4		2.4	0.62	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.3	J	2.4	0.39	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSAA	29		2.4	0.27	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSAA	9.5		2.4	0.57	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSE	15		2.4	0.56	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSE	3.9		2.4	0.33	ug/Kg	1	✳	537 (modified)	Total/NA
6:2 FTS	2.4		2.4	0.32	ug/Kg	1	✳	537 (modified)	Total/NA
8:2 FTS	1.6	J	2.4	0.41	ug/Kg	1	✳	537 (modified)	Total/NA

Client Sample ID: Bio A 23-S-2 20230717

Lab Sample ID: 320-102736-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.96	J	2.8	0.64	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	5.2		2.8	0.57	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	13		2.8	0.43	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.74	J	2.8	0.53	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	7.0		2.8	0.74	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	1.0	J	2.8	0.31	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	10		2.8	0.67	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.7	J	2.8	0.58	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	4.9		2.8	0.42	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotridecanoic acid (PFTrDA)	0.75	J	2.8	0.29	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	1.5	J	2.8	0.51	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanesulfonic acid (PFDS)	3.9		2.8	0.72	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.8	J	2.8	0.46	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSAA	27		2.8	0.32	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSAA	11		2.8	0.67	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSE	22		2.8	0.65	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSE	4.7		2.8	0.39	ug/Kg	1	✳	537 (modified)	Total/NA
6:2 FTS	1.2	J I	2.8	0.38	ug/Kg	1	✳	537 (modified)	Total/NA
8:2 FTS	1.5	J	2.8	0.49	ug/Kg	1	✳	537 (modified)	Total/NA

Client Sample ID: Bio A 23-S-3 20230717

Lab Sample ID: 320-102736-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPA)	0.94	J	3.2	0.65	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	3.9		3.2	0.49	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	3.5		3.2	0.84	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	1.0	J	3.2	0.35	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	9.2		3.2	0.76	ug/Kg	1	✳	537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A 23-S-3 20230717 (Continued)

Lab Sample ID: 320-102736-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroundecanoic acid (PFUnA)	1.4	J	3.2	0.66	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	4.6		3.2	0.47	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotridecanoic acid (PFTrDA)	0.53	J	3.2	0.33	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	1.0	J	3.2	0.59	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanesulfonic acid (PFDS)	3.7		3.2	0.82	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.6	J	3.2	0.52	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSAA	24		3.2	0.36	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSAA	9.1		3.2	0.76	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSE	17		3.2	0.74	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSE	3.9		3.2	0.44	ug/Kg	1	✳	537 (modified)	Total/NA
6:2 FTS	0.45	J	3.2	0.43	ug/Kg	1	✳	537 (modified)	Total/NA
8:2 FTS	1.3	J	3.2	0.55	ug/Kg	1	✳	537 (modified)	Total/NA

Client Sample ID: Bio A 23-S-4 20230717

Lab Sample ID: 320-102736-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	2.9	J	3.3	0.50	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	3.1	J	3.3	0.86	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.90	J	3.3	0.36	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	9.7		3.3	0.78	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.5	J	3.3	0.68	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	4.7		3.3	0.49	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotridecanoic acid (PFTrDA)	0.49	J	3.3	0.34	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	1.1	J	3.3	0.60	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanesulfonic acid (PFDS)	3.2	J	3.3	0.85	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.5	J	3.3	0.54	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSAA	26		3.3	0.37	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSAA	11		3.3	0.78	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSE	18		3.3	0.76	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSE	4.1		3.3	0.46	ug/Kg	1	✳	537 (modified)	Total/NA
8:2 FTS	1.3	J	3.3	0.57	ug/Kg	1	✳	537 (modified)	Total/NA

Client Sample ID: Bio A-23-S-C 20230717

Lab Sample ID: 320-102736-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPA)	1.4	J	3.3	0.67	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	5.0		3.3	0.50	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	4.0		3.3	0.86	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.95	J	3.3	0.36	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	9.7		3.3	0.78	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.5	J	3.3	0.68	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	4.9		3.3	0.49	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotridecanoic acid (PFTrDA)	0.57	J	3.3	0.34	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	1.0	J	3.3	0.60	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanesulfonic acid (PFDS)	3.8		3.3	0.85	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.4	J	3.3	0.54	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSAA	25		3.3	0.37	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSAA	10		3.3	0.78	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSE	18		3.3	0.77	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSE	4.0		3.3	0.46	ug/Kg	1	✳	537 (modified)	Total/NA
6:2 FTS	0.58	J	3.3	0.44	ug/Kg	1	✳	537 (modified)	Total/NA
8:2 FTS	1.3	J	3.3	0.57	ug/Kg	1	✳	537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A-23-D-1 20230717

Lab Sample ID: 320-102736-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	1.9	J	3.9	0.60	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	2.7	J	3.9	1.0	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.96	J	3.9	0.43	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	9.6		3.9	0.93	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.5	J	3.9	0.82	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	4.4		3.9	0.58	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotridecanoic acid (PFTrDA)	0.55	J	3.9	0.41	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	0.95	J	3.9	0.72	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanesulfonic acid (PFDS)	3.5	J	3.9	1.0	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.5	J	3.9	0.64	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSAA	24		3.9	0.45	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSAA	9.3		3.9	0.93	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSE	18		3.9	0.91	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSE	3.9		3.9	0.54	ug/Kg	1	✳	537 (modified)	Total/NA
8:2 FTS	1.5	J	3.9	0.68	ug/Kg	1	✳	537 (modified)	Total/NA

Client Sample ID: Bio A-23-D-3 20230717

Lab Sample ID: 320-102736-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	2.2	J I	4.0	0.62	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	3.3	J	4.0	1.1	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	1.1	J	4.0	0.44	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	11		4.0	0.97	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.7	J	4.0	0.85	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	5.3		4.0	0.60	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotridecanoic acid (PFTrDA)	0.77	J	4.0	0.42	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	1.4	J	4.0	0.75	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanesulfonic acid (PFDS)	3.7	J	4.0	1.0	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.7	J	4.0	0.67	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSAA	27		4.0	0.46	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSAA	11		4.0	0.97	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSE	21		4.0	0.95	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSE	5.1		4.0	0.56	ug/Kg	1	✳	537 (modified)	Total/NA
8:2 FTS	1.7	J	4.0	0.71	ug/Kg	1	✳	537 (modified)	Total/NA

Client Sample ID: EB 01 20230717

Lab Sample ID: 320-102736-8

No Detections.

Client Sample ID: INF COMP 20230717

Lab Sample ID: 320-102736-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	9.7		4.4	2.1	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	7.7		1.7	0.43	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	15		1.7	0.51	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.2		1.7	0.22	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	8.8		1.7	0.74	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.65	J I	1.7	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	4.9		1.7	0.17	ng/L	1		537 (modified)	Total/NA
8:2 FTS	0.69	J I	1.7	0.40	ng/L	1		537 (modified)	Total/NA
Total Suspended Solids	420		50	19	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: EFF 20230718

Lab Sample ID: 320-102736-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	12		4.8	2.3	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	21		1.9	0.47	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	27		1.9	0.55	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.8		1.9	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	12		1.9	0.81	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.77	J	1.9	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	1.4	J	1.9	0.30	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	7.1		1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.66	J	1.9	0.29	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	8.5		1.9	0.54	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	4.9		1.9	0.51	ng/L	1		537 (modified)	Total/NA
NMeFOSAA	1.5	J	4.8	1.1	ng/L	1		537 (modified)	Total/NA
Total Suspended Solids	4.7	J	5.0	1.9	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A 23-S-1 20230717

Lab Sample ID: 320-102736-1

Date Collected: 07/17/23 13:17

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 34.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	4.0		2.4	0.54	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluoropentanoic acid (PFPA)	11		2.4	0.49	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorohexanoic acid (PFHxA)	33		2.4	0.37	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluoroheptanoic acid (PFHpA)	1.9	J	2.4	0.45	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorooctanoic acid (PFOA)	23		2.4	0.63	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorononanoic acid (PFNA)	1.3	J	2.4	0.26	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorodecanoic acid (PFDA)	13		2.4	0.57	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluoroundecanoic acid (PFUnA)	1.5	J	2.4	0.50	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorododecanoic acid (PFDoA)	4.8		2.4	0.36	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorotridecanoic acid (PFTrDA)	0.59	J	2.4	0.25	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorotetradecanoic acid (PFTeA)	1.3	J	2.4	0.44	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorobutanesulfonic acid (PFBS)	1.5	J	2.4	0.45	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.4	0.44	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.4	0.34	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.4	0.58	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.4	0.51	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorononanesulfonic acid (PFNS)	ND		2.4	0.34	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorodecanesulfonic acid (PFDS)	3.4		2.4	0.62	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.4	0.56	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorooctanesulfonamide (FOSA)	1.3	J	2.4	0.39	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
NEtFOSA	ND		2.4	0.56	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
NMeFOSA	ND		2.4	0.58	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
NMeFOSAA	29		2.4	0.27	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
NEtFOSAA	9.5		2.4	0.57	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
NMeFOSE	15		2.4	0.56	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
NEtFOSE	3.9		2.4	0.33	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
4:2 FTS	ND		2.4	0.60	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
6:2 FTS	2.4		2.4	0.32	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
8:2 FTS	1.6	J	2.4	0.41	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.4	0.46	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
HFPO-DA (GenX)	ND		2.4	0.49	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
9Cl-PF3ONS	ND		2.4	0.41	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
11Cl-PF3OUdS	ND		2.4	0.37	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	77		25 - 150				08/14/23 20:30	08/17/23 00:36	1
13C5 PFPeA	84		25 - 150				08/14/23 20:30	08/17/23 00:36	1
13C2 PFHxA	96		25 - 150				08/14/23 20:30	08/17/23 00:36	1
13C4 PFHpA	89		25 - 150				08/14/23 20:30	08/17/23 00:36	1
13C4 PFOA	93		25 - 150				08/14/23 20:30	08/17/23 00:36	1
13C5 PFNA	86		25 - 150				08/14/23 20:30	08/17/23 00:36	1
13C2 PFDA	92		25 - 150				08/14/23 20:30	08/17/23 00:36	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A 23-S-1 20230717

Lab Sample ID: 320-102736-1

Date Collected: 07/17/23 13:17

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 34.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFUnA	89		25 - 150	08/14/23 20:30	08/17/23 00:36	1
13C2 PFDoA	61		25 - 150	08/14/23 20:30	08/17/23 00:36	1
13C2 PFTeDA	42		25 - 150	08/14/23 20:30	08/17/23 00:36	1
13C3 PFBS	82		25 - 150	08/14/23 20:30	08/17/23 00:36	1
18O2 PFHxS	89		25 - 150	08/14/23 20:30	08/17/23 00:36	1
13C4 PFOS	76		25 - 150	08/14/23 20:30	08/17/23 00:36	1
13C8 FOSA	90		10 - 150	08/14/23 20:30	08/17/23 00:36	1
d3-NMeFOSAA	87		25 - 150	08/14/23 20:30	08/17/23 00:36	1
d5-NEtFOSAA	69		25 - 150	08/14/23 20:30	08/17/23 00:36	1
d-N-MeFOSA-M	22		10 - 150	08/14/23 20:30	08/17/23 00:36	1
d-N-EtFOSA-M	45		10 - 150	08/14/23 20:30	08/17/23 00:36	1
d7-N-MeFOSE-M	18		10 - 150	08/14/23 20:30	08/17/23 00:36	1
d9-N-EtFOSE-M	64		10 - 150	08/14/23 20:30	08/17/23 00:36	1
M2-4:2 FTS	121		25 - 150	08/14/23 20:30	08/17/23 00:36	1
M2-6:2 FTS	128		25 - 150	08/14/23 20:30	08/17/23 00:36	1
M2-8:2 FTS	105		25 - 150	08/14/23 20:30	08/17/23 00:36	1
13C3 HFPO-DA	89		25 - 150	08/14/23 20:30	08/17/23 00:36	1
13C2 10:2 FTS	111		25 - 150	08/14/23 20:30	08/17/23 00:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	65.4		0.1	0.1	%			07/21/23 13:25	1
Percent Solids (ASTM D 2216)	34.6		0.1	0.1	%			07/21/23 13:25	1

Client Sample ID: Bio A 23-S-2 20230717

Lab Sample ID: 320-102736-2

Date Collected: 07/17/23 13:40

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.4

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.96	J	2.8	0.64	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluoropentanoic acid (PFPA)	5.2		2.8	0.57	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluorohexanoic acid (PFHxA)	13		2.8	0.43	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluoroheptanoic acid (PFHpA)	0.74	J	2.8	0.53	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluorooctanoic acid (PFOA)	7.0		2.8	0.74	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluorononanoic acid (PFNA)	1.0	J	2.8	0.31	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluorodecanoic acid (PFDA)	10		2.8	0.67	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluoroundecanoic acid (PFUnA)	1.7	J	2.8	0.58	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluorododecanoic acid (PFDoA)	4.9		2.8	0.42	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluorotridecanoic acid (PFTTrDA)	0.75	J	2.8	0.29	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluorotetradecanoic acid (PFTeA)	1.5	J	2.8	0.51	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.8	0.53	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.8	0.51	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.8	0.40	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.8	0.68	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.8	0.60	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A 23-S-2 20230717

Lab Sample ID: 320-102736-2

Date Collected: 07/17/23 13:40

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.4

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanesulfonic acid (PFNS)	ND		2.8	0.40	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
Perfluorodecanesulfonic acid (PFDS)	3.9		2.8	0.72	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.8	0.65	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
Perfluorooctanesulfonamide (FOSA)	1.8 J		2.8	0.46	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
NEtFOSA	ND		2.8	0.65	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
NMeFOSA	ND		2.8	0.68	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
NMeFOSAA	27		2.8	0.32	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
NEtFOSAA	11		2.8	0.67	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
NMeFOSE	22		2.8	0.65	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
NEtFOSE	4.7		2.8	0.39	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
4:2 FTS	ND		2.8	0.71	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
6:2 FTS	1.2 J I		2.8	0.38	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
8:2 FTS	1.5 J		2.8	0.49	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.8	0.54	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
HFPO-DA (GenX)	ND		2.8	0.57	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
9CI-PF3ONS	ND		2.8	0.49	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
11CI-PF3OUdS	ND		2.8	0.43	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	74		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C5 PFPeA	81		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C2 PFHxA	93		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C4 PFHpA	89		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C4 PFOA	89		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C5 PFNA	67		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C2 PFDA	81		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C2 PFUnA	81		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C2 PFDoA	62		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C2 PFTeDA	36		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C3 PFBS	80		25 - 150	08/14/23 20:30	08/17/23 18:51	1
18O2 PFHxS	88		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C4 PFOS	60		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C8 FOSA	84		10 - 150	08/14/23 20:30	08/17/23 18:51	1
d3-NMeFOSAA	70		25 - 150	08/14/23 20:30	08/17/23 18:51	1
d5-NEtFOSAA	61		25 - 150	08/14/23 20:30	08/17/23 18:51	1
d-N-MeFOSA-M	28		10 - 150	08/14/23 20:30	08/17/23 18:51	1
d-N-EtFOSA-M	25		10 - 150	08/14/23 20:30	08/17/23 18:51	1
d7-N-MeFOSE-M	32		10 - 150	08/14/23 20:30	08/17/23 18:51	1
d9-N-EtFOSE-M	45		10 - 150	08/14/23 20:30	08/17/23 18:51	1
M2-4:2 FTS	140		25 - 150	08/14/23 20:30	08/17/23 18:51	1
M2-6:2 FTS	134		25 - 150	08/14/23 20:30	08/17/23 18:51	1
M2-8:2 FTS	84		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C3 HFPO-DA	87		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C2 10:2 FTS	106		25 - 150	08/14/23 20:30	08/17/23 18:51	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A 23-S-2 20230717

Lab Sample ID: 320-102736-2

Date Collected: 07/17/23 13:40

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.4

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	75.6		0.1	0.1	%			07/21/23 13:25	1
Percent Solids (ASTM D 2216)	24.4		0.1	0.1	%			07/21/23 13:25	1

Client Sample ID: Bio A 23-S-3 20230717

Lab Sample ID: 320-102736-3

Date Collected: 07/17/23 13:46

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.2	0.73	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluoropentanoic acid (PFPA)	0.94	J	3.2	0.65	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorohexanoic acid (PFHxA)	3.9		3.2	0.49	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluoroheptanoic acid (PFHpA)	ND		3.2	0.60	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorooctanoic acid (PFOA)	3.5		3.2	0.84	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorononanoic acid (PFNA)	1.0	J	3.2	0.35	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorodecanoic acid (PFDA)	9.2		3.2	0.76	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluoroundecanoic acid (PFUnA)	1.4	J	3.2	0.66	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorododecanoic acid (PFDoA)	4.6		3.2	0.47	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorotridecanoic acid (PFTrDA)	0.53	J	3.2	0.33	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorotetradecanoic acid (PFTeA)	1.0	J	3.2	0.59	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorobutanesulfonic acid (PFBS)	ND		3.2	0.60	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.2	0.59	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorohexanesulfonic acid (PFHxS)	ND		3.2	0.46	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.2	0.78	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorooctanesulfonic acid (PFOS)	ND		3.2	0.68	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorononanesulfonic acid (PFNS)	ND		3.2	0.46	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorodecanesulfonic acid (PFDS)	3.7		3.2	0.82	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.2	0.74	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorooctanesulfonamide (FOSA)	1.6	J	3.2	0.52	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
NEtFOSA	ND		3.2	0.74	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
NMeFOSA	ND		3.2	0.78	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
NMeFOSAA	24		3.2	0.36	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
NEtFOSAA	9.1		3.2	0.76	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
NMeFOSE	17		3.2	0.74	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
NEtFOSE	3.9		3.2	0.44	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
4:2 FTS	ND		3.2	0.81	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
6:2 FTS	0.45	J	3.2	0.43	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
8:2 FTS	1.3	J	3.2	0.55	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.2	0.62	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
HFPO-DA (GenX)	ND		3.2	0.65	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
9CI-PF3ONS	ND		3.2	0.55	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
11CI-PF3OUdS	ND		3.2	0.49	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A 23-S-3 20230717

Lab Sample ID: 320-102736-3

Date Collected: 07/17/23 13:46

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	83		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C5 PFPeA	85		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C2 PFHxA	100		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C4 PFHpA	96		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C4 PFOA	94		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C5 PFNA	75		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C2 PFDA	88		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C2 PFUnA	91		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C2 PFDoA	68		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C2 PFTeDA	34		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C3 PFBS	84		25 - 150	08/14/23 20:30	08/17/23 00:56	1
18O2 PFHxS	93		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C4 PFOS	62		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C8 FOSA	89		10 - 150	08/14/23 20:30	08/17/23 00:56	1
d3-NMeFOSAA	69		25 - 150	08/14/23 20:30	08/17/23 00:56	1
d5-NEtFOSAA	67		25 - 150	08/14/23 20:30	08/17/23 00:56	1
d-N-MeFOSA-M	32		10 - 150	08/14/23 20:30	08/17/23 00:56	1
d-N-EtFOSA-M	27		10 - 150	08/14/23 20:30	08/17/23 00:56	1
d7-N-MeFOSE-M	38		10 - 150	08/14/23 20:30	08/17/23 00:56	1
d9-N-EtFOSE-M	49		10 - 150	08/14/23 20:30	08/17/23 00:56	1
M2-4:2 FTS	130		25 - 150	08/14/23 20:30	08/17/23 00:56	1
M2-6:2 FTS	149		25 - 150	08/14/23 20:30	08/17/23 00:56	1
M2-8:2 FTS	99		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C3 HFPO-DA	89		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C2 10:2 FTS	123		25 - 150	08/14/23 20:30	08/17/23 00:56	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	75.9		0.1	0.1	%			07/21/23 13:25	1
Percent Solids (ASTM D 2216)	24.1		0.1	0.1	%			07/21/23 13:25	1

Client Sample ID: Bio A 23-S-4 20230717

Lab Sample ID: 320-102736-4

Date Collected: 07/17/23 14:05

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 25.2

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.3	0.75	ug/Kg	✱	08/14/23 20:30	08/17/23 01:06	1
Perfluoropentanoic acid (PFPA)	ND		3.3	0.67	ug/Kg	✱	08/14/23 20:30	08/17/23 01:06	1
Perfluorohexanoic acid (PFHxA)	2.9	J	3.3	0.50	ug/Kg	✱	08/14/23 20:30	08/17/23 01:06	1
Perfluoroheptanoic acid (PFHpA)	ND		3.3	0.62	ug/Kg	✱	08/14/23 20:30	08/17/23 01:06	1
Perfluorooctanoic acid (PFOA)	3.1	J	3.3	0.86	ug/Kg	✱	08/14/23 20:30	08/17/23 01:06	1
Perfluorononanoic acid (PFNA)	0.90	J	3.3	0.36	ug/Kg	✱	08/14/23 20:30	08/17/23 01:06	1
Perfluorodecanoic acid (PFDA)	9.7		3.3	0.78	ug/Kg	✱	08/14/23 20:30	08/17/23 01:06	1
Perfluoroundecanoic acid (PFUnA)	1.5	J	3.3	0.68	ug/Kg	✱	08/14/23 20:30	08/17/23 01:06	1
Perfluorododecanoic acid (PFDoA)	4.7		3.3	0.49	ug/Kg	✱	08/14/23 20:30	08/17/23 01:06	1
Perfluorotridecanoic acid (PFTTrDA)	0.49	J	3.3	0.34	ug/Kg	✱	08/14/23 20:30	08/17/23 01:06	1
Perfluorotetradecanoic acid (PFTeA)	1.1	J	3.3	0.60	ug/Kg	✱	08/14/23 20:30	08/17/23 01:06	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A 23-S-4 20230717

Lab Sample ID: 320-102736-4

Date Collected: 07/17/23 14:05

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 25.2

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		3.3	0.62	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.3	0.60	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
Perfluorohexanesulfonic acid (PFHxS)	ND		3.3	0.47	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.3	0.80	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
Perfluorooctanesulfonic acid (PFOS)	ND		3.3	0.70	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
Perfluorononanesulfonic acid (PFNS)	ND		3.3	0.47	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
Perfluorodecanesulfonic acid (PFDS)	3.2	J	3.3	0.85	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.3	0.76	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
Perfluorooctanesulfonamide (FOSA)	1.5	J	3.3	0.54	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
NEtFOSA	ND		3.3	0.76	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
NMeFOSA	ND		3.3	0.80	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
NMeFOSAA	26		3.3	0.37	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
NEtFOSAA	11		3.3	0.78	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
NMeFOSE	18		3.3	0.76	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
NEtFOSE	4.1		3.3	0.46	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
4:2 FTS	ND		3.3	0.83	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
6:2 FTS	ND		3.3	0.44	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
8:2 FTS	1.3	J	3.3	0.57	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.3	0.63	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
HFPO-DA (GenX)	ND		3.3	0.67	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
9Cl-PF3ONS	ND		3.3	0.57	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
11Cl-PF3OUdS	ND		3.3	0.50	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	80		25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C5 PFPeA	85		25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C2 PFHxA	92		25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C4 PFHpA	87		25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C4 PFOA	91		25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C5 PFNA	67		25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C2 PFDA	82		25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C2 PFUnA	83		25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C2 PFDoA	64		25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C2 PFTeDA	24	*5-	25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C3 PFBS	76		25 - 150	08/14/23 20:30	08/17/23 01:06	1
18O2 PFHxS	81		25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C4 PFOS	53		25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C8 FOSA	80		10 - 150	08/14/23 20:30	08/17/23 01:06	1
d3-NMeFOSAA	62		25 - 150	08/14/23 20:30	08/17/23 01:06	1
d5-NEtFOSAA	62		25 - 150	08/14/23 20:30	08/17/23 01:06	1
d-N-MeFOSA-M	29		10 - 150	08/14/23 20:30	08/17/23 01:06	1
d-N-EtFOSA-M	17		10 - 150	08/14/23 20:30	08/17/23 01:06	1
d7-N-MeFOSE-M	37		10 - 150	08/14/23 20:30	08/17/23 01:06	1
d9-N-EtFOSE-M	38		10 - 150	08/14/23 20:30	08/17/23 01:06	1
M2-4:2 FTS	122		25 - 150	08/14/23 20:30	08/17/23 01:06	1
M2-6:2 FTS	134		25 - 150	08/14/23 20:30	08/17/23 01:06	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A 23-S-4 20230717

Lab Sample ID: 320-102736-4

Date Collected: 07/17/23 14:05

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 25.2

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-8:2 FTS	86		25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C3 HFPO-DA	88		25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C2 10:2 FTS	111		25 - 150	08/14/23 20:30	08/17/23 01:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	74.8		0.1	0.1	%			07/21/23 13:25	1
Percent Solids (ASTM D 2216)	25.2		0.1	0.1	%			07/21/23 13:25	1

Client Sample ID: Bio A-23-S-C 20230717

Lab Sample ID: 320-102736-5

Date Collected: 07/17/23 14:12

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.3	0.75	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluoropentanoic acid (PFPA)	1.4	J	3.3	0.67	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorohexanoic acid (PFHxA)	5.0		3.3	0.50	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluoroheptanoic acid (PFHpA)	ND		3.3	0.62	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorooctanoic acid (PFOA)	4.0		3.3	0.86	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorononanoic acid (PFNA)	0.95	J	3.3	0.36	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorodecanoic acid (PFDA)	9.7		3.3	0.78	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluoroundecanoic acid (PFUnA)	1.5	J	3.3	0.68	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorododecanoic acid (PFDoA)	4.9		3.3	0.49	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorotridecanoic acid (PFTrDA)	0.57	J	3.3	0.34	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorotetradecanoic acid (PFTeA)	1.0	J	3.3	0.60	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorobutanesulfonic acid (PFBS)	ND		3.3	0.62	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.3	0.60	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorohexanesulfonic acid (PFHxS)	ND		3.3	0.47	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.3	0.80	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorooctanesulfonic acid (PFOS)	ND		3.3	0.70	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorononanesulfonic acid (PFNS)	ND		3.3	0.47	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorodecanesulfonic acid (PFDS)	3.8		3.3	0.85	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.3	0.77	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorooctanesulfonamide (FOSA)	1.4	J	3.3	0.54	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
NEtFOSA	ND		3.3	0.77	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
NMeFOSA	ND		3.3	0.80	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
NMeFOSAA	25		3.3	0.37	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
NEtFOSAA	10		3.3	0.78	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
NMeFOSE	18		3.3	0.77	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
NEtFOSE	4.0		3.3	0.46	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
4:2 FTS	ND		3.3	0.83	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
6:2 FTS	0.58	J	3.3	0.44	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A-23-S-C 20230717

Lab Sample ID: 320-102736-5

Date Collected: 07/17/23 14:12

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
8:2 FTS	1.3	J	3.3	0.57	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.3	0.64	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
HFPO-DA (GenX)	ND		3.3	0.67	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
9CI-PF3ONS	ND		3.3	0.57	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
11CI-PF3OUdS	ND		3.3	0.50	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	81		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C5 PFPeA	84		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C2 PFHxA	93		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C4 PFHpA	93		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C4 PFOA	93		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C5 PFNA	76		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C2 PFDA	85		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C2 PFUnA	89		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C2 PFDoA	66		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C2 PFTeDA	40		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C3 PFBS	78		25 - 150				08/14/23 20:30	08/17/23 01:17	1
18O2 PFHxS	85		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C4 PFOS	60		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C8 FOSA	87		10 - 150				08/14/23 20:30	08/17/23 01:17	1
d3-NMeFOSAA	72		25 - 150				08/14/23 20:30	08/17/23 01:17	1
d5-NEtFOSAA	69		25 - 150				08/14/23 20:30	08/17/23 01:17	1
d-N-MeFOSA-M	31		10 - 150				08/14/23 20:30	08/17/23 01:17	1
d-N-EtFOSA-M	31		10 - 150				08/14/23 20:30	08/17/23 01:17	1
d7-N-MeFOSE-M	38		10 - 150				08/14/23 20:30	08/17/23 01:17	1
d9-N-EtFOSE-M	51		10 - 150				08/14/23 20:30	08/17/23 01:17	1
M2-4:2 FTS	123		25 - 150				08/14/23 20:30	08/17/23 01:17	1
M2-6:2 FTS	147		25 - 150				08/14/23 20:30	08/17/23 01:17	1
M2-8:2 FTS	93		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C3 HFPO-DA	92		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C2 10:2 FTS	115		25 - 150				08/14/23 20:30	08/17/23 01:17	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	75.4		0.1	0.1	%			07/21/23 13:25	1
Percent Solids (ASTM D 2216)	24.6		0.1	0.1	%			07/21/23 13:25	1

Client Sample ID: Bio A-23-D-1 20230717

Lab Sample ID: 320-102736-6

Date Collected: 07/17/23 13:28

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 23.8

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.9	0.89	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluoropentanoic acid (PFPA)	ND		3.9	0.80	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluorohexanoic acid (PFHxA)	1.9	J	3.9	0.60	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluoroheptanoic acid (PFHpA)	ND		3.9	0.74	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluorooctanoic acid (PFOA)	2.7	J	3.9	1.0	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluorononanoic acid (PFNA)	0.96	J	3.9	0.43	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A-23-D-1 20230717

Lab Sample ID: 320-102736-6

Date Collected: 07/17/23 13:28

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 23.8

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanoic acid (PFDA)	9.6		3.9	0.93	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluoroundecanoic acid (PFUnA)	1.5	J	3.9	0.82	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluorododecanoic acid (PFDoA)	4.4		3.9	0.58	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluorotridecanoic acid (PFTrDA)	0.55	J	3.9	0.41	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluorotetradecanoic acid (PFTeA)	0.95	J	3.9	0.72	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluorobutanesulfonic acid (PFBS)	ND		3.9	0.74	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.9	0.72	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluorohexanesulfonic acid (PFHxS)	ND		3.9	0.56	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.9	0.95	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluorooctanesulfonic acid (PFOS)	ND		3.9	0.84	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluorononanesulfonic acid (PFNS)	ND		3.9	0.56	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluorodecanesulfonic acid (PFDS)	3.5	J	3.9	1.0	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.9	0.91	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluorooctanesulfonamide (FOSA)	1.5	J	3.9	0.64	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
NEtFOSA	ND		3.9	0.91	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
NMeFOSA	ND		3.9	0.95	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
NMeFOSAA	24		3.9	0.45	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
NEtFOSAA	9.3		3.9	0.93	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
NMeFOSE	18		3.9	0.91	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
NEtFOSE	3.9		3.9	0.54	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
4:2 FTS	ND		3.9	0.99	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
6:2 FTS	ND		3.9	0.52	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
8:2 FTS	1.5	J	3.9	0.68	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.9	0.76	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
HFPO-DA (GenX)	ND		3.9	0.80	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
9Cl-PF3ONS	ND		3.9	0.68	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
11Cl-PF3OUdS	ND		3.9	0.60	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	64		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C5 PFPeA	84		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C2 PFHxA	96		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C4 PFHpA	90		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C4 PFOA	95		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C5 PFNA	75		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C2 PFDA	88		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C2 PFUnA	90		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C2 PFDoA	67		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C2 PFTeDA	43		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C3 PFBS	78		25 - 150	08/14/23 20:30	08/17/23 01:27	1
18O2 PFHxS	87		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C4 PFOS	61		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C8 FOSA	84		10 - 150	08/14/23 20:30	08/17/23 01:27	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A-23-D-1 20230717

Lab Sample ID: 320-102736-6

Date Collected: 07/17/23 13:28

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 23.8

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d3-NMeFOSAA	74		25 - 150	08/14/23 20:30	08/17/23 01:27	1
d5-NEtFOSAA	71		25 - 150	08/14/23 20:30	08/17/23 01:27	1
d-N-MeFOSA-M	34		10 - 150	08/14/23 20:30	08/17/23 01:27	1
d-N-EtFOSA-M	31		10 - 150	08/14/23 20:30	08/17/23 01:27	1
d7-N-MeFOSE-M	39		10 - 150	08/14/23 20:30	08/17/23 01:27	1
d9-N-EtFOSE-M	54		10 - 150	08/14/23 20:30	08/17/23 01:27	1
M2-4:2 FTS	119		25 - 150	08/14/23 20:30	08/17/23 01:27	1
M2-6:2 FTS	144		25 - 150	08/14/23 20:30	08/17/23 01:27	1
M2-8:2 FTS	96		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C3 HFPO-DA	89		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C2 10:2 FTS	116		25 - 150	08/14/23 20:30	08/17/23 01:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	76.2		0.1	0.1	%			07/21/23 13:25	1
Percent Solids (ASTM D 2216)	23.8		0.1	0.1	%			07/21/23 13:25	1

Client Sample ID: Bio A-23-D-3 20230717

Lab Sample ID: 320-102736-7

Date Collected: 07/17/23 13:55

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.0	0.93	ug/Kg	✱	08/14/23 20:30	08/17/23 01:37	1
Perfluoropentanoic acid (PFPA)	ND		4.0	0.83	ug/Kg	✱	08/14/23 20:30	08/17/23 01:37	1
Perfluorohexanoic acid (PFHxA)	2.2	J I	4.0	0.62	ug/Kg	✱	08/14/23 20:30	08/17/23 01:37	1
Perfluoroheptanoic acid (PFHpA)	ND		4.0	0.77	ug/Kg	✱	08/14/23 20:30	08/17/23 01:37	1
Perfluorooctanoic acid (PFOA)	3.3	J	4.0	1.1	ug/Kg	✱	08/14/23 20:30	08/17/23 01:37	1
Perfluorononanoic acid (PFNA)	1.1	J	4.0	0.44	ug/Kg	✱	08/14/23 20:30	08/17/23 01:37	1
Perfluorodecanoic acid (PFDA)	11		4.0	0.97	ug/Kg	✱	08/14/23 20:30	08/17/23 01:37	1
Perfluoroundecanoic acid (PFUnA)	1.7	J	4.0	0.85	ug/Kg	✱	08/14/23 20:30	08/17/23 01:37	1
Perfluorododecanoic acid (PFDoA)	5.3		4.0	0.60	ug/Kg	✱	08/14/23 20:30	08/17/23 01:37	1
Perfluorotridecanoic acid (PFTrDA)	0.77	J	4.0	0.42	ug/Kg	✱	08/14/23 20:30	08/17/23 01:37	1
Perfluorotetradecanoic acid (PFTeA)	1.4	J	4.0	0.75	ug/Kg	✱	08/14/23 20:30	08/17/23 01:37	1
Perfluorobutanesulfonic acid (PFBS)	ND		4.0	0.77	ug/Kg	✱	08/14/23 20:30	08/17/23 01:37	1
Perfluoropentanesulfonic acid (PFPeS)	ND		4.0	0.75	ug/Kg	✱	08/14/23 20:30	08/17/23 01:37	1
Perfluorohexanesulfonic acid (PFHxS)	ND		4.0	0.58	ug/Kg	✱	08/14/23 20:30	08/17/23 01:37	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		4.0	0.99	ug/Kg	✱	08/14/23 20:30	08/17/23 01:37	1
Perfluorooctanesulfonic acid (PFOS)	ND		4.0	0.87	ug/Kg	✱	08/14/23 20:30	08/17/23 01:37	1
Perfluorononanesulfonic acid (PFNS)	ND		4.0	0.58	ug/Kg	✱	08/14/23 20:30	08/17/23 01:37	1
Perfluorodecanesulfonic acid (PFDS)	3.7	J	4.0	1.0	ug/Kg	✱	08/14/23 20:30	08/17/23 01:37	1
Perfluorododecanesulfonic acid (PFDoS)	ND		4.0	0.95	ug/Kg	✱	08/14/23 20:30	08/17/23 01:37	1
Perfluorooctanesulfonamide (FOSA)	1.7	J	4.0	0.67	ug/Kg	✱	08/14/23 20:30	08/17/23 01:37	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A-23-D-3 20230717

Lab Sample ID: 320-102736-7

Date Collected: 07/17/23 13:55

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSA	ND		4.0	0.95	ug/Kg	☼	08/14/23 20:30	08/17/23 01:37	1
NMeFOSA	ND		4.0	0.99	ug/Kg	☼	08/14/23 20:30	08/17/23 01:37	1
NMeFOSAA	27		4.0	0.46	ug/Kg	☼	08/14/23 20:30	08/17/23 01:37	1
NEtFOSAA	11		4.0	0.97	ug/Kg	☼	08/14/23 20:30	08/17/23 01:37	1
NMeFOSE	21		4.0	0.95	ug/Kg	☼	08/14/23 20:30	08/17/23 01:37	1
NEtFOSE	5.1		4.0	0.56	ug/Kg	☼	08/14/23 20:30	08/17/23 01:37	1
4:2 FTS	ND		4.0	1.0	ug/Kg	☼	08/14/23 20:30	08/17/23 01:37	1
6:2 FTS	ND		4.0	0.54	ug/Kg	☼	08/14/23 20:30	08/17/23 01:37	1
8:2 FTS	1.7 J		4.0	0.71	ug/Kg	☼	08/14/23 20:30	08/17/23 01:37	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		4.0	0.79	ug/Kg	☼	08/14/23 20:30	08/17/23 01:37	1
HFPO-DA (GenX)	ND		4.0	0.83	ug/Kg	☼	08/14/23 20:30	08/17/23 01:37	1
9Cl-PF3ONS	ND		4.0	0.71	ug/Kg	☼	08/14/23 20:30	08/17/23 01:37	1
11Cl-PF3OUdS	ND		4.0	0.62	ug/Kg	☼	08/14/23 20:30	08/17/23 01:37	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	75		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C5 PFPeA	83		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C2 PFHxA	91		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C4 PFHpA	87		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C4 PFOA	93		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C5 PFNA	72		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C2 PFDA	87		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C2 PFUnA	86		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C2 PFDoA	64		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C2 PFTeDA	43		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C3 PFBS	81		25 - 150	08/14/23 20:30	08/17/23 01:37	1
18O2 PFHxS	88		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C4 PFOS	59		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C8 FOSA	86		10 - 150	08/14/23 20:30	08/17/23 01:37	1
d3-NMeFOSAA	84		25 - 150	08/14/23 20:30	08/17/23 01:37	1
d5-NEtFOSAA	71		25 - 150	08/14/23 20:30	08/17/23 01:37	1
d-N-MeFOSA-M	33		10 - 150	08/14/23 20:30	08/17/23 01:37	1
d-N-EtFOSA-M	33		10 - 150	08/14/23 20:30	08/17/23 01:37	1
d7-N-MeFOSE-M	40		10 - 150	08/14/23 20:30	08/17/23 01:37	1
d9-N-EtFOSE-M	51		10 - 150	08/14/23 20:30	08/17/23 01:37	1
M2-4:2 FTS	119		25 - 150	08/14/23 20:30	08/17/23 01:37	1
M2-6:2 FTS	142		25 - 150	08/14/23 20:30	08/17/23 01:37	1
M2-8:2 FTS	92		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C3 HFPO-DA	87		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C2 10:2 FTS	115		25 - 150	08/14/23 20:30	08/17/23 01:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	75.4		0.1	0.1	%			07/21/23 13:25	1
Percent Solids (ASTM D 2216)	24.6		0.1	0.1	%			07/21/23 13:25	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: EB 01 20230717

Lab Sample ID: 320-102736-8

Date Collected: 07/17/23 13:10

Matrix: Water

Date Received: 07/20/23 15:42

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.3	2.1	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluoropentanoic acid (PFPA)	ND		1.7	0.42	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorohexanoic acid (PFHxA)	ND		1.7	0.50	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluoroheptanoic acid (PFHpA)	ND		1.7	0.21	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorooctanoic acid (PFOA)	ND		1.7	0.73	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.23	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.27	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.94	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.47	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.7	1.1	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.63	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.7	0.17	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.7	0.26	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.7	0.49	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.7	0.16	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	0.46	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.32	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.27	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.83	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorooctanesulfonamide (FOSA)	ND		1.7	0.84	ng/L		07/24/23 13:53	07/29/23 09:58	1
NEtFOSA	ND		1.7	0.75	ng/L		07/24/23 13:53	07/29/23 09:58	1
NMeFOSA	ND		1.7	0.37	ng/L		07/24/23 13:53	07/29/23 09:58	1
NMeFOSAA	ND		4.3	1.0	ng/L		07/24/23 13:53	07/29/23 09:58	1
NEtFOSAA	ND		4.3	1.1	ng/L		07/24/23 13:53	07/29/23 09:58	1
NMeFOSE	ND		3.4	1.2	ng/L		07/24/23 13:53	07/29/23 09:58	1
NEtFOSE	ND		1.7	0.73	ng/L		07/24/23 13:53	07/29/23 09:58	1
4:2 FTS	ND		1.7	0.21	ng/L		07/24/23 13:53	07/29/23 09:58	1
6:2 FTS	ND		4.3	2.1	ng/L		07/24/23 13:53	07/29/23 09:58	1
8:2 FTS	ND		1.7	0.39	ng/L		07/24/23 13:53	07/29/23 09:58	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.34	ng/L		07/24/23 13:53	07/29/23 09:58	1
HFPO-DA (GenX)	ND		3.4	1.3	ng/L		07/24/23 13:53	07/29/23 09:58	1
9Cl-PF3ONS	ND		1.7	0.21	ng/L		07/24/23 13:53	07/29/23 09:58	1
11Cl-PF3OUdS	ND		1.7	0.27	ng/L		07/24/23 13:53	07/29/23 09:58	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFBA	102		25 - 150				07/24/23 13:53	07/29/23 09:58	1
13C5 PFPeA	106		25 - 150				07/24/23 13:53	07/29/23 09:58	1
13C2 PFHxA	101		25 - 150				07/24/23 13:53	07/29/23 09:58	1
13C4 PFHpA	102		25 - 150				07/24/23 13:53	07/29/23 09:58	1
13C4 PFOA	101		25 - 150				07/24/23 13:53	07/29/23 09:58	1
13C5 PFNA	110		25 - 150				07/24/23 13:53	07/29/23 09:58	1
13C2 PFDA	111		25 - 150				07/24/23 13:53	07/29/23 09:58	1
13C2 PFUnA	112		25 - 150				07/24/23 13:53	07/29/23 09:58	1
13C2 PFDoA	116		25 - 150				07/24/23 13:53	07/29/23 09:58	1
13C2 PFTeDA	118		25 - 150				07/24/23 13:53	07/29/23 09:58	1
13C3 PFBS	110		25 - 150				07/24/23 13:53	07/29/23 09:58	1
18O2 PFHxS	111		25 - 150				07/24/23 13:53	07/29/23 09:58	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: EB 01 20230717

Lab Sample ID: 320-102736-8

Date Collected: 07/17/23 13:10

Matrix: Water

Date Received: 07/20/23 15:42

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	116		25 - 150	07/24/23 13:53	07/29/23 09:58	1
13C8 FOSA	130		10 - 150	07/24/23 13:53	07/29/23 09:58	1
d3-NMeFOSAA	128		25 - 150	07/24/23 13:53	07/29/23 09:58	1
d5-NEtFOSAA	132		25 - 150	07/24/23 13:53	07/29/23 09:58	1
d-N-MeFOSA-M	106		10 - 150	07/24/23 13:53	07/29/23 09:58	1
d-N-EtFOSA-M	107		10 - 150	07/24/23 13:53	07/29/23 09:58	1
d7-N-MeFOSE-M	122		10 - 150	07/24/23 13:53	07/29/23 09:58	1
d9-N-EtFOSE-M	118		10 - 150	07/24/23 13:53	07/29/23 09:58	1
M2-4:2 FTS	84		25 - 150	07/24/23 13:53	07/29/23 09:58	1
M2-6:2 FTS	71		25 - 150	07/24/23 13:53	07/29/23 09:58	1
M2-8:2 FTS	87		25 - 150	07/24/23 13:53	07/29/23 09:58	1
13C3 HFPO-DA	94		25 - 150	07/24/23 13:53	07/29/23 09:58	1
13C2 10:2 FTS	87		25 - 150	07/24/23 13:53	07/29/23 09:58	1

Client Sample ID: INF COMP 20230717

Lab Sample ID: 320-102736-9

Date Collected: 07/17/23 23:59

Matrix: Water

Date Received: 07/20/23 15:42

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	9.7		4.4	2.1	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluoropentanoic acid (PFPA)	7.7		1.7	0.43	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorohexanoic acid (PFHxA)	15		1.7	0.51	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluoroheptanoic acid (PFHpA)	3.2		1.7	0.22	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorooctanoic acid (PFOA)	8.8		1.7	0.74	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.24	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorodecanoic acid (PFDA)	0.65	J I	1.7	0.27	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.96	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.48	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.7	1.1	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.64	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorobutanesulfonic acid (PFBS)	4.9		1.7	0.17	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.7	0.26	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.7	0.50	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.7	0.17	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	0.47	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.32	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.28	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.85	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorooctanesulfonamide (FOSA)	ND		1.7	0.86	ng/L		08/03/23 04:27	08/03/23 17:10	1
NEtFOSA	ND		1.7	0.76	ng/L		08/03/23 04:27	08/03/23 17:10	1
NMeFOSA	ND		1.7	0.38	ng/L		08/03/23 04:27	08/03/23 17:10	1
NMeFOSAA	ND		4.4	1.0	ng/L		08/03/23 04:27	08/03/23 17:10	1
NEtFOSAA	ND		4.4	1.1	ng/L		08/03/23 04:27	08/03/23 17:10	1
NMeFOSE	ND		3.5	1.2	ng/L		08/03/23 04:27	08/03/23 17:10	1
NEtFOSE	ND		1.7	0.74	ng/L		08/03/23 04:27	08/03/23 17:10	1
4:2 FTS	ND		1.7	0.21	ng/L		08/03/23 04:27	08/03/23 17:10	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: INF COMP 20230717

Lab Sample ID: 320-102736-9

Date Collected: 07/17/23 23:59

Matrix: Water

Date Received: 07/20/23 15:42

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 FTS	ND		4.4	2.2	ng/L		08/03/23 04:27	08/03/23 17:10	1
8:2 FTS	0.69	J I	1.7	0.40	ng/L		08/03/23 04:27	08/03/23 17:10	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.35	ng/L		08/03/23 04:27	08/03/23 17:10	1
HFPO-DA (GenX)	ND		3.5	1.3	ng/L		08/03/23 04:27	08/03/23 17:10	1
9CI-PF3ONS	ND		1.7	0.21	ng/L		08/03/23 04:27	08/03/23 17:10	1
11CI-PF3OUdS	ND		1.7	0.28	ng/L		08/03/23 04:27	08/03/23 17:10	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	66		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C5 PFPeA	56		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C2 PFHxA	58		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C4 PFHpA	52		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C4 PFOA	61		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C5 PFNA	64		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C2 PFDA	52		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C2 PFUnA	32		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C2 PFDoA	31		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C2 PFTeDA	25		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C3 PFBS	67		25 - 150				08/03/23 04:27	08/03/23 17:10	1
18O2 PFHxS	75		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C4 PFOS	62		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C8 FOSA	51		10 - 150				08/03/23 04:27	08/03/23 17:10	1
d3-NMeFOSAA	26		25 - 150				08/03/23 04:27	08/03/23 17:10	1
d5-NEtFOSAA	24	*5-	25 - 150				08/03/23 04:27	08/03/23 17:10	1
d-N-MeFOSA-M	33		10 - 150				08/03/23 04:27	08/03/23 17:10	1
d-N-EtFOSA-M	35		10 - 150				08/03/23 04:27	08/03/23 17:10	1
d7-N-MeFOSE-M	27		10 - 150				08/03/23 04:27	08/03/23 17:10	1
d9-N-EtFOSE-M	31		10 - 150				08/03/23 04:27	08/03/23 17:10	1
M2-4:2 FTS	53		25 - 150				08/03/23 04:27	08/03/23 17:10	1
M2-6:2 FTS	80		25 - 150				08/03/23 04:27	08/03/23 17:10	1
M2-8:2 FTS	64		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C3 HFPO-DA	70		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C2 10:2 FTS	36		25 - 150				08/03/23 04:27	08/03/23 17:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	420		50	19	mg/L			07/22/23 09:15	1

Client Sample ID: EFF 20230718

Lab Sample ID: 320-102736-10

Date Collected: 07/18/23 23:59

Matrix: Water

Date Received: 07/20/23 15:42

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	12		4.8	2.3	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluoropentanoic acid (PFPA)	21		1.9	0.47	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluorohexanoic acid (PFHxA)	27		1.9	0.55	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluoroheptanoic acid (PFHpA)	3.8		1.9	0.24	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluorooctanoic acid (PFOA)	12		1.9	0.81	ng/L		08/15/23 12:19	08/16/23 13:08	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: EFF 20230718

Lab Sample ID: 320-102736-10

Date Collected: 07/18/23 23:59

Matrix: Water

Date Received: 07/20/23 15:42

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	0.77	J	1.9	0.26	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluorodecanoic acid (PFDA)	1.4	J	1.9	0.30	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluorobutanesulfonic acid (PFBS)	7.1		1.9	0.19	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluoropentanesulfonic acid (PFPeS)	0.66	J	1.9	0.29	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluorohexanesulfonic acid (PFHxS)	8.5		1.9	0.54	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluorooctanesulfonic acid (PFOS)	4.9		1.9	0.51	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.35	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.92	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.93	ng/L		08/15/23 12:19	08/16/23 13:08	1
NEtFOSA	ND		1.9	0.83	ng/L		08/15/23 12:19	08/16/23 13:08	1
NMeFOSA	ND		1.9	0.41	ng/L		08/15/23 12:19	08/16/23 13:08	1
NMeFOSAA	1.5	J	4.8	1.1	ng/L		08/15/23 12:19	08/16/23 13:08	1
NEtFOSAA	ND		4.8	1.2	ng/L		08/15/23 12:19	08/16/23 13:08	1
NMeFOSE	ND		3.8	1.3	ng/L		08/15/23 12:19	08/16/23 13:08	1
NEtFOSE	ND		1.9	0.81	ng/L		08/15/23 12:19	08/16/23 13:08	1
4:2 FTS	ND		1.9	0.23	ng/L		08/15/23 12:19	08/16/23 13:08	1
6:2 FTS	ND		4.8	2.4	ng/L		08/15/23 12:19	08/16/23 13:08	1
8:2 FTS	ND		1.9	0.44	ng/L		08/15/23 12:19	08/16/23 13:08	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		08/15/23 12:19	08/16/23 13:08	1
HFPO-DA (GenX)	ND		3.8	1.4	ng/L		08/15/23 12:19	08/16/23 13:08	1
9CI-PF3ONS	ND		1.9	0.23	ng/L		08/15/23 12:19	08/16/23 13:08	1
11CI-PF3OUdS	ND		1.9	0.30	ng/L		08/15/23 12:19	08/16/23 13:08	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	63		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C5 PFPeA	67		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C2 PFHxA	74		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C4 PFHpA	77		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C4 PFOA	79		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C5 PFNA	76		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C2 PFDA	72		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C2 PFUnA	61		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C2 PFDoA	43		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C2 PFTeDA	31		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C3 PFBS	80		25 - 150	08/15/23 12:19	08/16/23 13:08	1
18O2 PFHxS	82		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C4 PFOS	74		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C8 FOSA	77		10 - 150	08/15/23 12:19	08/16/23 13:08	1
d3-NMeFOSAA	63		25 - 150	08/15/23 12:19	08/16/23 13:08	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: EFF 20230718

Lab Sample ID: 320-102736-10

Date Collected: 07/18/23 23:59

Matrix: Water

Date Received: 07/20/23 15:42

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
d5-NEtFOSAA	64		25 - 150	08/15/23 12:19	08/16/23 13:08	1
d-N-MeFOSA-M	50		10 - 150	08/15/23 12:19	08/16/23 13:08	1
d-N-EtFOSA-M	42		10 - 150	08/15/23 12:19	08/16/23 13:08	1
d7-N-MeFOSE-M	41		10 - 150	08/15/23 12:19	08/16/23 13:08	1
d9-N-EtFOSE-M	34		10 - 150	08/15/23 12:19	08/16/23 13:08	1
M2-4:2 FTS	85		25 - 150	08/15/23 12:19	08/16/23 13:08	1
M2-6:2 FTS	96		25 - 150	08/15/23 12:19	08/16/23 13:08	1
M2-8:2 FTS	80		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C3 HFPO-DA	69		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C2 10:2 FTS	42		25 - 150	08/15/23 12:19	08/16/23 13:08	1

General Chemistry

<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Total Suspended Solids (SM 2540D)	4.7	J	5.0	1.9	mg/L	-		07/22/23 09:19	1

Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-102736-1	Bio A 23-S-1 20230717	77	84	96	89	93	86	92	89
320-102736-2	Bio A 23-S-2 20230717	74	81	93	89	89	67	81	81
320-102736-3	Bio A 23-S-3 20230717	83	85	100	96	94	75	88	91
320-102736-4	Bio A 23-S-4 20230717	80	85	92	87	91	67	82	83
320-102736-5	Bio A-23-S-C 20230717	81	84	93	93	93	76	85	89
320-102736-6	Bio A-23-D-1 20230717	64	84	96	90	95	75	88	90
320-102736-7	Bio A-23-D-3 20230717	75	83	91	87	93	72	87	86
LCS 320-698681/2-A	Lab Control Sample	25	71	83	84	86	84	89	88
MB 320-698681/1-A	Method Blank	34	79	87	87	88	87	89	93

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDaA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
320-102736-1	Bio A 23-S-1 20230717	61	42	82	89	76	90	87	69
320-102736-2	Bio A 23-S-2 20230717	62	36	80	88	60	84	70	61
320-102736-3	Bio A 23-S-3 20230717	68	34	84	93	62	89	69	67
320-102736-4	Bio A 23-S-4 20230717	64	24 *5-	76	81	53	80	62	62
320-102736-5	Bio A-23-S-C 20230717	66	40	78	85	60	87	72	69
320-102736-6	Bio A-23-D-1 20230717	67	43	78	87	61	84	74	71
320-102736-7	Bio A-23-D-3 20230717	64	43	81	88	59	86	84	71
LCS 320-698681/2-A	Lab Control Sample	93	87	77	83	87	94	93	92
MB 320-698681/1-A	Method Blank	90	88	77	83	91	98	100	89

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	dMeFOSA (10-150)	dEtFOSA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	HFPODA (25-150)
320-102736-1	Bio A 23-S-1 20230717	22	45	18	64	121	128	105	89
320-102736-2	Bio A 23-S-2 20230717	28	25	32	45	140	134	84	87
320-102736-3	Bio A 23-S-3 20230717	32	27	38	49	130	149	99	89
320-102736-4	Bio A 23-S-4 20230717	29	17	37	38	122	134	86	88
320-102736-5	Bio A-23-S-C 20230717	31	31	38	51	123	147	93	92
320-102736-6	Bio A-23-D-1 20230717	34	31	39	54	119	144	96	89
320-102736-7	Bio A-23-D-3 20230717	33	33	40	51	119	142	92	87
LCS 320-698681/2-A	Lab Control Sample	88	89	91	87	85	87	90	91
MB 320-698681/1-A	Method Blank	90	92	91	93	87	87	95	93

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M102FTS (25-150)
320-102736-1	Bio A 23-S-1 20230717	111
320-102736-2	Bio A 23-S-2 20230717	106
320-102736-3	Bio A 23-S-3 20230717	123
320-102736-4	Bio A 23-S-4 20230717	111
320-102736-5	Bio A-23-S-C 20230717	115
320-102736-6	Bio A-23-D-1 20230717	116
320-102736-7	Bio A-23-D-3 20230717	115
LCS 320-698681/2-A	Lab Control Sample	104
MB 320-698681/1-A	Method Blank	105

Surrogate Legend

PFBA = 13C4 PFBA
 PFPeA = 13C5 PFPeA

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Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

- PFHxA = 13C2 PFHxA
- C4PFHA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDoA = 13C2 PFDoA
- PFTDA = 13C2 PFTeDA
- C3PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- PFOSA = 13C8 FOSA
- d3NMFOFOS = d3-NMeFOSAA
- d5NEFOS = d5-NEtFOSAA
- dMeFOSA = d-N-MeFOSA-M
- dEtFOSA = d-N-EtFOSA-M
- NMFM = d7-N-MeFOSE-M
- NEFM = d9-N-EtFOSE-M
- M242FTS = M2-4:2 FTS
- M262FTS = M2-6:2 FTS
- M282FTS = M2-8:2 FTS
- HFPODA = 13C3 HFPO-DA
- M102FTS = 13C2 10:2 FTS

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-102736-8	EB 01 20230717	102	106	101	102	101	110	111	112
320-102736-9	INF COMP 20230717	66	56	58	52	61	64	52	32
320-102736-10	EFF 20230718	63	67	74	77	79	76	72	61
LCS 320-693319/2-A	Lab Control Sample	107	107	106	101	104	110	112	115
LCS 320-695760/2-A	Lab Control Sample	93	94	94	101	98	93	94	99
LCS 320-698840/2-A	Lab Control Sample	91	91	87	96	97	95	95	94
LCSD 320-693319/3-A	Lab Control Sample Dup	107	108	105	107	107	109	112	112
LCSD 320-698840/3-A	Lab Control Sample Dup	98	96	101	99	99	100	98	104
MB 320-693319/1-A	Method Blank	99	101	101	100	101	104	110	108
MB 320-695760/1-A	Method Blank	105	103	103	115	106	116	119	108
MB 320-698840/1-A	Method Blank	90	91	91	92	97	95	99	92

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOFOS (25-150)	d5NEFOS (25-150)
320-102736-8	EB 01 20230717	116	118	110	111	116	130	128	132
320-102736-9	INF COMP 20230717	31	25	67	75	62	51	26	24 *5-
320-102736-10	EFF 20230718	43	31	80	82	74	77	63	64
LCS 320-693319/2-A	Lab Control Sample	119	116	114	112	111	133	132	146
LCS 320-695760/2-A	Lab Control Sample	92	96	97	92	98	104	108	95
LCS 320-698840/2-A	Lab Control Sample	79	73	89	98	92	85	88	85
LCSD 320-693319/3-A	Lab Control Sample Dup	119	122	115	110	114	126	131	140
LCSD 320-698840/3-A	Lab Control Sample Dup	90	79	100	105	105	96	99	99
MB 320-693319/1-A	Method Blank	109	115	108	107	111	125	128	134
MB 320-695760/1-A	Method Blank	114	110	107	110	117	129	144	142
MB 320-698840/1-A	Method Blank	86	85	93	102	92	92	90	91

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Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		dMeFOSA (10-150)	dEtFOSA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	HFPODA (25-150)
320-102736-8	EB 01 20230717	106	107	122	118	84	71	87	94
320-102736-9	INF COMP 20230717	33	35	27	31	53	80	64	70
320-102736-10	EFF 20230718	50	42	41	34	85	96	80	69
LCS 320-693319/2-A	Lab Control Sample	101	103	129	117	98	88	95	97
LCS 320-695760/2-A	Lab Control Sample	80	86	95	93	101	99	88	92
LCS 320-698840/2-A	Lab Control Sample	70	67	78	76	94	96	97	95
LCSD 320-693319/3-A	Lab Control Sample Dup	93	93	120	114	95	90	95	100
LCSD 320-698840/3-A	Lab Control Sample Dup	84	84	90	84	107	110	108	96
MB 320-693319/1-A	Method Blank	108	107	124	112	92	89	96	97
MB 320-695760/1-A	Method Blank	107	110	114	122	105	99	109	105
MB 320-698840/1-A	Method Blank	78	77	85	82	102	109	103	92

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		M102FTS (25-150)							
320-102736-8	EB 01 20230717	87							
320-102736-9	INF COMP 20230717	36							
320-102736-10	EFF 20230718	42							
LCS 320-693319/2-A	Lab Control Sample	97							
LCS 320-695760/2-A	Lab Control Sample	109							
LCS 320-698840/2-A	Lab Control Sample	87							
LCSD 320-693319/3-A	Lab Control Sample Dup	90							
LCSD 320-698840/3-A	Lab Control Sample Dup	97							
MB 320-693319/1-A	Method Blank	88							
MB 320-695760/1-A	Method Blank	105							
MB 320-698840/1-A	Method Blank	95							

Surrogate Legend

- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- C4PFHA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDoA = 13C2 PFDoA
- PFTDA = 13C2 PFTeDA
- C3PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- PFOSA = 13C8 FOSA
- d3NMFOA = d3-NMeFOA
- d5NEFOA = d5-NEtFOA
- dMeFOA = d-N-MeFOA-M
- dEtFOA = d-N-EtFOA-M
- NMFM = d7-N-MeFOSE-M
- NEFM = d9-N-EtFOSE-M
- M242FTS = M2-4:2 FTS
- M262FTS = M2-6:2 FTS
- M282FTS = M2-8:2 FTS

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Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District

Job ID: 320-102736-2

Project/Site: PFAS Sampling

HFPODA = 13C3 HFPO-DA

M102FTS = 13C2 10:2 FTS

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-693319/1-A

Matrix: Water

Analysis Batch: 694589

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 693319

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		07/24/23 13:53	07/29/23 08:27	1
Perfluoropentanoic acid (PFPA)	ND		2.0	0.49	ng/L		07/24/23 13:53	07/29/23 08:27	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		07/24/23 13:53	07/29/23 08:27	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		07/24/23 13:53	07/29/23 08:27	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		07/24/23 13:53	07/29/23 08:27	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		07/24/23 13:53	07/29/23 08:27	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		07/24/23 13:53	07/29/23 08:27	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		07/24/23 13:53	07/29/23 08:27	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		07/24/23 13:53	07/29/23 08:27	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		07/24/23 13:53	07/29/23 08:27	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		07/24/23 13:53	07/29/23 08:27	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		07/24/23 13:53	07/29/23 08:27	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.30	ng/L		07/24/23 13:53	07/29/23 08:27	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		07/24/23 13:53	07/29/23 08:27	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.19	ng/L		07/24/23 13:53	07/29/23 08:27	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		07/24/23 13:53	07/29/23 08:27	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.37	ng/L		07/24/23 13:53	07/29/23 08:27	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		07/24/23 13:53	07/29/23 08:27	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.97	ng/L		07/24/23 13:53	07/29/23 08:27	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		07/24/23 13:53	07/29/23 08:27	1
NEtFOSA	ND		2.0	0.87	ng/L		07/24/23 13:53	07/29/23 08:27	1
NMeFOSA	ND		2.0	0.43	ng/L		07/24/23 13:53	07/29/23 08:27	1
NMeFOSAA	ND		5.0	1.2	ng/L		07/24/23 13:53	07/29/23 08:27	1
NEtFOSAA	ND		5.0	1.3	ng/L		07/24/23 13:53	07/29/23 08:27	1
NMeFOSE	ND		4.0	1.4	ng/L		07/24/23 13:53	07/29/23 08:27	1
NEtFOSE	ND		2.0	0.85	ng/L		07/24/23 13:53	07/29/23 08:27	1
4:2 FTS	ND		2.0	0.24	ng/L		07/24/23 13:53	07/29/23 08:27	1
6:2 FTS	ND		5.0	2.5	ng/L		07/24/23 13:53	07/29/23 08:27	1
8:2 FTS	ND		2.0	0.46	ng/L		07/24/23 13:53	07/29/23 08:27	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.40	ng/L		07/24/23 13:53	07/29/23 08:27	1
HFPO-DA (GenX)	ND		4.0	1.5	ng/L		07/24/23 13:53	07/29/23 08:27	1
9Cl-PF3ONS	ND		2.0	0.24	ng/L		07/24/23 13:53	07/29/23 08:27	1
11Cl-PF3OUdS	ND		2.0	0.32	ng/L		07/24/23 13:53	07/29/23 08:27	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	99		25 - 150	07/24/23 13:53	07/29/23 08:27	1
13C5 PFPeA	101		25 - 150	07/24/23 13:53	07/29/23 08:27	1
13C2 PFHxA	101		25 - 150	07/24/23 13:53	07/29/23 08:27	1
13C4 PFHpA	100		25 - 150	07/24/23 13:53	07/29/23 08:27	1
13C4 PFOA	101		25 - 150	07/24/23 13:53	07/29/23 08:27	1
13C5 PFNA	104		25 - 150	07/24/23 13:53	07/29/23 08:27	1
13C2 PFDA	110		25 - 150	07/24/23 13:53	07/29/23 08:27	1
13C2 PFUnA	108		25 - 150	07/24/23 13:53	07/29/23 08:27	1
13C2 PFDoA	109		25 - 150	07/24/23 13:53	07/29/23 08:27	1
13C2 PFTeDA	115		25 - 150	07/24/23 13:53	07/29/23 08:27	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-693319/1-A
Matrix: Water
Analysis Batch: 694589

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 693319

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 PFBS	108		25 - 150	07/24/23 13:53	07/29/23 08:27	1
18O2 PFHxS	107		25 - 150	07/24/23 13:53	07/29/23 08:27	1
13C4 PFOS	111		25 - 150	07/24/23 13:53	07/29/23 08:27	1
13C8 FOSA	125		10 - 150	07/24/23 13:53	07/29/23 08:27	1
d3-NMeFOSAA	128		25 - 150	07/24/23 13:53	07/29/23 08:27	1
d5-NEtFOSAA	134		25 - 150	07/24/23 13:53	07/29/23 08:27	1
d-N-MeFOSA-M	108		10 - 150	07/24/23 13:53	07/29/23 08:27	1
d-N-EtFOSA-M	107		10 - 150	07/24/23 13:53	07/29/23 08:27	1
d7-N-MeFOSE-M	124		10 - 150	07/24/23 13:53	07/29/23 08:27	1
d9-N-EtFOSE-M	112		10 - 150	07/24/23 13:53	07/29/23 08:27	1
M2-4:2 FTS	92		25 - 150	07/24/23 13:53	07/29/23 08:27	1
M2-6:2 FTS	89		25 - 150	07/24/23 13:53	07/29/23 08:27	1
M2-8:2 FTS	96		25 - 150	07/24/23 13:53	07/29/23 08:27	1
13C3 HFPO-DA	97		25 - 150	07/24/23 13:53	07/29/23 08:27	1
13C2 10:2 FTS	88		25 - 150	07/24/23 13:53	07/29/23 08:27	1

Lab Sample ID: LCS 320-693319/2-A
Matrix: Water
Analysis Batch: 694589

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 693319

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	40.0	44.5		ng/L		111	60 - 135
Perfluoropentanoic acid (PFPA)	40.0	42.7		ng/L		107	60 - 135
Perfluorohexanoic acid (PFHxA)	40.0	43.6		ng/L		109	60 - 135
Perfluoroheptanoic acid (PFHpA)	40.0	46.4		ng/L		116	60 - 135
Perfluorooctanoic acid (PFOA)	40.0	45.4		ng/L		113	60 - 135
Perfluorononanoic acid (PFNA)	40.0	46.7		ng/L		117	60 - 135
Perfluorodecanoic acid (PFDA)	40.0	43.9		ng/L		110	60 - 135
Perfluoroundecanoic acid (PFUnA)	40.0	45.3		ng/L		113	60 - 135
Perfluorododecanoic acid (PFDoA)	40.0	46.4		ng/L		116	60 - 135
Perfluorotridecanoic acid (PFTrDA)	40.0	44.6		ng/L		111	60 - 135
Perfluorotetradecanoic acid (PFTeA)	40.0	44.6		ng/L		111	60 - 135
Perfluorobutanesulfonic acid (PFBS)	35.5	37.7		ng/L		106	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	37.6	40.7		ng/L		108	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	36.5	37.1		ng/L		102	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	38.2	41.5		ng/L		109	60 - 135
Perfluorooctanesulfonic acid (PFOS)	37.2	43.5		ng/L		117	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.5	42.3		ng/L		110	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	47.8		ng/L		124	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.8	39.8		ng/L		103	60 - 135

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-693319/2-A
Matrix: Water
Analysis Batch: 694589

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 693319

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	40.0	40.4		ng/L		101	60 - 135
NEtFOSA	40.0	43.9		ng/L		110	60 - 135
NMeFOSA	40.0	47.3		ng/L		118	60 - 135
NMeFOSAA	40.0	43.1		ng/L		108	60 - 135
NEtFOSAA	40.0	40.1		ng/L		100	60 - 135
NMeFOSE	40.0	42.4		ng/L		106	60 - 135
NEtFOSE	40.0	44.5		ng/L		111	60 - 135
4:2 FTS	37.5	39.9		ng/L		106	60 - 135
6:2 FTS	38.1	43.5		ng/L		114	60 - 135
8:2 FTS	38.4	41.4		ng/L		108	60 - 135
4,8-Dioxa-3H-perfluoronanoic acid (ADONA)	37.8	43.6		ng/L		115	60 - 135
HFPO-DA (GenX)	40.0	48.0		ng/L		120	60 - 135
9Cl-PF3ONS	37.4	39.3		ng/L		105	60 - 135
11Cl-PF3OUdS	37.8	42.0		ng/L		111	60 - 135

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	107		25 - 150
13C5 PFPeA	107		25 - 150
13C2 PFHxA	106		25 - 150
13C4 PFHpA	101		25 - 150
13C4 PFOA	104		25 - 150
13C5 PFNA	110		25 - 150
13C2 PFDA	112		25 - 150
13C2 PFUnA	115		25 - 150
13C2 PFDoA	119		25 - 150
13C2 PFTeDA	116		25 - 150
13C3 PFBS	114		25 - 150
18O2 PFHxS	112		25 - 150
13C4 PFOS	111		25 - 150
13C8 FOSA	133		10 - 150
d3-NMeFOSAA	132		25 - 150
d5-NEtFOSAA	146		25 - 150
d-N-MeFOSA-M	101		10 - 150
d-N-EtFOSA-M	103		10 - 150
d7-N-MeFOSE-M	129		10 - 150
d9-N-EtFOSE-M	117		10 - 150
M2-4:2 FTS	98		25 - 150
M2-6:2 FTS	88		25 - 150
M2-8:2 FTS	95		25 - 150
13C3 HFPO-DA	97		25 - 150
13C2 10:2 FTS	97		25 - 150

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-693319/3-A

Matrix: Water

Analysis Batch: 694589

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 693319

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Perfluorobutanoic acid (PFBA)	40.0	43.5		ng/L		109	60 - 135	2	30	
Perfluoropentanoic acid (PFPA)	40.0	42.9		ng/L		107	60 - 135	0	30	
Perfluorohexanoic acid (PFHxA)	40.0	42.9		ng/L		107	60 - 135	2	30	
Perfluoroheptanoic acid (PFHpA)	40.0	42.3		ng/L		106	60 - 135	9	30	
Perfluorooctanoic acid (PFOA)	40.0	42.9		ng/L		107	60 - 135	6	30	
Perfluorononanoic acid (PFNA)	40.0	46.7		ng/L		117	60 - 135	0	30	
Perfluorodecanoic acid (PFDA)	40.0	41.6		ng/L		104	60 - 135	5	30	
Perfluoroundecanoic acid (PFUnA)	40.0	45.4		ng/L		113	60 - 135	0	30	
Perfluorododecanoic acid (PFDoA)	40.0	46.3		ng/L		116	60 - 135	0	30	
Perfluorotridecanoic acid (PFTrDA)	40.0	44.8		ng/L		112	60 - 135	1	30	
Perfluorotetradecanoic acid (PFTeA)	40.0	43.2		ng/L		108	60 - 135	3	30	
Perfluorobutanesulfonic acid (PFBS)	35.5	36.1		ng/L		102	60 - 135	4	30	
Perfluoropentanesulfonic acid (PFPeS)	37.6	39.2		ng/L		104	60 - 135	4	30	
Perfluorohexanesulfonic acid (PFHxS)	36.5	37.8		ng/L		104	60 - 135	2	30	
Perfluoroheptanesulfonic acid (PFHpS)	38.2	41.0		ng/L		107	60 - 135	1	30	
Perfluorooctanesulfonic acid (PFOS)	37.2	41.5		ng/L		111	60 - 135	5	30	
Perfluorononanesulfonic acid (PFNS)	38.5	42.6		ng/L		111	60 - 135	1	30	
Perfluorodecanesulfonic acid (PFDS)	38.6	44.8		ng/L		116	60 - 135	7	30	
Perfluorododecanesulfonic acid (PFDoS)	38.8	39.5		ng/L		102	60 - 135	1	30	
Perfluorooctanesulfonamide (FOSA)	40.0	41.2		ng/L		103	60 - 135	2	30	
NEtFOSA	40.0	40.6		ng/L		101	60 - 135	8	30	
NMeFOSA	40.0	45.0		ng/L		112	60 - 135	5	30	
NMeFOSAA	40.0	42.4		ng/L		106	60 - 135	2	30	
NEtFOSAA	40.0	42.5		ng/L		106	60 - 135	6	30	
NMeFOSE	40.0	42.3		ng/L		106	60 - 135	0	30	
NEtFOSE	40.0	43.3		ng/L		108	60 - 135	3	30	
4:2 FTS	37.5	42.2		ng/L		113	60 - 135	6	30	
6:2 FTS	38.1	41.3		ng/L		108	60 - 135	5	30	
8:2 FTS	38.4	40.5		ng/L		106	60 - 135	2	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	42.0		ng/L		111	60 - 135	4	30	
HFPO-DA (GenX)	40.0	45.7		ng/L		114	60 - 135	5	30	
9CI-PF3ONS	37.4	37.3		ng/L		100	60 - 135	5	30	
11CI-PF3OUdS	37.8	40.1		ng/L		106	60 - 135	5	30	

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C4 PFBA	107		25 - 150
13C5 PFPeA	108		25 - 150
13C2 PFHxA	105		25 - 150

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-693319/3-A
Matrix: Water
Analysis Batch: 694589

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 693319

<i>Isotope Dilution</i>	<i>LCSD %Recovery</i>	<i>LCSD Qualifier</i>	<i>Limits</i>
13C4 PFHpA	107		25 - 150
13C4 PFOA	107		25 - 150
13C5 PFNA	109		25 - 150
13C2 PFDA	112		25 - 150
13C2 PFUnA	112		25 - 150
13C2 PFDoA	119		25 - 150
13C2 PFTeDA	122		25 - 150
13C3 PFBS	115		25 - 150
18O2 PFHxS	110		25 - 150
13C4 PFOS	114		25 - 150
13C8 FOSA	126		10 - 150
d3-NMeFOSAA	131		25 - 150
d5-NEtFOSAA	140		25 - 150
d-N-MeFOSA-M	93		10 - 150
d-N-EtFOSA-M	93		10 - 150
d7-N-MeFOSE-M	120		10 - 150
d9-N-EtFOSE-M	114		10 - 150
M2-4:2 FTS	95		25 - 150
M2-6:2 FTS	90		25 - 150
M2-8:2 FTS	95		25 - 150
13C3 HFPO-DA	100		25 - 150
13C2 10:2 FTS	90		25 - 150

Lab Sample ID: MB 320-695760/1-A
Matrix: Water
Analysis Batch: 696784

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 695760

<i>Analyte</i>	<i>MB Result</i>	<i>MB Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		08/03/23 04:27	08/07/23 18:09	1
Perfluoropentanoic acid (PFPA)	ND		2.0	0.49	ng/L		08/03/23 04:27	08/07/23 18:09	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		08/03/23 04:27	08/07/23 18:09	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		08/03/23 04:27	08/07/23 18:09	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		08/03/23 04:27	08/07/23 18:09	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		08/03/23 04:27	08/07/23 18:09	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		08/03/23 04:27	08/07/23 18:09	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		08/03/23 04:27	08/07/23 18:09	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		08/03/23 04:27	08/07/23 18:09	1
Perfluorotridecanoic acid (PFTTrDA)	ND		2.0	1.3	ng/L		08/03/23 04:27	08/07/23 18:09	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		08/03/23 04:27	08/07/23 18:09	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		08/03/23 04:27	08/07/23 18:09	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.30	ng/L		08/03/23 04:27	08/07/23 18:09	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		08/03/23 04:27	08/07/23 18:09	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.19	ng/L		08/03/23 04:27	08/07/23 18:09	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		08/03/23 04:27	08/07/23 18:09	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.37	ng/L		08/03/23 04:27	08/07/23 18:09	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		08/03/23 04:27	08/07/23 18:09	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.97	ng/L		08/03/23 04:27	08/07/23 18:09	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-695760/1-A
Matrix: Water
Analysis Batch: 696784

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 695760

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		08/03/23 04:27	08/07/23 18:09	1
NEtFOSA	ND		2.0	0.87	ng/L		08/03/23 04:27	08/07/23 18:09	1
NMeFOSA	ND		2.0	0.43	ng/L		08/03/23 04:27	08/07/23 18:09	1
NMeFOSAA	ND		5.0	1.2	ng/L		08/03/23 04:27	08/07/23 18:09	1
NEtFOSAA	ND		5.0	1.3	ng/L		08/03/23 04:27	08/07/23 18:09	1
NMeFOSE	ND		4.0	1.4	ng/L		08/03/23 04:27	08/07/23 18:09	1
NEtFOSE	ND		2.0	0.85	ng/L		08/03/23 04:27	08/07/23 18:09	1
4:2 FTS	ND		2.0	0.24	ng/L		08/03/23 04:27	08/07/23 18:09	1
6:2 FTS	ND		5.0	2.5	ng/L		08/03/23 04:27	08/07/23 18:09	1
8:2 FTS	ND		2.0	0.46	ng/L		08/03/23 04:27	08/07/23 18:09	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.40	ng/L		08/03/23 04:27	08/07/23 18:09	1
HFPO-DA (GenX)	ND		4.0	1.5	ng/L		08/03/23 04:27	08/07/23 18:09	1
9Cl-PF3ONS	ND		2.0	0.24	ng/L		08/03/23 04:27	08/07/23 18:09	1
11Cl-PF3OUdS	ND		2.0	0.32	ng/L		08/03/23 04:27	08/07/23 18:09	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C4 PFBA	105		25 - 150	08/03/23 04:27	08/07/23 18:09	1
13C5 PFPeA	103		25 - 150	08/03/23 04:27	08/07/23 18:09	1
13C2 PFHxA	103		25 - 150	08/03/23 04:27	08/07/23 18:09	1
13C4 PFHpA	115		25 - 150	08/03/23 04:27	08/07/23 18:09	1
13C4 PFOA	106		25 - 150	08/03/23 04:27	08/07/23 18:09	1
13C5 PFNA	116		25 - 150	08/03/23 04:27	08/07/23 18:09	1
13C2 PFDA	119		25 - 150	08/03/23 04:27	08/07/23 18:09	1
13C2 PFUnA	108		25 - 150	08/03/23 04:27	08/07/23 18:09	1
13C2 PFDoA	114		25 - 150	08/03/23 04:27	08/07/23 18:09	1
13C2 PFTeDA	110		25 - 150	08/03/23 04:27	08/07/23 18:09	1
13C3 PFBS	107		25 - 150	08/03/23 04:27	08/07/23 18:09	1
18O2 PFHxS	110		25 - 150	08/03/23 04:27	08/07/23 18:09	1
13C4 PFOS	117		25 - 150	08/03/23 04:27	08/07/23 18:09	1
13C8 FOSA	129		10 - 150	08/03/23 04:27	08/07/23 18:09	1
d3-NMeFOSAA	144		25 - 150	08/03/23 04:27	08/07/23 18:09	1
d5-NEtFOSAA	142		25 - 150	08/03/23 04:27	08/07/23 18:09	1
d-N-MeFOSA-M	107		10 - 150	08/03/23 04:27	08/07/23 18:09	1
d-N-EtFOSA-M	110		10 - 150	08/03/23 04:27	08/07/23 18:09	1
d7-N-MeFOSE-M	114		10 - 150	08/03/23 04:27	08/07/23 18:09	1
d9-N-EtFOSE-M	122		10 - 150	08/03/23 04:27	08/07/23 18:09	1
M2-4:2 FTS	105		25 - 150	08/03/23 04:27	08/07/23 18:09	1
M2-6:2 FTS	99		25 - 150	08/03/23 04:27	08/07/23 18:09	1
M2-8:2 FTS	109		25 - 150	08/03/23 04:27	08/07/23 18:09	1
13C3 HFPO-DA	105		25 - 150	08/03/23 04:27	08/07/23 18:09	1
13C2 10:2 FTS	105		25 - 150	08/03/23 04:27	08/07/23 18:09	1

Lab Sample ID: LCS 320-695760/2-A
Matrix: Water
Analysis Batch: 696077

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 695760

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	40.0	37.7		ng/L		94	60 - 135

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-695760/2-A
Matrix: Water
Analysis Batch: 696077

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 695760

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanoic acid (PFPA)	40.0	37.3		ng/L		93	60 - 135
Perfluorohexanoic acid (PFHxA)	40.0	39.2		ng/L		98	60 - 135
Perfluoroheptanoic acid (PFHpA)	40.0	38.0		ng/L		95	60 - 135
Perfluorooctanoic acid (PFOA)	40.0	37.9		ng/L		95	60 - 135
Perfluorononanoic acid (PFNA)	40.0	38.7		ng/L		97	60 - 135
Perfluorodecanoic acid (PFDA)	40.0	41.2		ng/L		103	60 - 135
Perfluoroundecanoic acid (PFUnA)	40.0	38.9		ng/L		97	60 - 135
Perfluorododecanoic acid (PFDoA)	40.0	44.1		ng/L		110	60 - 135
Perfluorotridecanoic acid (PFTrDA)	40.0	41.2		ng/L		103	60 - 135
Perfluorotetradecanoic acid (PFTeA)	40.0	39.2		ng/L		98	60 - 135
Perfluorobutanesulfonic acid (PFBS)	35.5	35.1		ng/L		99	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	37.6	37.4		ng/L		100	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	36.5	36.6		ng/L		100	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	38.2	35.0		ng/L		92	60 - 135
Perfluorooctanesulfonic acid (PFOS)	37.2	37.2		ng/L		100	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.5	38.4		ng/L		100	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	35.2		ng/L		91	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.8	37.7		ng/L		97	60 - 135
Perfluorooctanesulfonamide (FOSA)	40.0	36.5		ng/L		91	60 - 135
NEtFOSA	40.0	36.6		ng/L		92	60 - 135
NMeFOSA	40.0	39.2		ng/L		98	60 - 135
NMeFOSAA	40.0	38.8		ng/L		97	60 - 135
NEtFOSAA	40.0	38.1		ng/L		95	60 - 135
NMeFOSE	40.0	37.4		ng/L		93	60 - 135
NEtFOSE	40.0	36.3		ng/L		91	60 - 135
4:2 FTS	37.5	36.1		ng/L		96	60 - 135
6:2 FTS	38.1	35.0		ng/L		92	60 - 135
8:2 FTS	38.4	38.2		ng/L		99	60 - 135
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	36.5		ng/L		97	60 - 135
HFPO-DA (GenX)	40.0	40.1		ng/L		100	60 - 135
9Cl-PF3ONS	37.4	37.4		ng/L		100	60 - 135
11Cl-PF3OUdS	37.8	40.0		ng/L		106	60 - 135

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	93		25 - 150
13C5 PFPeA	94		25 - 150
13C2 PFHxA	94		25 - 150
13C4 PFHpA	101		25 - 150

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-695760/2-A
Matrix: Water
Analysis Batch: 696077

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 695760

<i>Isotope Dilution</i>	<i>LCS %Recovery</i>	<i>LCS Qualifier</i>	<i>Limits</i>
13C4 PFOA	98		25 - 150
13C5 PFNA	93		25 - 150
13C2 PFDA	94		25 - 150
13C2 PFUnA	99		25 - 150
13C2 PFDoA	92		25 - 150
13C2 PFTeDA	96		25 - 150
13C3 PFBS	97		25 - 150
18O2 PFHxS	92		25 - 150
13C4 PFOS	98		25 - 150
13C8 FOSA	104		10 - 150
d3-NMeFOSAA	108		25 - 150
d5-NEtFOSAA	95		25 - 150
d-N-MeFOSA-M	80		10 - 150
d-N-EtFOSA-M	86		10 - 150
d7-N-MeFOSE-M	95		10 - 150
d9-N-EtFOSE-M	93		10 - 150
M2-4:2 FTS	101		25 - 150
M2-6:2 FTS	99		25 - 150
M2-8:2 FTS	88		25 - 150
13C3 HFPO-DA	92		25 - 150
13C2 10:2 FTS	109		25 - 150

Lab Sample ID: MB 320-698681/1-A
Matrix: Solid
Analysis Batch: 699235

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 698681

<i>Analyte</i>	<i>MB Result</i>	<i>MB Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Perfluorobutanoic acid (PFBA)	ND		0.20	0.046	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
Perfluoropentanoic acid (PFPA)	ND		0.20	0.041	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.031	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.038	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.053	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.022	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.048	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.042	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.030	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
Perfluorotridecanoic acid (PFTTrDA)	ND		0.20	0.021	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.037	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.038	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.20	0.037	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.029	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.20	0.049	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.20	0.043	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
Perfluorononanesulfonic acid (PFNS)	ND		0.20	0.029	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.20	0.052	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.20	0.047	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
Perfluorooctanesulfonamide (FOSA)	ND		0.20	0.033	ug/Kg		08/14/23 20:30	08/17/23 00:16	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-698681/1-A
Matrix: Solid
Analysis Batch: 699235

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 698681

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSA	ND		0.20	0.047	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
NMeFOSA	ND		0.20	0.049	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
NMeFOSAA	ND		0.20	0.023	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
NEtFOSAA	ND		0.20	0.048	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
NMeFOSE	ND		0.20	0.047	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
NEtFOSE	ND		0.20	0.028	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
4:2 FTS	ND		0.20	0.051	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
6:2 FTS	ND		0.20	0.027	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
8:2 FTS	ND		0.20	0.035	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.039	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
HFPO-DA (GenX)	ND		0.20	0.041	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
9Cl-PF3ONS	ND		0.20	0.035	ug/Kg		08/14/23 20:30	08/17/23 00:16	1
11Cl-PF3OUdS	ND		0.20	0.031	ug/Kg		08/14/23 20:30	08/17/23 00:16	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	34		25 - 150	08/14/23 20:30	08/17/23 00:16	1
13C5 PFPeA	79		25 - 150	08/14/23 20:30	08/17/23 00:16	1
13C2 PFHxA	87		25 - 150	08/14/23 20:30	08/17/23 00:16	1
13C4 PFHpA	87		25 - 150	08/14/23 20:30	08/17/23 00:16	1
13C4 PFOA	88		25 - 150	08/14/23 20:30	08/17/23 00:16	1
13C5 PFNA	87		25 - 150	08/14/23 20:30	08/17/23 00:16	1
13C2 PFDA	89		25 - 150	08/14/23 20:30	08/17/23 00:16	1
13C2 PFUnA	93		25 - 150	08/14/23 20:30	08/17/23 00:16	1
13C2 PFDoA	90		25 - 150	08/14/23 20:30	08/17/23 00:16	1
13C2 PFTeDA	88		25 - 150	08/14/23 20:30	08/17/23 00:16	1
13C3 PFBS	77		25 - 150	08/14/23 20:30	08/17/23 00:16	1
18O2 PFHxS	83		25 - 150	08/14/23 20:30	08/17/23 00:16	1
13C4 PFOS	91		25 - 150	08/14/23 20:30	08/17/23 00:16	1
13C8 FOSA	98		10 - 150	08/14/23 20:30	08/17/23 00:16	1
d3-NMeFOSAA	100		25 - 150	08/14/23 20:30	08/17/23 00:16	1
d5-NEtFOSAA	89		25 - 150	08/14/23 20:30	08/17/23 00:16	1
d-N-MeFOSA-M	90		10 - 150	08/14/23 20:30	08/17/23 00:16	1
d-N-EtFOSA-M	92		10 - 150	08/14/23 20:30	08/17/23 00:16	1
d7-N-MeFOSE-M	91		10 - 150	08/14/23 20:30	08/17/23 00:16	1
d9-N-EtFOSE-M	93		10 - 150	08/14/23 20:30	08/17/23 00:16	1
M2-4:2 FTS	87		25 - 150	08/14/23 20:30	08/17/23 00:16	1
M2-6:2 FTS	87		25 - 150	08/14/23 20:30	08/17/23 00:16	1
M2-8:2 FTS	95		25 - 150	08/14/23 20:30	08/17/23 00:16	1
13C3 HFPO-DA	93		25 - 150	08/14/23 20:30	08/17/23 00:16	1
13C2 10:2 FTS	105		25 - 150	08/14/23 20:30	08/17/23 00:16	1

Lab Sample ID: LCS 320-698681/2-A
Matrix: Solid
Analysis Batch: 699235

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 698681

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	2.00	2.12		ug/Kg		106	60 - 135
Perfluoropentanoic acid (PFPA)	2.00	2.06		ug/Kg		103	60 - 135

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-698681/2-A
Matrix: Solid
Analysis Batch: 699235

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 698681

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanoic acid (PFHxA)	2.00	2.02		ug/Kg		101	60 - 135
Perfluoroheptanoic acid (PFHpA)	2.00	2.06		ug/Kg		103	60 - 135
Perfluorooctanoic acid (PFOA)	2.00	2.18		ug/Kg		109	60 - 135
Perfluorononanoic acid (PFNA)	2.00	2.08		ug/Kg		104	60 - 135
Perfluorodecanoic acid (PFDA)	2.00	1.96		ug/Kg		98	60 - 135
Perfluoroundecanoic acid (PFUnA)	2.00	2.12		ug/Kg		106	60 - 135
Perfluorododecanoic acid (PFDoA)	2.00	2.16		ug/Kg		108	60 - 135
Perfluorotridecanoic acid (PFTrDA)	2.00	2.04		ug/Kg		102	60 - 135
Perfluorotetradecanoic acid (PFTeA)	2.00	1.73		ug/Kg		87	60 - 135
Perfluorobutanesulfonic acid (PFBS)	1.78	1.93		ug/Kg		109	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	1.88	2.05		ug/Kg		109	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.74		ug/Kg		96	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	1.91	1.83		ug/Kg		96	60 - 135
Perfluorooctanesulfonic acid (PFOS)	1.86	1.80		ug/Kg		97	60 - 135
Perfluorononanesulfonic acid (PFNS)	1.92	1.87		ug/Kg		97	60 - 135
Perfluorodecanesulfonic acid (PFDS)	1.93	1.95		ug/Kg		101	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	1.94	1.76		ug/Kg		91	60 - 135
Perfluorooctanesulfonamide (FOSA)	2.00	2.06		ug/Kg		103	60 - 135
NEtFOSA	2.00	1.93		ug/Kg		96	60 - 135
NMeFOSA	2.00	1.93		ug/Kg		96	60 - 135
NMeFOSAA	2.00	1.89		ug/Kg		95	60 - 135
NEtFOSAA	2.00	1.99		ug/Kg		99	60 - 135
NMeFOSE	2.00	2.03		ug/Kg		102	60 - 135
NEtFOSE	2.00	1.96		ug/Kg		98	60 - 135
4:2 FTS	1.88	1.97		ug/Kg		105	60 - 135
6:2 FTS	1.90	1.76		ug/Kg		93	60 - 135
8:2 FTS	1.92	1.88		ug/Kg		98	60 - 135
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.89	2.00		ug/Kg		106	60 - 135
HFPO-DA (GenX)	2.00	1.99		ug/Kg		100	60 - 135
9Cl-PF3ONS	1.87	1.99		ug/Kg		107	60 - 135
11Cl-PF3OUdS	1.89	1.86		ug/Kg		99	60 - 135

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	25		25 - 150
13C5 PFPeA	71		25 - 150
13C2 PFHxA	83		25 - 150
13C4 PFHpA	84		25 - 150
13C4 PFOA	86		25 - 150

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-698681/2-A
Matrix: Solid
Analysis Batch: 699235

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 698681

<i>Isotope Dilution</i>	<i>LCS</i>	<i>LCS</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C5 PFNA	84		25 - 150
13C2 PFDA	89		25 - 150
13C2 PFUnA	88		25 - 150
13C2 PFDoA	93		25 - 150
13C2 PFTeDA	87		25 - 150
13C3 PFBS	77		25 - 150
18O2 PFHxS	83		25 - 150
13C4 PFOS	87		25 - 150
13C8 FOSA	94		10 - 150
d3-NMeFOSAA	93		25 - 150
d5-NEtFOSAA	92		25 - 150
d-N-MeFOSA-M	88		10 - 150
d-N-EtFOSA-M	89		10 - 150
d7-N-MeFOSE-M	91		10 - 150
d9-N-EtFOSE-M	87		10 - 150
M2-4:2 FTS	85		25 - 150
M2-6:2 FTS	87		25 - 150
M2-8:2 FTS	90		25 - 150
13C3 HFPO-DA	91		25 - 150
13C2 10:2 FTS	104		25 - 150

Lab Sample ID: MB 320-698840/1-A
Matrix: Water
Analysis Batch: 699257

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 698840

<i>Analyte</i>	<i>MB</i>	<i>MB</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
	<i>Result</i>	<i>Qualifier</i>							
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		08/15/23 12:19	08/16/23 12:24	1
Perfluoropentanoic acid (PFPA)	ND		2.0	0.49	ng/L		08/15/23 12:19	08/16/23 12:24	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		08/15/23 12:19	08/16/23 12:24	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		08/15/23 12:19	08/16/23 12:24	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		08/15/23 12:19	08/16/23 12:24	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		08/15/23 12:19	08/16/23 12:24	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		08/15/23 12:19	08/16/23 12:24	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		08/15/23 12:19	08/16/23 12:24	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		08/15/23 12:19	08/16/23 12:24	1
Perfluorotridecanoic acid (PFTTrDA)	ND		2.0	1.3	ng/L		08/15/23 12:19	08/16/23 12:24	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		08/15/23 12:19	08/16/23 12:24	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		08/15/23 12:19	08/16/23 12:24	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.30	ng/L		08/15/23 12:19	08/16/23 12:24	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		08/15/23 12:19	08/16/23 12:24	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.19	ng/L		08/15/23 12:19	08/16/23 12:24	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		08/15/23 12:19	08/16/23 12:24	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.37	ng/L		08/15/23 12:19	08/16/23 12:24	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		08/15/23 12:19	08/16/23 12:24	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.97	ng/L		08/15/23 12:19	08/16/23 12:24	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		08/15/23 12:19	08/16/23 12:24	1
NEtFOSA	ND		2.0	0.87	ng/L		08/15/23 12:19	08/16/23 12:24	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-698840/1-A
Matrix: Water
Analysis Batch: 699257

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 698840

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NMeFOSA	ND		2.0	0.43	ng/L		08/15/23 12:19	08/16/23 12:24	1
NMeFOSAA	ND		5.0	1.2	ng/L		08/15/23 12:19	08/16/23 12:24	1
NEtFOSAA	ND		5.0	1.3	ng/L		08/15/23 12:19	08/16/23 12:24	1
NMeFOSE	ND		4.0	1.4	ng/L		08/15/23 12:19	08/16/23 12:24	1
NEtFOSE	ND		2.0	0.85	ng/L		08/15/23 12:19	08/16/23 12:24	1
4:2 FTS	ND		2.0	0.24	ng/L		08/15/23 12:19	08/16/23 12:24	1
6:2 FTS	ND		5.0	2.5	ng/L		08/15/23 12:19	08/16/23 12:24	1
8:2 FTS	ND		2.0	0.46	ng/L		08/15/23 12:19	08/16/23 12:24	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.40	ng/L		08/15/23 12:19	08/16/23 12:24	1
HFPO-DA (GenX)	ND		4.0	1.5	ng/L		08/15/23 12:19	08/16/23 12:24	1
9Cl-PF3ONS	ND		2.0	0.24	ng/L		08/15/23 12:19	08/16/23 12:24	1
11Cl-PF3OUdS	ND		2.0	0.32	ng/L		08/15/23 12:19	08/16/23 12:24	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	90		25 - 150	08/15/23 12:19	08/16/23 12:24	1
13C5 PFPeA	91		25 - 150	08/15/23 12:19	08/16/23 12:24	1
13C2 PFHxA	91		25 - 150	08/15/23 12:19	08/16/23 12:24	1
13C4 PFHpA	92		25 - 150	08/15/23 12:19	08/16/23 12:24	1
13C4 PFOA	97		25 - 150	08/15/23 12:19	08/16/23 12:24	1
13C5 PFNA	95		25 - 150	08/15/23 12:19	08/16/23 12:24	1
13C2 PFDA	99		25 - 150	08/15/23 12:19	08/16/23 12:24	1
13C2 PFUnA	92		25 - 150	08/15/23 12:19	08/16/23 12:24	1
13C2 PFDoA	86		25 - 150	08/15/23 12:19	08/16/23 12:24	1
13C2 PFTeDA	85		25 - 150	08/15/23 12:19	08/16/23 12:24	1
13C3 PFBS	93		25 - 150	08/15/23 12:19	08/16/23 12:24	1
18O2 PFHxS	102		25 - 150	08/15/23 12:19	08/16/23 12:24	1
13C4 PFOS	92		25 - 150	08/15/23 12:19	08/16/23 12:24	1
13C8 FOSA	92		10 - 150	08/15/23 12:19	08/16/23 12:24	1
d3-NMeFOSAA	90		25 - 150	08/15/23 12:19	08/16/23 12:24	1
d5-NEtFOSAA	91		25 - 150	08/15/23 12:19	08/16/23 12:24	1
d-N-MeFOSA-M	78		10 - 150	08/15/23 12:19	08/16/23 12:24	1
d-N-EtFOSA-M	77		10 - 150	08/15/23 12:19	08/16/23 12:24	1
d7-N-MeFOSE-M	85		10 - 150	08/15/23 12:19	08/16/23 12:24	1
d9-N-EtFOSE-M	82		10 - 150	08/15/23 12:19	08/16/23 12:24	1
M2-4:2 FTS	102		25 - 150	08/15/23 12:19	08/16/23 12:24	1
M2-6:2 FTS	109		25 - 150	08/15/23 12:19	08/16/23 12:24	1
M2-8:2 FTS	103		25 - 150	08/15/23 12:19	08/16/23 12:24	1
13C3 HFPO-DA	92		25 - 150	08/15/23 12:19	08/16/23 12:24	1
13C2 10:2 FTS	95		25 - 150	08/15/23 12:19	08/16/23 12:24	1

Lab Sample ID: LCS 320-698840/2-A
Matrix: Water
Analysis Batch: 699257

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 698840

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	40.0	42.0		ng/L		105	60 - 135
Perfluoropentanoic acid (PFPA)	40.0	38.3		ng/L		96	60 - 135
Perfluorohexanoic acid (PFHxA)	40.0	41.6		ng/L		104	60 - 135

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-698840/2-A
Matrix: Water
Analysis Batch: 699257

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 698840

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroheptanoic acid (PFHpA)	40.0	39.3		ng/L		98	60 - 135
Perfluorooctanoic acid (PFOA)	40.0	42.9		ng/L		107	60 - 135
Perfluorononanoic acid (PFNA)	40.0	38.7		ng/L		97	60 - 135
Perfluorodecanoic acid (PFDA)	40.0	41.0		ng/L		102	60 - 135
Perfluoroundecanoic acid (PFUnA)	40.0	37.5		ng/L		94	60 - 135
Perfluorododecanoic acid (PFDoA)	40.0	45.8		ng/L		114	60 - 135
Perfluorotridecanoic acid (PFTrDA)	40.0	41.5		ng/L		104	60 - 135
Perfluorotetradecanoic acid (PFTeA)	40.0	41.2		ng/L		103	60 - 135
Perfluorobutanesulfonic acid (PFBS)	35.5	35.0		ng/L		99	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	37.6	40.3		ng/L		107	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	36.5	34.4		ng/L		94	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	38.2	39.0		ng/L		102	60 - 135
Perfluorooctanesulfonic acid (PFOS)	37.2	37.0		ng/L		99	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.5	36.3		ng/L		94	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	34.8		ng/L		90	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.8	33.7		ng/L		87	60 - 135
Perfluorooctanesulfonamide (FOSA)	40.0	42.7		ng/L		107	60 - 135
NEtFOSA	40.0	40.5		ng/L		101	60 - 135
NMeFOSA	40.0	39.2		ng/L		98	60 - 135
NMeFOSAA	40.0	39.1		ng/L		98	60 - 135
NEtFOSAA	40.0	39.8		ng/L		100	60 - 135
NMeFOSE	40.0	39.5		ng/L		99	60 - 135
NEtFOSE	40.0	38.9		ng/L		97	60 - 135
4:2 FTS	37.5	34.7		ng/L		92	60 - 135
6:2 FTS	38.1	35.4		ng/L		93	60 - 135
8:2 FTS	38.4	37.9		ng/L		99	60 - 135
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	39.7		ng/L		105	60 - 135
HFPO-DA (GenX)	40.0	38.0		ng/L		95	60 - 135
9Cl-PF3ONS	37.4	36.3		ng/L		97	60 - 135
11Cl-PF3OUdS	37.8	33.8		ng/L		90	60 - 135

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFBA	91		25 - 150
13C5 PFPeA	91		25 - 150
13C2 PFHxA	87		25 - 150
13C4 PFHpA	96		25 - 150
13C4 PFOA	97		25 - 150
13C5 PFNA	95		25 - 150

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-698840/2-A
Matrix: Water
Analysis Batch: 699257

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 698840

<i>Isotope Dilution</i>	<i>LCS</i>	<i>LCS</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C2 PFDA	95		25 - 150
13C2 PFUnA	94		25 - 150
13C2 PFDoA	79		25 - 150
13C2 PFTeDA	73		25 - 150
13C3 PFBS	89		25 - 150
18O2 PFHxS	98		25 - 150
13C4 PFOS	92		25 - 150
13C8 FOSA	85		10 - 150
d3-NMeFOSAA	88		25 - 150
d5-NEtFOSAA	85		25 - 150
d-N-MeFOSA-M	70		10 - 150
d-N-EtFOSA-M	67		10 - 150
d7-N-MeFOSE-M	78		10 - 150
d9-N-EtFOSE-M	76		10 - 150
M2-4:2 FTS	94		25 - 150
M2-6:2 FTS	96		25 - 150
M2-8:2 FTS	97		25 - 150
13C3 HFPO-DA	95		25 - 150
13C2 10:2 FTS	87		25 - 150

Lab Sample ID: LCSD 320-698840/3-A
Matrix: Water
Analysis Batch: 699257

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 698840

<i>Analyte</i>	<i>Spike</i>	<i>LCSD</i>	<i>LCSD</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec</i>	<i>RPD</i>	<i>RPD</i>
	<i>Added</i>	<i>Result</i>	<i>Qualifier</i>				<i>Limits</i>	<i>RPD</i>	<i>Limit</i>
Perfluorobutanoic acid (PFBA)	40.0	42.5		ng/L		106	60 - 135	1	30
Perfluoropentanoic acid (PFPA)	40.0	38.4		ng/L		96	60 - 135	0	30
Perfluorohexanoic acid (PFHxA)	40.0	38.0		ng/L		95	60 - 135	9	30
Perfluoroheptanoic acid (PFHpA)	40.0	41.5		ng/L		104	60 - 135	6	30
Perfluorooctanoic acid (PFOA)	40.0	44.2		ng/L		111	60 - 135	3	30
Perfluorononanoic acid (PFNA)	40.0	39.6		ng/L		99	60 - 135	2	30
Perfluorodecanoic acid (PFDA)	40.0	40.5		ng/L		101	60 - 135	1	30
Perfluoroundecanoic acid (PFUnA)	40.0	40.1		ng/L		100	60 - 135	7	30
Perfluorododecanoic acid (PFDoA)	40.0	43.5		ng/L		109	60 - 135	5	30
Perfluorotridecanoic acid (PFTTrDA)	40.0	42.4		ng/L		106	60 - 135	2	30
Perfluorotetradecanoic acid (PFTeA)	40.0	41.8		ng/L		105	60 - 135	1	30
Perfluorobutanesulfonic acid (PFBS)	35.5	35.0		ng/L		98	60 - 135	0	30
Perfluoropentanesulfonic acid (PFPeS)	37.6	37.3		ng/L		99	60 - 135	8	30
Perfluorohexanesulfonic acid (PFHxS)	36.5	34.4		ng/L		94	60 - 135	0	30
Perfluoroheptanesulfonic acid (PFHpS)	38.2	38.0		ng/L		100	60 - 135	3	30
Perfluorooctanesulfonic acid (PFOS)	37.2	37.3		ng/L		100	60 - 135	1	30

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-698840/3-A
Matrix: Water
Analysis Batch: 699257

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 698840

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorononanesulfonic acid (PFNS)	38.5	36.2		ng/L		94	60 - 135	0	30
Perfluorodecanesulfonic acid (PFDS)	38.6	34.3		ng/L		89	60 - 135	2	30
Perfluorododecanesulfonic acid (PFDoS)	38.8	34.8		ng/L		90	60 - 135	3	30
Perfluorooctanesulfonamide (FOSA)	40.0	41.7		ng/L		104	60 - 135	3	30
NEtFOSA	40.0	40.4		ng/L		101	60 - 135	0	30
NMeFOSA	40.0	41.9		ng/L		105	60 - 135	7	30
NMeFOSAA	40.0	38.2		ng/L		95	60 - 135	2	30
NEtFOSAA	40.0	38.3		ng/L		96	60 - 135	4	30
NMeFOSE	40.0	39.0		ng/L		97	60 - 135	1	30
NEtFOSE	40.0	40.7		ng/L		102	60 - 135	5	30
4:2 FTS	37.5	35.5		ng/L		95	60 - 135	2	30
6:2 FTS	38.1	35.4		ng/L		93	60 - 135	0	30
8:2 FTS	38.4	37.5		ng/L		98	60 - 135	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	37.1		ng/L		98	60 - 135	7	30
HFPO-DA (GenX)	40.0	41.5		ng/L		104	60 - 135	9	30
9CI-PF3ONS	37.4	37.0		ng/L		99	60 - 135	2	30
11CI-PF3OUdS	37.8	33.7		ng/L		89	60 - 135	0	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	LCSD Limits
13C4 PFBA	98		25 - 150
13C5 PFPeA	96		25 - 150
13C2 PFHxA	101		25 - 150
13C4 PFHpA	99		25 - 150
13C4 PFOA	99		25 - 150
13C5 PFNA	100		25 - 150
13C2 PFDA	98		25 - 150
13C2 PFUnA	104		25 - 150
13C2 PFDoA	90		25 - 150
13C2 PFTeDA	79		25 - 150
13C3 PFBS	100		25 - 150
18O2 PFHxS	105		25 - 150
13C4 PFOS	105		25 - 150
13C8 FOSA	96		10 - 150
d3-NMeFOSAA	99		25 - 150
d5-NEtFOSAA	99		25 - 150
d-N-MeFOSA-M	84		10 - 150
d-N-EtFOSA-M	84		10 - 150
d7-N-MeFOSE-M	90		10 - 150
d9-N-EtFOSE-M	84		10 - 150
M2-4:2 FTS	107		25 - 150
M2-6:2 FTS	110		25 - 150
M2-8:2 FTS	108		25 - 150
13C3 HFPO-DA	96		25 - 150
13C2 10:2 FTS	97		25 - 150

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 500-724335/1
Matrix: Water
Analysis Batch: 724335

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		5.0	1.9	mg/L			07/22/23 07:59	1

Lab Sample ID: LCS 500-724335/2
Matrix: Water
Analysis Batch: 724335

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	200	209		mg/L		105	80 - 120

QC Association Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-2

LCMS

Prep Batch: 693319

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-102736-8	EB 01 20230717	Total/NA	Water	3535	
MB 320-693319/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-693319/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-693319/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 694589

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-102736-8	EB 01 20230717	Total/NA	Water	537 (modified)	693319
MB 320-693319/1-A	Method Blank	Total/NA	Water	537 (modified)	693319
LCS 320-693319/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	693319
LCSD 320-693319/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	693319

Prep Batch: 695760

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-102736-9	INF COMP 20230717	Total/NA	Water	3535	
MB 320-695760/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-695760/2-A	Lab Control Sample	Total/NA	Water	3535	

Analysis Batch: 696077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-102736-9	INF COMP 20230717	Total/NA	Water	537 (modified)	695760
LCS 320-695760/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	695760

Analysis Batch: 696784

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-695760/1-A	Method Blank	Total/NA	Water	537 (modified)	695760

Prep Batch: 698681

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-102736-1	Bio A 23-S-1 20230717	Total/NA	Solid	SHAKE	
320-102736-2	Bio A 23-S-2 20230717	Total/NA	Solid	SHAKE	
320-102736-3	Bio A 23-S-3 20230717	Total/NA	Solid	SHAKE	
320-102736-4	Bio A 23-S-4 20230717	Total/NA	Solid	SHAKE	
320-102736-5	Bio A-23-S-C 20230717	Total/NA	Solid	SHAKE	
320-102736-6	Bio A-23-D-1 20230717	Total/NA	Solid	SHAKE	
320-102736-7	Bio A-23-D-3 20230717	Total/NA	Solid	SHAKE	
MB 320-698681/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-698681/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Prep Batch: 698840

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-102736-10	EFF 20230718	Total/NA	Water	3535	
MB 320-698840/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-698840/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-698840/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 699235

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-102736-1	Bio A 23-S-1 20230717	Total/NA	Solid	537 (modified)	698681
320-102736-3	Bio A 23-S-3 20230717	Total/NA	Solid	537 (modified)	698681
320-102736-4	Bio A 23-S-4 20230717	Total/NA	Solid	537 (modified)	698681

Eurofins Sacramento

QC Association Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-2

LCMS (Continued)

Analysis Batch: 699235 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-102736-5	Bio A-23-S-C 20230717	Total/NA	Solid	537 (modified)	698681
320-102736-6	Bio A-23-D-1 20230717	Total/NA	Solid	537 (modified)	698681
320-102736-7	Bio A-23-D-3 20230717	Total/NA	Solid	537 (modified)	698681
MB 320-698681/1-A	Method Blank	Total/NA	Solid	537 (modified)	698681
LCS 320-698681/2-A	Lab Control Sample	Total/NA	Solid	537 (modified)	698681

Analysis Batch: 699257

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-102736-10	EFF 20230718	Total/NA	Water	537 (modified)	698840
MB 320-698840/1-A	Method Blank	Total/NA	Water	537 (modified)	698840
LCS 320-698840/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	698840
LCSD 320-698840/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	698840

Analysis Batch: 699481

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-102736-2	Bio A 23-S-2 20230717	Total/NA	Solid	537 (modified)	698681

General Chemistry

Analysis Batch: 692862

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-102736-1	Bio A 23-S-1 20230717	Total/NA	Solid	D 2216	
320-102736-2	Bio A 23-S-2 20230717	Total/NA	Solid	D 2216	
320-102736-3	Bio A 23-S-3 20230717	Total/NA	Solid	D 2216	
320-102736-4	Bio A 23-S-4 20230717	Total/NA	Solid	D 2216	
320-102736-5	Bio A-23-S-C 20230717	Total/NA	Solid	D 2216	
320-102736-6	Bio A-23-D-1 20230717	Total/NA	Solid	D 2216	
320-102736-7	Bio A-23-D-3 20230717	Total/NA	Solid	D 2216	

Analysis Batch: 724335

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-102736-9	INF COMP 20230717	Total/NA	Water	SM 2540D	
320-102736-10	EFF 20230718	Total/NA	Water	SM 2540D	
MB 500-724335/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 500-724335/2	Lab Control Sample	Total/NA	Water	SM 2540D	

Lab Chronicle

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A 23-S-1 20230717

Lab Sample ID: 320-102736-1

Date Collected: 07/17/23 13:17

Matrix: Solid

Date Received: 07/20/23 15:42

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			692862	07/21/23 13:25	JCB	EET SAC

Client Sample ID: Bio A 23-S-1 20230717

Lab Sample ID: 320-102736-1

Date Collected: 07/17/23 13:17

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 34.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			1.22 g	10.0 mL	698681	08/14/23 20:30	PV	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	699235	08/17/23 00:36	S1M	EET SAC

Client Sample ID: Bio A 23-S-2 20230717

Lab Sample ID: 320-102736-2

Date Collected: 07/17/23 13:40

Matrix: Solid

Date Received: 07/20/23 15:42

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			692862	07/21/23 13:25	JCB	EET SAC

Client Sample ID: Bio A 23-S-2 20230717

Lab Sample ID: 320-102736-2

Date Collected: 07/17/23 13:40

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			1.47 g	10.0 mL	698681	08/14/23 20:30	PV	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	699481	08/17/23 18:51	K1S	EET SAC

Client Sample ID: Bio A 23-S-3 20230717

Lab Sample ID: 320-102736-3

Date Collected: 07/17/23 13:46

Matrix: Solid

Date Received: 07/20/23 15:42

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			692862	07/21/23 13:25	JCB	EET SAC

Client Sample ID: Bio A 23-S-3 20230717

Lab Sample ID: 320-102736-3

Date Collected: 07/17/23 13:46

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			1.31 g	10.0 mL	698681	08/14/23 20:30	PV	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	699235	08/17/23 00:56	S1M	EET SAC

Client Sample ID: Bio A 23-S-4 20230717

Lab Sample ID: 320-102736-4

Date Collected: 07/17/23 14:05

Matrix: Solid

Date Received: 07/20/23 15:42

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			692862	07/21/23 13:25	JCB	EET SAC

Eurofins Sacramento

Lab Chronicle

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A 23-S-4 20230717

Lab Sample ID: 320-102736-4

Date Collected: 07/17/23 14:05

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 25.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			1.22 g	10.0 mL	698681	08/14/23 20:30	PV	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	699235	08/17/23 01:06	S1M	EET SAC

Client Sample ID: Bio A-23-S-C 20230717

Lab Sample ID: 320-102736-5

Date Collected: 07/17/23 14:12

Matrix: Solid

Date Received: 07/20/23 15:42

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			692862	07/21/23 13:25	JCB	EET SAC

Client Sample ID: Bio A-23-S-C 20230717

Lab Sample ID: 320-102736-5

Date Collected: 07/17/23 14:12

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			1.25 g	10.0 mL	698681	08/14/23 20:30	PV	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	699235	08/17/23 01:17	S1M	EET SAC

Client Sample ID: Bio A-23-D-1 20230717

Lab Sample ID: 320-102736-6

Date Collected: 07/17/23 13:28

Matrix: Solid

Date Received: 07/20/23 15:42

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			692862	07/21/23 13:25	JCB	EET SAC

Client Sample ID: Bio A-23-D-1 20230717

Lab Sample ID: 320-102736-6

Date Collected: 07/17/23 13:28

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 23.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			1.08 g	10.0 mL	698681	08/14/23 20:30	PV	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	699235	08/17/23 01:27	S1M	EET SAC

Client Sample ID: Bio A-23-D-3 20230717

Lab Sample ID: 320-102736-7

Date Collected: 07/17/23 13:55

Matrix: Solid

Date Received: 07/20/23 15:42

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			692862	07/21/23 13:25	JCB	EET SAC

Eurofins Sacramento

Lab Chronicle

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A-23-D-3 20230717

Lab Sample ID: 320-102736-7

Date Collected: 07/17/23 13:55

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			1.01 g	10.0 mL	698681	08/14/23 20:30	PV	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	699235	08/17/23 01:37	S1M	EET SAC

Client Sample ID: EB 01 20230717

Lab Sample ID: 320-102736-8

Date Collected: 07/17/23 13:10

Matrix: Water

Date Received: 07/20/23 15:42

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			291.4 mL	10.0 mL	693319	07/24/23 13:53	BLR	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	694589	07/29/23 09:58	RS1	EET SAC

Client Sample ID: INF COMP 20230717

Lab Sample ID: 320-102736-9

Date Collected: 07/17/23 23:59

Matrix: Water

Date Received: 07/20/23 15:42

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			286.3 mL	10.0 mL	695760	08/03/23 04:27	RLT	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	696077	08/03/23 17:10	K1S	EET SAC
Total/NA	Analysis	SM 2540D		1	50 mL	500 mL	724335	07/22/23 09:15	MB	EET CHI
								Completed:	07/22/23 09:19 ¹	

Client Sample ID: EFF 20230718

Lab Sample ID: 320-102736-10

Date Collected: 07/18/23 23:59

Matrix: Water

Date Received: 07/20/23 15:42

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			262.3 mL	10.0 mL	698840	08/15/23 12:19	FXV	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	699257	08/16/23 13:08	RS1	EET SAC
Total/NA	Analysis	SM 2540D		1	500 mL	500 mL	724335	07/22/23 09:19	MB	EET CHI
								Completed:	07/22/23 09:22 ¹	

¹ This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-2

Laboratory: Eurofins Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4040	01-29-24

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
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids
Wisconsin	State	998204680	08-31-23

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
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids

Laboratory: Eurofins Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999580010	08-31-23

Method Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-2

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	EET SAC
D 2216	Percent Moisture	ASTM	EET SAC
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CHI
3535	Solid-Phase Extraction (SPE)	SW846	EET SAC
SHAKE	Shake Extraction with Ultrasonic Bath Extraction	SW846	EET SAC

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

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 CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-102736-1	Bio A 23-S-1 20230717	Solid	07/17/23 13:17	07/20/23 15:42
320-102736-2	Bio A 23-S-2 20230717	Solid	07/17/23 13:40	07/20/23 15:42
320-102736-3	Bio A 23-S-3 20230717	Solid	07/17/23 13:46	07/20/23 15:42
320-102736-4	Bio A 23-S-4 20230717	Solid	07/17/23 14:05	07/20/23 15:42
320-102736-5	Bio A-23-S-C 20230717	Solid	07/17/23 14:12	07/20/23 15:42
320-102736-6	Bio A-23-D-1 20230717	Solid	07/17/23 13:28	07/20/23 15:42
320-102736-7	Bio A-23-D-3 20230717	Solid	07/17/23 13:55	07/20/23 15:42
320-102736-8	EB 01 20230717	Water	07/17/23 13:10	07/20/23 15:42
320-102736-9	INF COMP 20230717	Water	07/17/23 23:59	07/20/23 15:42
320-102736-10	EFF 20230718	Water	07/18/23 23:59	07/20/23 15:42

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- 13
- 14
- 15

Address TRC 703299 **eurofins** Environment Testing America
999 Fournier Dr Suite 101
Madison, WI 53717

Client Contact
 Company Name: Madison Metro Sewerage Dept
 Address: 1610 Moorland Rd
 City/State/Zip: Madison, WI 53713
 Phone: 608 232-1201
 Fax: _____
 Project Name: Class A pile Cake Testing
 Site: MMSD
 PO #: _____

Regulatory Program DW NPDES RCRA Other
 Project Manager: Mary Powell
 Tell/Email: mary.p.powell@metro.wisconsin.gov
 Analysis Turnaround Time
 Calendar Days Working Days
 TAT If different from Below
 2 weeks 1 week 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)	Site Contact: Lab Contact: <u>Mary Powell</u> Carrier: <u>Fed Ex</u> Date: _____	COC No. <u>1</u> of <u>1</u> COCs	Sample Specific Notes:		
										Sampler	For Lab Use Only	Walk-in Client: Lab Sampling
Bio A 23-5-1 20230717	7/17/23	13:17	G	Sludge cake	2	N	N					
Bio A 23-5-2 20230717	7/17/23	13:40	G		2	N	N					
Bio A 23-5-3 20230717	7/17/23	13:46	G		2	N	N					
Bio A 23-5-4 20230717	7/17/23	14:05	G		2	N	N					
Bio A 23-5-C 20230717	7/17/23	14:12	C		6	N	N					
Bio A 23 D 1 20230717	7/17/23	13:28	G		2	N	N					
Bio A 23 D 3 20230717	7/17/23	13:55	G		2	N	N					
EB 01 20230717	7/17/23	13:10	G	Water	2	N	N					
INF COMP 20230717	7/17/23	23:59	C	WW	3	N	N					
Eff 20230718	7/18/23	03:59	C	WW	3	N	N					

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
 Return to Client Dispose by Lab Archive for _____ Months
 Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Special Instructions/QC Requirements & Comments
 Custody Seal No. _____
 Relinquished by: James Faust Company: MMSD Date/Time: 7/19/23 07:51
 Relinquished by: _____ Company: MMSD Date/Time: 7/19/23
 Relinquished by: _____ Company: _____ Date/Time: _____
 Received by: [Signature] Company: PETCA Date/Time: 7/20/23 10:00
 Received in Laboratory by: _____ Company: _____ Date/Time: _____
 Cooler Temp. (°C): Obs'd. 24 Corrd. 24 Therm ID No.: 109



Environment Testing America

Sacramento Sample Receiving Notes

Place Field Sheet Label Here

Tracking # 5881 5596 3813

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: 109 Corr Factor (+/-) 0 °C
Ice Wet _____ Gel _____ Other _____
Cooler Custody Seal 2109794/2109795
Cooler ID _____
Temp Observed 24 °C Corrected 24 °C
From Temp Blank Sample

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cooler Temperature is acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Frozen samples show signs of thaw?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Initials: SO Date 7/20/23

Unpacking/Labeling The Samples	Yes	No	NA
Containers are not broken or leaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
COC is complete w/o discrepancies	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample custody seal?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample containers have legible labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample date/times are provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate containers are used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample bottles are completely filled?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample preservatives verified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is the Field Sampler's name on COC?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Samples w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Zero headspace?*	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Alkalinity has no headspace?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Perchlorate has headspace? (Methods 314 331 6850)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Multiphasic samples are not present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials: SO Date 7/20/23

Notes _____
Sample 3, LODZ trace 1336

Sample 8 10. Equip Blank of
w/one, date

Sample #10, all samples trace 630

all samples okay, 2/23/21/2/
2/23/21/8

Trizma Lot #(s) _____

Ammonium
Acetate Lot #(s) _____

Login Completion
Receipt Temperature on COC?
NCM Filed?
Log Release checked in TALS?

Initials: SO Date 7/20/23

Eurofins Sacramento

880 Riverside Parkway
West Sacramento CA 95605
Phone 916-373-5600 Fax 916-372-1059

Chain of Custody Record



eurofins

Client Information (Sub Contract Lab)		Sampler Smith Micah	Lab PM Smith Micah	Carrier Tracking No(s)	COC No 320-314841 1
Client Contact Shipping/Receiving		Phone	E-Mail Micah Smith@et eurofinsus.com	State of Origin Wisconsin	Page Page 1 of 1
Company Eurofins Environment Testing North Centr		Accreditations Required (See note) NELAP - Oregon State - Wisconsin			Job # 320-102736-1
Address 2417 Bond Street		Due Date Requested 8/9/2023	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 Z other (specify)
City University Park		TAT Requested (days)			
State Zip IL 60484		PO #			
Phone 708-534-5200(Tel) 708-534-5211(Fax) 320-102736 COC		WO #			
Email		Project # 32021779	Field Filtered Sample (Yes or No)		Total Number of Containers
Project Name PFAS Sampling		SSOW#	Perform MS/MSD (Yes or No)		
Site		Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)
Sample Identification - Client ID (Lab ID)		Preservation Code:			
INF COMP 20230717 (320-102736-9)		7/17/23	23 59 Central	Water	X
EFF 20230718 (320-102736-10)		7/18/23	23 59 Central	Water	X
<p>Note: Since laboratory accreditations are subject to change Eurofins Environment Testing Northern California 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 Northern California LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northern California 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 Northern California LLC.</p>					
Possible Hazard Identification			Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		
Unconfirmed			<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		
Deliverable Requested I II III IV Other (specify)		Primary Deliverable Rank 1	Special Instructions/QC Requirements		
Empty Kit Relinquished by		Date	Time	Method of Shipment:	
Relinquished by		Date/Time 7/10/23 1620	Company EETSA	Received by	Date/Time 7/21/23 0940
Relinquished by		Date/Time	Company	Received by	Date/Time
Relinquished by		Date/Time:	Company	Received by	Date/Time
Custody Seals Intact: Δ Yes Δ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks 1.3-760			



Login Sample Receipt Checklist

Client: Madison Metropolitan Sewerage District

Job Number: 320-102736-2

Login Number: 102736

List Source: Eurofins Sacramento

List Number: 1

Creator: Oropeza, Salvador

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	2109794/2109795
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?	False	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
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 <math><6\text{mm}</math> (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: Madison Metropolitan Sewerage District

Job Number: 320-102736-2

Login Number: 102736

List Number: 2

Creator: Scott, Sherri L

List Source: Eurofins Chicago

List Creation: 07/21/23 12:48 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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	1.0
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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	



September 2023

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ANALYTICAL REPORT

PREPARED FOR

Attn: Julie Maas
Madison Metropolitan Sewerage District
1610 Moorland Road
Madison, Wisconsin 53713-3398

Generated 11/15/2023 3:35:10 PM Revision 4

JOB DESCRIPTION

PFAS Sampling

JOB NUMBER

320-104868-1

Eurofins Sacramento

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 Northern California, LLC Project Manager.

Authorization



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11/15/2023 3:35:10 PM
Revision 4

Authorized for release by
Micah Smith, Project Manager II
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(916)374-4302



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Definitions/Glossary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
G	The reported quantitation limit has been raised due to an exhibited elevated noise or matrix interference
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.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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

Case Narrative

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Job ID: 320-104868-1

Laboratory: Eurofins Sacramento

Narrative

**Job Narrative
320-104868-1**

Revision

Revision

The report being provided is a revision of the original report sent on 10/11/2023. The report (revision 4) is being revised to reprocess sample Bio A-22-20230912 (320-104868-4) to correct the PFOS results.

Report revision history

Revision 1 - 10/17/2023 - Reason - Incorrect MB prep date for batch 707540.

Revision 2 - 10/18/2023 - Reason - Corrected the file name in the report.

Revision 3 - 10/19/2023 - Reason - Narration correction..

The report being provided is a revision of the original report sent on 10/11/2023. The report (revision 1) is being revised to correct the prep date for the Method Blank (MB 320-707540/1-A).

Receipt

The samples were received on 9/14/2023 9:30 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 was 2.6° C.

Receipt Exceptions

The 1 Liter plastic bottle for sample Comp 20230911 (320-104868-1) was received with approximately 700 mL.

The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): Bio B 20230912 (320-104868-2), EB01 20230912 (320-104868-3), Bio A-22-20230912 (320-104868-4) and Eff 20230912 (320-104868-5).

Samples 2 & 4, all containers have ID ending in -202309.

Sample 3, both containers have ID as Equip Blank and has no time and date.

Sample 5, all containers except the 1L plastic containers have ID as Eff Comp 20230912.

Samples were logged in and labeled according to COC.

LCMS

Method 537 (modified): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following sample: Inf Comp 20230911 (320-104868-1). The associated samples were reanalyzed with concurring IDA results. Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: Bio B 20230912 (320-104868-2). The associated sample was reanalyzed with concurring IDA results. Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s).

Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following samples are below the method recommended limit: Bio A-22-20230912 (320-104868-4) and (LCSD 320-707538/3-A). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the samples.

Method 537 (modified): 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 following samples are associated with this narration: Inf Comp 20230911 (320-104868-1), Bio B 20230912 (320-104868-2), EB01 20230912 (320-104868-3), Bio A-22-20230912 (320-104868-4), Eff 20230912 (320-104868-5) and (320-104868-A-4-C MS)..

Method 537 (modified): The labeled analyte M2-4:2FTS is employed in this analysis as a "Reverse Surrogate". It is used to monitor the oxidation efficiency of the TOP assay. This analyte is fortified into all sample fractions prior to any processing. The recovery of this analyte

Case Narrative

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Job ID: 320-104868-1 (Continued)

Laboratory: Eurofins Sacramento (Continued)

should be 0% in Post-Treatment fractions, indicating complete oxidation of the sample. The following samples are associated with this narration: Bio B 20230912 (320-104868-2), Bio A-22-20230912 (320-104868-4), Eff 20230912 (320-104868-5), (MB 320-707538/1-A), (MB 320-707540/1-A), (MB 320-707541/1-A), (MB 320-707546/1-A), (LCS 320-707538/2-A), (LCS 320-707540/2-A), (LCS 320-707541/2-A), (LCS 320-707546/2-A), (LCSD 320-707538/3-A), (LCSD 320-707540/3-A), (LCSD 320-707541/3-A) and (LCSD 320-707546/3-A).

Method 537 (modified): Zero percent recovery of precursor analytes (such as 4:2 FTS, 6:2 FTS, 8:2 FTS, FOSA, NMeFOSAA, NEtFOSAA, etc.) and enhanced recoveries of PFCA is observed in the Post-Treatment Laboratory Control Sample (LCS) and Post-Treatment Laboratory Control Sample Duplicate (LCSD) associated with these samples, consistent with the expected oxidation of precursor analytes. The existing LCS control limits are based upon our historical performance for a set of 24-36 analytes in the LCS solution. We have recently expanded to 70+ analytes. As the LCS solution now contains new/additional precursor analytes we are seeing enhanced recoveries for some PFCA vs. the historical limits as a result. The LCS results are flagged as being high and outside of the established limits for some analytes; however, this is a function of the new analytes in the LCS solution and not indicative of an "out of control" process. The following samples are associated with this narration: Bio B 20230912 (320-104868-2), Bio A-22-20230912 (320-104868-4), (LCS 320-707540/2-A), (LCS 320-707541/2-A), (LCSD 320-707540/3-A) and (LCSD 320-707541/3-A).

Method 537 (modified): Zero percent recovery of precursor analytes (such as 4:2 FTS, 6:2 FTS, 8:2 FTS, FOSA, NMeFOSAA, NEtFOSAA, etc.) and enhanced recoveries of PFCA is observed in the Post-Treatment Laboratory Control Sample (LCS) and Post-Treatment Laboratory Control Sample Duplicate (LCSD) associated with these samples, consistent with the expected oxidation of precursor analytes. The existing LCS control limits are based upon our historical performance for a set of 24-36 analytes in the LCS solution. We have recently expanded to 70+ analytes. As the LCS solution now contains new/additional precursor analytes we are seeing enhanced recoveries for some PFCA vs. the historical limits as a result. The LCS results are flagged as being high and outside of the established limits for some analytes; however, this is a function of the new analytes in the LCS solution and not indicative of an "out of control" process. The following samples are associated with this narration: (LCS 320-707540/2-A) and (LCSD 320-707540/3-A).

Method 537 (modified): Zero percent recovery of precursor analytes (such as 4:2 FTS, 6:2 FTS, 8:2 FTS, FOSA, NMeFOSAA, NEtFOSAA, etc.) and enhanced recoveries of PFCA is observed in the Post-Treatment Laboratory Control Sample (LCS) and Post-Treatment Laboratory Control Sample Duplicate (LCSD) associated with these samples, consistent with the expected oxidation of precursor analytes. The existing LCS control limits are based upon our historical performance for a set of 24-36 analytes in the LCS solution. We have recently expanded to 70+ analytes. As the LCS solution now contains new/additional precursor analytes we are seeing enhanced recoveries for some PFCA vs. the historical limits as a result. The LCS results are flagged as being high and outside of the established limits for some analytes; however, this is a function of the new analytes in the LCS solution and not indicative of an "out of control" process. The following samples are associated with this narration: (LCS 320-707538/2-A) and (LCSD 320-707538/3-A).

Method 537 (modified): Zero percent recovery of precursor analytes (such as 4:2 FTS, 6:2 FTS, 8:2 FTS, FOSA, NMeFOSAA, NEtFOSAA, etc.) and enhanced recoveries of PFCA is observed in the Post-Treatment Laboratory Control Sample (LCS) associated with these samples, consistent with the expected oxidation of precursor analytes. The existing LCS control limits are based upon our historical performance for a set of 24-36 analytes in the LCS solution. We have recently expanded to 70+ analytes. As the LCS solution now contains new/additional precursor analytes we are seeing enhanced recoveries for some PFCA vs. the historical limits as a result. The LCS results are flagged as being high and outside of the established limits for some analytes; however, this is a function of the new analytes in the LCS solution and not indicative of an "out of control" process. The following sample is associated with this narration: Eff 20230912 (320-104868-5).

Method 537 (modified): The continuing calibration verification internal standard (CCVIS) associated with batch 320-709674 recovered above the upper control limit for NEtFOSA. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: Eff 20230912 (320-104868-5) and (CCVIS 320-709674/6).

Method 537 (modified): The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 320-709418 and analytical batch 320-709577 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 537 (modified): The following sample exhibited matrix interferences for Perfluorooctanesulfonic acid (PFOS) causing elevation of the reporting limit (RL): Bio B 20230912 (320-104868-2). The RL for the affected analytes has been raised to be equal to the matrix interferences, and a "G" qualifier applied.

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

Case Narrative

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Job ID: 320-104868-1 (Continued)

Laboratory: Eurofins Sacramento (Continued)

General Chemistry

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

Organic Prep

Method SHAKE: The following samples in preparation batch 320-707212 were yellow in color following extraction. Bio B 20230912 (320-104868-2) and Bio A-22-20230912 (320-104868-4)

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-708839.

Method 3535: The following samples in preparation batch 320-708839 were observed to have a thin layer of sediment present in the bottom of the bottle prior to extraction. Inf Comp 20230911 (320-104868-1) and Eff 20230912 (320-104868-5) Samples contained floating particles. Sediment and particulates were loaded with the water onto the columns and eluted. Sample extracts were yellow in color.

Method TOP Pre-Prep: The following samples in preparation batch 320-707541 were yellow in color following extraction. Bio B 20230912 (320-104868-2) and Bio A-22-20230912 (320-104868-4)

Method SHAKE: Due to low isotope dilution analyte recoveries, the initial volumes used for the following samples deviated from the standard procedure: Bio A-22-20230912 (320-104868-4), (320-104868-A-4 MS) and (320-104868-A-4 MSD). Samples were prepped at 1 gram. The reporting limits (RLs) have been adjusted proportionately.

Method SHAKE: The following samples in preparation batch 320-709418 were yellow in color following extraction. Bio A-22-20230912 (320-104868-4), (320-104868-A-4 MS) and (320-104868-A-4 MSD)

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

Job ID: 320-104869-1

Laboratory: Eurofins Sacramento

Narrative

Job Narrative 320-104869-1

Receipt

The samples were received on 9/14/2023 9:30 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 was 1.8° C.

Receipt Exceptions

The 1 Liter plastic bottle for sample Inf07 20230911 (320-104869-2) was received with approximately 875 mL.

LCMS

Method 537 (modified): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following samples: Inf07 20230911 (320-104869-2) and Inf18 20230911 (320-104869-5). The associated samples were reanalyzed with concurring IDA results. Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit: Inf08 20230911 (320-104869-3) and (LCSD 320-707538/3-A). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s).

Method 537 (modified): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following sample: Inf08 20230911 (320-104869-3). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method 537 (modified): 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

Case Narrative

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Job ID: 320-104869-1 (Continued)

Laboratory: Eurofins Sacramento (Continued)

analyte: Inf02 20230911 (320-104869-1), Inf08 20230911 (320-104869-3), Inf11 20230911 (320-104869-4) and Inf18 20230911 (320-104869-5).

Method 537 (modified): The labeled analyte M2-4:2FTS is employed in this analysis as a "Reverse Surrogate". It is used to monitor the oxidation efficiency of the TOP assay. This analyte is fortified into all sample fractions prior to any processing. The recovery of this analyte should be 0% in Post-Treatment fractions, indicating complete oxidation of the sample. The following samples are associated with this narration: Inf02 20230911 (320-104869-1), Inf07 20230911 (320-104869-2), Inf08 20230911 (320-104869-3), Inf11 20230911 (320-104869-4), Inf18 20230911 (320-104869-5), (MB 320-707546/1-A), (LCS 320-707546/2-A), (LCSD 320-707546/3-A), (LCS 320-707538/2-A), (LCSD 320-707538/3-A) and (MB 320-707538/1-A).

Method 537 (modified): Zero percent recovery of precursor analytes (such as 4:2 FTS, 6:2 FTS, 8:2 FTS, FOSA, NMeFOSAA, NEtFOSAA, etc.) and enhanced recoveries of PFCA is observed in the Post-Treatment Laboratory Control Sample (LCS) and Post-Treatment Laboratory Control Sample Duplicate (LCSD) associated with these samples, consistent with the expected oxidation of precursor analytes. The existing LCS control limits are based upon our historical performance for a set of 24-36 analytes in the LCS solution. We have recently expanded to 70+ analytes. As the LCS solution now contains new/additional precursor analytes we are seeing enhanced recoveries for some PFCA vs. the historical limits as a result. The LCS results are flagged as being high and outside of the established limits for some analytes; however, this is a function of the new analytes in the LCS solution and not indicative of an "out of control" process. The following samples are associated with this narration: (LCS 320-707538/2-A) and (LCSD 320-707538/3-A).

Method 537 (modified): Zero percent recovery of precursor analytes (such as 4:2 FTS, 6:2 FTS, 8:2 FTS, FOSA, NMeFOSAA, NEtFOSAA, etc.) and enhanced recoveries of PFCA is observed in the Post-Treatment Laboratory Control Sample (LCS) associated with these samples, consistent with the expected oxidation of precursor analytes. The existing LCS control limits are based upon our historical performance for a set of 24-36 analytes in the LCS solution. We have recently expanded to 70+ analytes. As the LCS solution now contains new/additional precursor analytes we are seeing enhanced recoveries for some PFCA vs. the historical limits as a result. The LCS results are flagged as being high and outside of the established limits for some analytes; however, this is a function of the new analytes in the LCS solution and not indicative of an "out of control" process. The following samples are associated with this narration: Inf02 20230911 (320-104869-1), Inf07 20230911 (320-104869-2), Inf08 20230911 (320-104869-3), Inf11 20230911 (320-104869-4) and Inf18 20230911 (320-104869-5).

Method 537 (modified): The continuing calibration verification internal standard (CCVIS) associated with batch 320-709674 recovered above the upper control limit for NEtFOSA. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: Inf02 20230911 (320-104869-1), Inf07 20230911 (320-104869-2), Inf08 20230911 (320-104869-3), Inf11 20230911 (320-104869-4), Inf18 20230911 (320-104869-5) and (CCVIS 320-709674/6).

Method 537 (modified): Results for sample Inf11 20230911 (320-104869-4) were reported from the analysis of a diluted extract due to the sample matrix affecting the recovery of the internal standard (ISTD) in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits.

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

General Chemistry

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

Organic Prep

Method 3535: The following samples in preparation batch 320-708839 were observed to have a thin layer of sediment present in the bottom of the bottle prior to extraction. Inf02 20230911 (320-104869-1), Inf07 20230911 (320-104869-2), Inf08 20230911 (320-104869-3), Inf11 20230911 (320-104869-4) and Inf18 20230911 (320-104869-5) Samples contained floating particles. Sediment and particulates were loaded with the water onto the columns and eluted.

Method TOP Pre - Prep: The following samples in preparation batch 320-707546 were yellow in color following extraction. Inf02 20230911 (320-104869-1), Inf07 20230911 (320-104869-2), Inf08 20230911 (320-104869-3), Inf11 20230911 (320-104869-4) and Inf18 20230911 (320-104869-5)

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

Detection Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf Comp 20230911

Lab Sample ID: 320-104868-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	5.6		4.4	2.1	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	4.9		1.8	0.43	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	9.6		1.8	0.51	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.8		1.8	0.22	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	5.0		1.8	0.75	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.53	J	1.8	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.52	J	1.8	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.8	I	1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.83	J	1.8	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	7.9		1.8	0.50	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	5.0		1.8	0.48	ng/L	1		537 (modified)	Total/NA
NMeFOSE	1.4	J	3.5	1.2	ng/L	1		537 (modified)	Total/NA
8:2 FTS	0.43	J	1.8	0.41	ng/L	1		537 (modified)	Total/NA
Total Suspended Solids	230		36	14	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Bio B 20230912

Lab Sample ID: 320-104868-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	1.2	J	3.1	0.47	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	0.92	J	3.1	0.81	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.58	J	3.1	0.34	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	4.3		3.1	0.74	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	0.95	J	3.1	0.64	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	2.8	J	3.1	0.46	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	0.67	J	3.1	0.57	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.95	J	3.1	0.44	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	8.9	I	3.1	0.66	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanesulfonic acid (PFDS)	1.3	J	3.1	0.80	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	0.52	J	3.1	0.51	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSAA	11		3.1	0.35	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSAA	6.7		3.1	0.74	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSE	7.1		3.1	0.72	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSE	1.4	J	3.1	0.43	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	3.2	J	15	2.3	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorodecanoic acid (PFDA)	4.0	J	15	3.5	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorododecanoic acid (PFDoA)	2.7	J	15	2.2	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorobutanesulfonic acid (PFBS)	3.2	J	15	2.8	ug/Kg	1	✳	537 (modified)	Pre-Treatment
NMeFOSAA	7.6	J	15	1.7	ug/Kg	1	✳	537 (modified)	Pre-Treatment
NMeFOSE	6.6	J	15	3.4	ug/Kg	1	✳	537 (modified)	Pre-Treatment
NEtFOSE	6.2	J	15	2.0	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	170		16	3.6	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluoropentanoic acid (PFPA)	120	B **	16	3.2	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorohexanoic acid (PFHxA)	64	**	16	2.4	ug/Kg	1	✳	537 (modified)	Post-Treatment

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Bio B 20230912 (Continued)

Lab Sample ID: 320-104868-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	42	*+	16	3.0	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorooctanoic acid (PFOA)	44		16	4.1	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorononanoic acid (PFNA)	19	*+	16	1.7	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorodecanoic acid (PFDA)	16	*+	16	3.7	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluoroundecanoic acid (PFUnA)	9.3	J	16	3.3	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorododecanoic acid (PFDoA)	8.2	J	16	2.3	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorotridecanoic acid (PFTTrDA)	3.0	J	16	1.6	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorotetradecanoic acid (PFTTeA)	4.0	J	16	2.9	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorobutanesulfonic acid (PFBS)	13	J	16	3.0	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorohexanesulfonic acid (PFHxS)	3.3	J	16	2.3	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorooctanesulfonic acid (PFOS)	15	J	16	3.4	ug/Kg	1	✳	537 (modified)	Post-Treatment

Client Sample ID: EB01 20230912

Lab Sample ID: 320-104868-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.72	J I	1.9	0.54	ng/L	1		537 (modified)	Total/NA
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.40	J	1.9	0.37	ng/L	1		537 (modified)	Total/NA

Client Sample ID: Bio A-22-20230912

Lab Sample ID: 320-104868-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	3.0		3.0	0.68	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	7.6		3.0	0.61	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	15	B	3.0	0.46	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.2	J	3.0	0.57	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	9.2		3.0	0.79	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.90	J	3.0	0.33	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	7.4		3.0	0.71	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.0	J	3.0	0.62	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	3.0		3.0	0.45	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTTeA)	0.71	J	3.0	0.55	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.1	J I	3.0	0.57	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	9.9		3.0	0.64	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanesulfonic acid (PFDS)	1.4	J I	3.0	0.77	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.1	J	3.0	0.49	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSAA	20		3.0	0.34	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSAA	6.5		3.0	0.71	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSE	19		3.0	0.70	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSE	10	F1	3.0	0.42	ug/Kg	1	✳	537 (modified)	Total/NA
6:2 FTS	0.90	J	3.0	0.40	ug/Kg	1	✳	537 (modified)	Total/NA
8:2 FTS	0.88	J	3.0	0.52	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorobutanoic acid (PFBA)	3.4	J	3.5	0.80	ug/Kg	1	✳	537 (modified)	Pre-Treatment

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Bio A-22-20230912 (Continued)

Lab Sample ID: 320-104868-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPA)	10		3.5	0.72	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorohexanoic acid (PFHxA)	18		3.5	0.54	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluoroheptanoic acid (PFHpA)	1.4	J	3.5	0.66	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorooctanoic acid (PFOA)	9.5		3.5	0.93	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorononanoic acid (PFNA)	1.0	J	3.5	0.38	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorodecanoic acid (PFDA)	7.7		3.5	0.84	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluoroundecanoic acid (PFUnA)	1.3	J	3.5	0.73	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorododecanoic acid (PFDoA)	3.5		3.5	0.52	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorotetradecanoic acid (PFTeA)	1.0	J I	3.5	0.65	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorobutanesulfonic acid (PFBS)	4.4		3.5	0.66	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorohexanesulfonic acid (PFHxS)	4.1	I	3.5	0.51	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorooctanesulfonic acid (PFOS)	21	I	3.5	0.75	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorodecanesulfonic acid (PFDS)	1.6	J	3.5	0.91	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorooctanesulfonamide (FOSA)	1.0	J	3.5	0.58	ug/Kg	1	✳	537 (modified)	Pre-Treatment
NMeFOSAA	15		3.5	0.40	ug/Kg	1	✳	537 (modified)	Pre-Treatment
NEtFOSAA	4.3		3.5	0.84	ug/Kg	1	✳	537 (modified)	Pre-Treatment
NMeFOSE	7.5		3.5	0.82	ug/Kg	1	✳	537 (modified)	Pre-Treatment
NEtFOSE	7.8		3.5	0.49	ug/Kg	1	✳	537 (modified)	Pre-Treatment
6:2 FTS	1.6	J	3.5	0.47	ug/Kg	1	✳	537 (modified)	Pre-Treatment
8:2 FTS	1.1	J	3.5	0.61	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	170		3.6	0.83	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluoropentanoic acid (PFPA)	91	B **	3.6	0.74	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorohexanoic acid (PFHxA)	70	**	3.6	0.56	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluoroheptanoic acid (PFHpA)	31	**	3.6	0.68	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorooctanoic acid (PFOA)	52		3.6	0.96	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorononanoic acid (PFNA)	15	**	3.6	0.40	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorodecanoic acid (PFDA)	17	**	3.6	0.86	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluoroundecanoic acid (PFUnA)	5.8		3.6	0.75	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorododecanoic acid (PFDoA)	6.0		3.6	0.54	ug/Kg	1	✳	537 (modified)	Post-Treatment

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Bio A-22-20230912 (Continued)

Lab Sample ID: 320-104868-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorotridecanoic acid (PFTrDA)	1.5	J	3.6	0.38	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorotetradecanoic acid (PFTeA)	2.1	J	3.6	0.66	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorobutanesulfonic acid (PFBS)	28		3.6	0.68	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorohexanesulfonic acid (PFHxS)	3.3	J	3.6	0.52	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorooctanesulfonic acid (PFOS)	21		3.6	0.78	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorodecanesulfonic acid (PFDS)	1.2	J	3.6	0.93	ug/Kg	1	✳	537 (modified)	Post-Treatment

Client Sample ID: Eff 20230912

Lab Sample ID: 320-104868-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	6.6		4.8	2.3	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	21		1.9	0.47	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	22		1.9	0.56	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.1		1.9	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	7.8		1.9	0.82	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.63	J	1.9	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	1.1	J	1.9	0.30	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	6.8	I	1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.83	J	1.9	0.29	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	7.3		1.9	0.55	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	5.2		1.9	0.52	ng/L	1		537 (modified)	Total/NA
NMeFOSAA	1.2	J	4.8	1.2	ng/L	1		537 (modified)	Total/NA
Perfluorobutanoic acid (PFBA)	8.3	J	13	6.0	ng/L	1		537 (modified)	Pre-Treatment
Perfluoropentanoic acid (PFPA)	20		5.0	1.2	ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanoic acid (PFHxA)	20		5.0	1.4	ng/L	1		537 (modified)	Pre-Treatment
Perfluoroheptanoic acid (PFHpA)	2.5	J	5.0	0.63	ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanoic acid (PFOA)	8.5		5.0	2.1	ng/L	1		537 (modified)	Pre-Treatment
Perfluorodecanoic acid (PFDA)	0.99	J	5.0	0.78	ng/L	1		537 (modified)	Pre-Treatment
Perfluorotetradecanoic acid (PFTeA)	1.2	J I	5.0	0.73	ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanesulfonic acid (PFBS)	4.4	J I	5.0	0.50	ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanesulfonic acid (PFHxS)	7.0		5.0	0.43	ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanesulfonic acid (PFOS)	5.1		5.0	0.80	ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanesulfonamide (FOSA)	1.0	J	5.0	0.88	ng/L	1		537 (modified)	Pre-Treatment
NEtFOSE	4.5	J	5.0	2.2	ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	37	B **+	13	6.0	ng/L	1		537 (modified)	Post-Treatment
Perfluoropentanoic acid (PFPA)	25	*+	5.0	1.2	ng/L	1		537 (modified)	Post-Treatment

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Eff 20230912 (Continued)

Lab Sample ID: 320-104868-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	21	*+	5.0	1.4	ng/L	1		537 (modified)	Post-Treatment
Perfluoroheptanoic acid (PFHpA)	3.3	J*+	5.0	0.63	ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanoic acid (PFOA)	9.3		5.0	2.1	ng/L	1		537 (modified)	Post-Treatment
Perfluorononanoic acid (PFNA)	0.69	J*+	5.0	0.68	ng/L	1		537 (modified)	Post-Treatment
Perfluorodecanoic acid (PFDA)	1.1	J*+	5.0	0.78	ng/L	1		537 (modified)	Post-Treatment
Perfluorobutanesulfonic acid (PFBS)	2.7	J	5.0	0.50	ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanesulfonic acid (PFHxS)	6.8		5.0	0.43	ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanesulfonic acid (PFOS)	4.2	J	5.0	0.80	ng/L	1		537 (modified)	Post-Treatment
Total Suspended Solids	5.8		5.0	1.9	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Inf02 20230911

Lab Sample ID: 320-104869-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	3.3	J	4.9	2.3	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	3.4		2.0	0.48	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	6.4	I	2.0	0.57	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.4	J	2.0	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	3.0		2.0	0.83	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.64	J	2.0	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.69	J	2.0	0.30	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.7	J I	2.0	0.20	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.5		2.0	0.56	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	4.9	J	5.0	1.2	ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanoic acid (PFHxA)	5.4		5.0	1.4	ng/L	1		537 (modified)	Pre-Treatment
Perfluoroheptanoic acid (PFHpA)	1.7	J	5.0	0.63	ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanoic acid (PFOA)	3.3	J	5.0	2.1	ng/L	1		537 (modified)	Pre-Treatment
Perfluorodecanoic acid (PFDA)	0.97	J	5.0	0.78	ng/L	1		537 (modified)	Pre-Treatment
NMeFOSE	4.8	J	10	3.5	ng/L	1		537 (modified)	Pre-Treatment
NEtFOSE	9.4		5.0	2.2	ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	33	B*+	13	6.0	ng/L	1		537 (modified)	Post-Treatment
Perfluoropentanoic acid (PFPA)	33	*+	5.0	1.2	ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanoic acid (PFHxA)	18	*+	5.0	1.4	ng/L	1		537 (modified)	Post-Treatment
Perfluoroheptanoic acid (PFHpA)	7.3	*+	5.0	0.63	ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanoic acid (PFOA)	7.2		5.0	2.1	ng/L	1		537 (modified)	Post-Treatment
Perfluorononanoic acid (PFNA)	1.8	J*+	5.0	0.68	ng/L	1		537 (modified)	Post-Treatment

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf02 20230911 (Continued)

Lab Sample ID: 320-104869-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid (PFDA)	1.6	J **	5.0	0.78	ng/L	1		537 (modified)	Post-Treatment
Perfluorobutanesulfonic acid (PFBS)	1.6	J	5.0	0.50	ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanesulfonic acid (PFHxS)	3.1	J	5.0	0.43	ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanesulfonic acid (PFOS)	2.8	J	5.0	0.80	ng/L	1		537 (modified)	Post-Treatment
Total Suspended Solids	220		33	13	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Inf07 20230911

Lab Sample ID: 320-104869-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	9.8		4.9	2.3	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	7.0		2.0	0.48	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	16		2.0	0.57	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.0		2.0	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	9.2		2.0	0.83	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.78	J	2.0	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.63	J	2.0	0.30	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	5.8		2.0	0.20	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	1.4	J	2.0	0.29	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	12		2.0	0.56	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.8		2.0	0.53	ng/L	1		537 (modified)	Total/NA
NMeFOSE	1.9	J	3.9	1.4	ng/L	1		537 (modified)	Total/NA
6:2 FTS	3.1	J	4.9	2.4	ng/L	1		537 (modified)	Total/NA
8:2 FTS	0.49	J	2.0	0.45	ng/L	1		537 (modified)	Total/NA
Perfluorobutanoic acid (PFBA)	15		13	6.0	ng/L	1		537 (modified)	Pre-Treatment
Perfluoropentanoic acid (PFPA)	9.4		5.0	1.2	ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanoic acid (PFHxA)	15		5.0	1.4	ng/L	1		537 (modified)	Pre-Treatment
Perfluoroheptanoic acid (PFHpA)	3.2	J	5.0	0.63	ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanoic acid (PFOA)	8.8		5.0	2.1	ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanesulfonic acid (PFBS)	3.8	J	5.0	0.50	ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanesulfonic acid (PFHxS)	12		5.0	0.43	ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanesulfonic acid (PFOS)	6.4		5.0	0.80	ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	59	B **	13	6.0	ng/L	1		537 (modified)	Post-Treatment
Perfluoropentanoic acid (PFPA)	63	**	5.0	1.2	ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanoic acid (PFHxA)	45	**	5.0	1.4	ng/L	1		537 (modified)	Post-Treatment
Perfluoroheptanoic acid (PFHpA)	14	**	5.0	0.63	ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanoic acid (PFOA)	16		5.0	2.1	ng/L	1		537 (modified)	Post-Treatment
Perfluorononanoic acid (PFNA)	2.8	J **	5.0	0.68	ng/L	1		537 (modified)	Post-Treatment

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf07 20230911 (Continued)

Lab Sample ID: 320-104869-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid (PFDA)	2.9	J **	5.0	0.78	ng/L	1		537 (modified)	Post-Treatment
Perfluorobutanesulfonic acid (PFBS)	3.9	J	5.0	0.50	ng/L	1		537 (modified)	Post-Treatment
Perfluoropentanesulfonic acid (PFPeS)	0.85	J	5.0	0.75	ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanesulfonic acid (PFHxS)	11		5.0	0.43	ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanesulfonic acid (PFOS)	5.0		5.0	0.80	ng/L	1		537 (modified)	Post-Treatment
Total Suspended Solids	230		36	14	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Inf08 20230911

Lab Sample ID: 320-104869-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	4.3	J	4.8	2.3	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	4.5		1.9	0.47	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	9.3		1.9	0.56	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.2	J	1.9	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	2.4		1.9	0.82	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.44	J	1.9	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.58	J	1.9	0.30	ng/L	1		537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	0.62	J	1.9	0.53	ng/L	1		537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	2.8		1.9	0.71	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.8	J	1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	4.1		1.9	0.55	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.1		1.9	0.52	ng/L	1		537 (modified)	Total/NA
8:2 FTS	0.52	J	1.9	0.45	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	6.1		5.0	1.2	ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanoic acid (PFHxA)	8.5		5.0	1.4	ng/L	1		537 (modified)	Pre-Treatment
Perfluoroheptanoic acid (PFHpA)	1.4	J	5.0	0.63	ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanoic acid (PFOA)	2.4	J	5.0	2.1	ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanesulfonic acid (PFBS)	1.6	J I	5.0	0.50	ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanesulfonic acid (PFHxS)	3.8	J I	5.0	0.43	ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	32	B **	13	6.0	ng/L	1		537 (modified)	Post-Treatment
Perfluoropentanoic acid (PFPA)	32	**	5.0	1.2	ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanoic acid (PFHxA)	27	**	5.0	1.4	ng/L	1		537 (modified)	Post-Treatment
Perfluoroheptanoic acid (PFHpA)	8.6	**	5.0	0.63	ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanoic acid (PFOA)	8.6		5.0	2.1	ng/L	1		537 (modified)	Post-Treatment
Perfluorononanoic acid (PFNA)	2.5	J **	5.0	0.68	ng/L	1		537 (modified)	Post-Treatment
Perfluorodecanoic acid (PFDA)	2.2	J **	5.0	0.78	ng/L	1		537 (modified)	Post-Treatment
Perfluorobutanesulfonic acid (PFBS)	1.3	J	5.0	0.50	ng/L	1		537 (modified)	Post-Treatment

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf08 20230911 (Continued)

Lab Sample ID: 320-104869-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	3.0	J	5.0	0.43	ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanesulfonic acid (PFOS)	3.0	J	5.0	0.80	ng/L	1		537 (modified)	Post-Treatment
Total Suspended Solids	200		28	11	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Inf11 20230911

Lab Sample ID: 320-104869-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	7.8	J I	20	5.7	ng/L	10		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.5	J	20	5.3	ng/L	10		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	5.1		5.0	1.4	ng/L	1		537 (modified)	Pre-Treatment
Perfluoroheptanoic acid (PFHpA)	0.92	J	5.0	0.63	ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanoic acid (PFOA)	2.1	J	5.0	2.1	ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanesulfonic acid (PFBS)	0.88	J	5.0	0.50	ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanesulfonic acid (PFOS)	3.6	J	5.0	0.80	ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	40	B **	13	6.0	ng/L	1		537 (modified)	Post-Treatment
Perfluoropentanoic acid (PFPA)	44	**	5.0	1.2	ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanoic acid (PFHxA)	25	**	5.0	1.4	ng/L	1		537 (modified)	Post-Treatment
Perfluoroheptanoic acid (PFHpA)	12	**	5.0	0.63	ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanoic acid (PFOA)	13		5.0	2.1	ng/L	1		537 (modified)	Post-Treatment
Perfluorononanoic acid (PFNA)	2.7	J **	5.0	0.68	ng/L	1		537 (modified)	Post-Treatment
Perfluorodecanoic acid (PFDA)	2.2	J **	5.0	0.78	ng/L	1		537 (modified)	Post-Treatment
Perfluorobutanesulfonic acid (PFBS)	1.6	J	5.0	0.50	ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanesulfonic acid (PFHxS)	2.1	J	5.0	0.43	ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanesulfonic acid (PFOS)	2.8	J	5.0	0.80	ng/L	1		537 (modified)	Post-Treatment
Total Suspended Solids	260		33	13	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Inf18 20230911

Lab Sample ID: 320-104869-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	7.8		4.9	2.3	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPA)	5.9		1.9	0.48	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	10		1.9	0.56	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.2		1.9	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	8.3		1.9	0.82	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.50	J	1.9	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.37	J	1.9	0.30	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	4.0		1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	3.3		1.9	0.29	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf18 20230911 (Continued)

Lab Sample ID: 320-104869-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	17		1.9	0.55	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	7.1		1.9	0.52	ng/L	1		537 (modified)	Total/NA
NMeFOSE	1.8	J	3.9	1.4	ng/L	1		537 (modified)	Total/NA
6:2 FTS	2.6	J	4.9	2.4	ng/L	1		537 (modified)	Total/NA
Perfluorobutanoic acid (PFBA)	14		13	6.0	ng/L	1		537 (modified)	Pre-Treatment
Perfluoropentanoic acid (PFPA)	6.4		5.0	1.2	ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanoic acid (PFHxA)	10		5.0	1.4	ng/L	1		537 (modified)	Pre-Treatment
Perfluoroheptanoic acid (PFHpA)	2.7	J	5.0	0.63	ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanoic acid (PFOA)	8.4		5.0	2.1	ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanesulfonic acid (PFBS)	3.3	J	5.0	0.50	ng/L	1		537 (modified)	Pre-Treatment
Perfluoropentanesulfonic acid (PFPeS)	0.96	J I	5.0	0.75	ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanesulfonic acid (PFHxS)	16		5.0	0.43	ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanesulfonic acid (PFOS)	10		5.0	0.80	ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	62	B **	13	6.0	ng/L	1		537 (modified)	Post-Treatment
Perfluoropentanoic acid (PFPA)	73	**	5.0	1.2	ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanoic acid (PFHxA)	47	**	5.0	1.4	ng/L	1		537 (modified)	Post-Treatment
Perfluoroheptanoic acid (PFHpA)	14	**	5.0	0.63	ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanoic acid (PFOA)	16		5.0	2.1	ng/L	1		537 (modified)	Post-Treatment
Perfluorononanoic acid (PFNA)	2.5	J **	5.0	0.68	ng/L	1		537 (modified)	Post-Treatment
Perfluorodecanoic acid (PFDA)	2.4	J **	5.0	0.78	ng/L	1		537 (modified)	Post-Treatment
Perfluorobutanesulfonic acid (PFBS)	3.8	J	5.0	0.50	ng/L	1		537 (modified)	Post-Treatment
Perfluoropentanesulfonic acid (PFPeS)	1.1	J	5.0	0.75	ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanesulfonic acid (PFHxS)	14		5.0	0.43	ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanesulfonic acid (PFOS)	7.0		5.0	0.80	ng/L	1		537 (modified)	Post-Treatment
Total Suspended Solids	200		31	12	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf Comp 20230911

Lab Sample ID: 320-104868-1

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	5.6		4.4	2.1	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluoropentanoic acid (PFPA)	4.9		1.8	0.43	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorohexanoic acid (PFHxA)	9.6		1.8	0.51	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluoroheptanoic acid (PFHpA)	1.8		1.8	0.22	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorooctanoic acid (PFOA)	5.0		1.8	0.75	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorononanoic acid (PFNA)	0.53	J	1.8	0.24	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorodecanoic acid (PFDA)	0.52	J	1.8	0.27	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.97	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.48	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.1	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.64	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorobutanesulfonic acid (PFBS)	3.8	I	1.8	0.18	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluoropentanesulfonic acid (PFPeS)	0.83	J	1.8	0.26	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorohexanesulfonic acid (PFHxS)	7.9		1.8	0.50	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorooctanesulfonic acid (PFOS)	5.0		1.8	0.48	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.33	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.28	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.85	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.86	ng/L		09/25/23 20:23	09/27/23 15:13	1
NEtFOSA	ND		1.8	0.77	ng/L		09/25/23 20:23	09/27/23 15:13	1
NMeFOSA	ND		1.8	0.38	ng/L		09/25/23 20:23	09/27/23 15:13	1
NMeFOSAA	ND		4.4	1.1	ng/L		09/25/23 20:23	09/27/23 15:13	1
NEtFOSAA	ND		4.4	1.1	ng/L		09/25/23 20:23	09/27/23 15:13	1
NMeFOSE	1.4	J	3.5	1.2	ng/L		09/25/23 20:23	09/27/23 15:13	1
NEtFOSE	ND		1.8	0.75	ng/L		09/25/23 20:23	09/27/23 15:13	1
4:2 FTS	ND		1.8	0.21	ng/L		09/25/23 20:23	09/27/23 15:13	1
6:2 FTS	ND		4.4	2.2	ng/L		09/25/23 20:23	09/27/23 15:13	1
8:2 FTS	0.43	J	1.8	0.41	ng/L		09/25/23 20:23	09/27/23 15:13	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.35	ng/L		09/25/23 20:23	09/27/23 15:13	1
HFPO-DA (GenX)	ND		3.5	1.3	ng/L		09/25/23 20:23	09/27/23 15:13	1
9CI-PF3ONS	ND		1.8	0.21	ng/L		09/25/23 20:23	09/27/23 15:13	1
11CI-PF3OUdS	ND		1.8	0.28	ng/L		09/25/23 20:23	09/27/23 15:13	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	51		25 - 150				09/25/23 20:23	09/27/23 15:13	1
13C5 PFPeA	53		25 - 150				09/25/23 20:23	09/27/23 15:13	1
13C2 PFHxA	75		25 - 150				09/25/23 20:23	09/27/23 15:13	1
13C4 PFHpA	125		25 - 150				09/25/23 20:23	09/27/23 15:13	1
13C4 PFOA	101		25 - 150				09/25/23 20:23	09/27/23 15:13	1
13C5 PFNA	123		25 - 150				09/25/23 20:23	09/27/23 15:13	1
13C2 PFDA	132		25 - 150				09/25/23 20:23	09/27/23 15:13	1
13C2 PFUnA	113		25 - 150				09/25/23 20:23	09/27/23 15:13	1
13C2 PFDoA	77		25 - 150				09/25/23 20:23	09/27/23 15:13	1
13C2 PFTeDA	42		25 - 150				09/25/23 20:23	09/27/23 15:13	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf Comp 20230911

Lab Sample ID: 320-104868-1

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	72		25 - 150	09/25/23 20:23	09/27/23 15:13	1
18O2 PFHxS	110		25 - 150	09/25/23 20:23	09/27/23 15:13	1
13C4 PFOS	139		25 - 150	09/25/23 20:23	09/27/23 15:13	1
13C8 FOSA	95		10 - 150	09/25/23 20:23	09/27/23 15:13	1
d3-NMeFOSAA	41		25 - 150	09/25/23 20:23	09/27/23 15:13	1
d5-NEtFOSAA	70		25 - 150	09/25/23 20:23	09/27/23 15:13	1
d-N-MeFOSA-M	23		10 - 150	09/25/23 20:23	09/27/23 15:13	1
d-N-EtFOSA-M	33		10 - 150	09/25/23 20:23	09/27/23 15:13	1
d7-N-MeFOSE-M	32		10 - 150	09/25/23 20:23	09/27/23 15:13	1
d9-N-EtFOSE-M	63		10 - 150	09/25/23 20:23	09/27/23 15:13	1
M2-4:2 FTS	74		25 - 150	09/25/23 20:23	09/27/23 15:13	1
M2-6:2 FTS	181	*5+	25 - 150	09/25/23 20:23	09/27/23 15:13	1
M2-8:2 FTS	159	*5+	25 - 150	09/25/23 20:23	09/27/23 15:13	1
13C3 HFPO-DA	110		25 - 150	09/25/23 20:23	09/27/23 15:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	230		36	14	mg/L			09/17/23 21:32	1

Client Sample ID: Bio B 20230912

Lab Sample ID: 320-104868-2

Date Collected: 09/12/23 07:45

Matrix: Solid

Date Received: 09/14/23 09:30

Percent Solids: 6.4

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.1	0.70	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluoropentanoic acid (PFPA)	ND		3.1	0.63	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluorohexanoic acid (PFHxA)	1.2	J	3.1	0.47	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluoroheptanoic acid (PFHpA)	ND		3.1	0.58	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluorooctanoic acid (PFOA)	0.92	J	3.1	0.81	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluorononanoic acid (PFNA)	0.58	J	3.1	0.34	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluorodecanoic acid (PFDA)	4.3		3.1	0.74	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluoroundecanoic acid (PFUnA)	0.95	J	3.1	0.64	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluorododecanoic acid (PFDoA)	2.8	J	3.1	0.46	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluorotridecanoic acid (PFTrDA)	ND		3.1	0.32	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluorotetradecanoic acid (PFTeA)	0.67	J	3.1	0.57	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluorobutanesulfonic acid (PFBS)	ND		3.1	0.58	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.1	0.57	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluorohexanesulfonic acid (PFHxS)	0.95	J	3.1	0.44	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.1	0.75	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluorooctanesulfonic acid (PFOS)	8.9	I	3.1	0.66	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluorononanesulfonic acid (PFNS)	ND		3.1	0.44	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluorodecanesulfonic acid (PFDS)	1.3	J	3.1	0.80	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Bio B 20230912

Lab Sample ID: 320-104868-2

Date Collected: 09/12/23 07:45

Matrix: Solid

Date Received: 09/14/23 09:30

Percent Solids: 6.4

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanesulfonic acid (PFDoS)	ND		3.1	0.72	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluorooctanesulfonamide (FOSA)	0.52	J	3.1	0.51	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
NEtFOSA	ND		3.1	0.72	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
NMeFOSA	ND		3.1	0.75	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
NMeFOSAA	11		3.1	0.35	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
NEtFOSAA	6.7		3.1	0.74	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
NMeFOSE	7.1		3.1	0.72	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
NEtFOSE	1.4	J	3.1	0.43	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
4:2 FTS	ND		3.1	0.78	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
6:2 FTS	ND		3.1	0.41	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
8:2 FTS	ND		3.1	0.54	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.1	0.60	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
HFPO-DA (GenX)	ND		3.1	0.63	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
9Cl-PF3ONS	ND		3.1	0.54	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
11Cl-PF3OUdS	ND		3.1	0.47	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	68		25 - 150				09/18/23 20:20	09/19/23 14:57	1
13C5 PFPeA	59		25 - 150				09/18/23 20:20	09/19/23 14:57	1
13C2 PFHxA	44		25 - 150				09/18/23 20:20	09/19/23 14:57	1
13C4 PFHpA	90		25 - 150				09/18/23 20:20	09/19/23 14:57	1
13C4 PFOA	113		25 - 150				09/18/23 20:20	09/19/23 14:57	1
13C5 PFNA	88		25 - 150				09/18/23 20:20	09/19/23 14:57	1
13C2 PFDA	56		25 - 150				09/18/23 20:20	09/19/23 14:57	1
13C2 PFUnA	74		25 - 150				09/18/23 20:20	09/19/23 14:57	1
13C2 PFDoA	72		25 - 150				09/18/23 20:20	09/19/23 14:57	1
13C2 PFTeDA	24	*5-	25 - 150				09/18/23 20:20	09/19/23 14:57	1
13C3 PFBS	75		25 - 150				09/18/23 20:20	09/19/23 14:57	1
18O2 PFHxS	87		25 - 150				09/18/23 20:20	09/19/23 14:57	1
13C4 PFOS	81		25 - 150				09/18/23 20:20	09/19/23 14:57	1
13C8 FOSA	59		10 - 150				09/18/23 20:20	09/19/23 14:57	1
d3-NMeFOSAA	37		25 - 150				09/18/23 20:20	09/19/23 14:57	1
d5-NEtFOSAA	56		25 - 150				09/18/23 20:20	09/19/23 14:57	1
d-N-MeFOSA-M	12		10 - 150				09/18/23 20:20	09/19/23 14:57	1
d-N-EtFOSA-M	22		10 - 150				09/18/23 20:20	09/19/23 14:57	1
d7-N-MeFOSE-M	23		10 - 150				09/18/23 20:20	09/19/23 14:57	1
d9-N-EtFOSE-M	41		10 - 150				09/18/23 20:20	09/19/23 14:57	1
M2-4:2 FTS	51		25 - 150				09/18/23 20:20	09/19/23 14:57	1
M2-6:2 FTS	89		25 - 150				09/18/23 20:20	09/19/23 14:57	1
M2-8:2 FTS	52		25 - 150				09/18/23 20:20	09/19/23 14:57	1
13C3 HFPO-DA	67		25 - 150				09/18/23 20:20	09/19/23 14:57	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		15	3.4	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluoropentanoic acid (PFPA)	ND		15	3.0	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluorohexanoic acid (PFHxA)	3.2	J	15	2.3	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluoroheptanoic acid (PFHpA)	ND		15	2.8	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Bio B 20230912

Lab Sample ID: 320-104868-2

Date Collected: 09/12/23 07:45

Matrix: Solid

Date Received: 09/14/23 09:30

Percent Solids: 6.4

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	ND		15	3.9	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluorononanoic acid (PFNA)	ND		15	1.6	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluorodecanoic acid (PFDA)	4.0	J	15	3.5	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluoroundecanoic acid (PFUnA)	ND		15	3.1	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluorododecanoic acid (PFDoA)	2.7	J	15	2.2	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluorotridecanoic acid (PFTTrDA)	ND	*+	15	1.5	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluorotetradecanoic acid (PFTTeA)	ND		15	2.7	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluorobutanesulfonic acid (PFBS)	3.2	J	15	2.8	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluoropentanesulfonic acid (PFPeS)	ND		15	2.7	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluorohexanesulfonic acid (PFHxS)	ND		15	2.1	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		15	3.6	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluorooctanesulfonic acid (PFOS)	ND	G	36	36	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluorononanesulfonic acid (PFNS)	ND		15	2.1	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluorodecanesulfonic acid (PFDS)	ND		15	3.8	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluorododecanesulfonic acid (PFDoS)	ND		15	3.4	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluorooctanesulfonamide (FOSA)	ND		15	2.4	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
NMeFOSA	ND		15	3.6	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
NEtFOSA	ND		15	3.4	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
NMeFOSAA	7.6	J	15	1.7	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
NEtFOSAA	ND		15	3.5	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
NMeFOSE	6.6	J	15	3.4	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
NEtFOSE	6.2	J	15	2.0	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
4:2 FTS	ND		15	3.7	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
6:2 FTS	ND		15	2.0	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
8:2 FTS	ND		15	2.6	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
HFPO-DA (GenX)	ND		15	3.0	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
9CI-PF3ONS	ND		15	2.6	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
11CI-PF3OUdS	ND		15	2.3	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		15	2.8	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	64		25 - 150	09/19/23 21:36	09/28/23 14:21	1
13C5 PFPeA	97		25 - 150	09/19/23 21:36	09/28/23 14:21	1
13C2 PFHxA	101		25 - 150	09/19/23 21:36	09/28/23 14:21	1
13C4 PFHpA	103		25 - 150	09/19/23 21:36	09/28/23 14:21	1
13C4 PFOA	102		25 - 150	09/19/23 21:36	09/28/23 14:21	1
13C5 PFNA	106		25 - 150	09/19/23 21:36	09/28/23 14:21	1
13C2 PFDA	109		25 - 150	09/19/23 21:36	09/28/23 14:21	1
13C2 PFUnA	106		25 - 150	09/19/23 21:36	09/28/23 14:21	1
13C2 PFDoA	52		25 - 150	09/19/23 21:36	09/28/23 14:21	1
13C2 PFTTeDA	14	*5-	25 - 150	09/19/23 21:36	09/28/23 14:21	1
13C3 PFBS	96		25 - 150	09/19/23 21:36	09/28/23 14:21	1
18O2 PFHxS	104		25 - 150	09/19/23 21:36	09/28/23 14:21	1
13C4 PFOS	97		25 - 150	09/19/23 21:36	09/28/23 14:21	1
13C8 FOSA	117		25 - 150	09/19/23 21:36	09/28/23 14:21	1
M2-4:2 FTS	128		25 - 150	09/19/23 21:36	09/28/23 14:21	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Bio B 20230912

Lab Sample ID: 320-104868-2

Date Collected: 09/12/23 07:45

Matrix: Solid

Date Received: 09/14/23 09:30

Percent Solids: 6.4

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	129		25 - 150	09/19/23 21:36	09/28/23 14:21	1
M2-8:2 FTS	136		25 - 150	09/19/23 21:36	09/28/23 14:21	1
13C3 HFPO-DA	92		25 - 150	09/19/23 21:36	09/28/23 14:21	1
d3-NMeFOSAA	100		25 - 150	09/19/23 21:36	09/28/23 14:21	1
d5-NEtFOSAA	116		25 - 150	09/19/23 21:36	09/28/23 14:21	1
d-N-MeFOSA-M	76		25 - 150	09/19/23 21:36	09/28/23 14:21	1
d-N-EtFOSA-M	59		25 - 150	09/19/23 21:36	09/28/23 14:21	1
d7-N-MeFOSE-M	57		25 - 150	09/19/23 21:36	09/28/23 14:21	1
d9-N-EtFOSE-M	48		25 - 150	09/19/23 21:36	09/28/23 14:21	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	170		16	3.6	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluoropentanoic acid (PFPA)	120	B **	16	3.2	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorohexanoic acid (PFHxA)	64	**	16	2.4	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluoroheptanoic acid (PFHpA)	42	**	16	3.0	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorooctanoic acid (PFOA)	44		16	4.1	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorononanoic acid (PFNA)	19	**	16	1.7	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorodecanoic acid (PFDA)	16	**	16	3.7	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluoroundecanoic acid (PFUnA)	9.3	J	16	3.3	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorododecanoic acid (PFDoA)	8.2	J	16	2.3	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorotridecanoic acid (PFTrDA)	3.0	J	16	1.6	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorotetradecanoic acid (PFTeA)	4.0	J	16	2.9	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorobutanesulfonic acid (PFBS)	13	J	16	3.0	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluoropentanesulfonic acid (PFPeS)	ND		16	2.9	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorohexanesulfonic acid (PFHxS)	3.3	J	16	2.3	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		16	3.8	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorooctanesulfonic acid (PFOS)	15	J	16	3.4	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorononanesulfonic acid (PFNS)	ND		16	2.3	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorodecanesulfonic acid (PFDS)	ND		16	4.1	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorododecanesulfonic acid (PFDoS)	ND		16	3.7	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorooctanesulfonamide (FOSA)	ND		16	2.6	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
NMeFOSAA	ND		16	1.8	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
NEtFOSAA	ND		16	3.7	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
4:2 FTS	ND		16	4.0	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
6:2 FTS	ND		16	2.1	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
8:2 FTS	ND		16	2.7	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
NEtFOSA	ND		16	3.7	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
NMeFOSA	ND		16	3.8	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
NMeFOSE	ND		16	3.7	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
NEtFOSE	ND		16	2.2	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
HFPO-DA (GenX)	ND		16	3.2	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Bio B 20230912

Lab Sample ID: 320-104868-2

Date Collected: 09/12/23 07:45

Matrix: Solid

Date Received: 09/14/23 09:30

Percent Solids: 6.4

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
9CI-PF3ONS	ND		16	2.7	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
11CI-PF3OUdS	ND		16	2.4	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		16	3.0	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	121		25 - 150				09/19/23 21:36	09/28/23 12:29	1
13C4 PFBA	93		25 - 150				09/19/23 21:36	09/28/23 12:29	1
13C5 PFPeA	97		25 - 150				09/19/23 21:36	09/28/23 12:29	1
13C2 PFHxA	91		25 - 150				09/19/23 21:36	09/28/23 12:29	1
13C4 PFHpA	102		25 - 150				09/19/23 21:36	09/28/23 12:29	1
13C4 PFOA	96		25 - 150				09/19/23 21:36	09/28/23 12:29	1
13C5 PFNA	102		25 - 150				09/19/23 21:36	09/28/23 12:29	1
13C2 PFDA	93		25 - 150				09/19/23 21:36	09/28/23 12:29	1
13C2 PFUnA	112		25 - 150				09/19/23 21:36	09/28/23 12:29	1
13C2 PFDoA	104		25 - 150				09/19/23 21:36	09/28/23 12:29	1
13C2 PFTeDA	97		25 - 150				09/19/23 21:36	09/28/23 12:29	1
13C3 PFBS	100		25 - 150				09/19/23 21:36	09/28/23 12:29	1
18O2 PFHxS	103		25 - 150				09/19/23 21:36	09/28/23 12:29	1
13C4 PFOS	97		25 - 150				09/19/23 21:36	09/28/23 12:29	1
d3-NMeFOSAA	108		25 - 150				09/19/23 21:36	09/28/23 12:29	1
d5-NEtFOSAA	125		25 - 150				09/19/23 21:36	09/28/23 12:29	1
M2-4:2 FTS	0		0 - 10				09/19/23 21:36	09/28/23 12:29	1
M2-6:2 FTS	99		25 - 150				09/19/23 21:36	09/28/23 12:29	1
M2-8:2 FTS	98		25 - 150				09/19/23 21:36	09/28/23 12:29	1
d-N-MeFOSA-M	85		25 - 150				09/19/23 21:36	09/28/23 12:29	1
d-N-EtFOSA-M	90		25 - 150				09/19/23 21:36	09/28/23 12:29	1
d7-N-MeFOSE-M	85		25 - 150				09/19/23 21:36	09/28/23 12:29	1
d9-N-EtFOSE-M	84		25 - 150				09/19/23 21:36	09/28/23 12:29	1
13C3 HFPO-DA	89		25 - 150				09/19/23 21:36	09/28/23 12:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	93.6		0.1	0.1	%			09/14/23 15:00	1
Percent Solids (ASTM D 2216)	6.4		0.1	0.1	%			09/14/23 15:00	1

Client Sample ID: EB01 20230912

Lab Sample ID: 320-104868-3

Date Collected: 09/12/23 08:05

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.6	2.2	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluoropentanoic acid (PFPA)	ND		1.9	0.45	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluorohexanoic acid (PFHxA)	0.72	J I	1.9	0.54	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.23	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.79	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.51	ng/L		09/25/23 20:23	09/26/23 12:41	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: EB01 20230912

Lab Sample ID: 320-104868-3

Date Collected: 09/12/23 08:05

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.9	0.28	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.53	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.50	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.34	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.90	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.91	ng/L		09/25/23 20:23	09/26/23 12:41	1
NEtFOSA	ND		1.9	0.81	ng/L		09/25/23 20:23	09/26/23 12:41	1
NMeFOSA	ND		1.9	0.40	ng/L		09/25/23 20:23	09/26/23 12:41	1
NMeFOSAA	ND		4.6	1.1	ng/L		09/25/23 20:23	09/26/23 12:41	1
NEtFOSAA	ND		4.6	1.2	ng/L		09/25/23 20:23	09/26/23 12:41	1
NMeFOSE	ND		3.7	1.3	ng/L		09/25/23 20:23	09/26/23 12:41	1
NEtFOSE	ND		1.9	0.79	ng/L		09/25/23 20:23	09/26/23 12:41	1
4:2 FTS	ND		1.9	0.22	ng/L		09/25/23 20:23	09/26/23 12:41	1
6:2 FTS	ND		4.6	2.3	ng/L		09/25/23 20:23	09/26/23 12:41	1
8:2 FTS	ND		1.9	0.43	ng/L		09/25/23 20:23	09/26/23 12:41	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.40	J	1.9	0.37	ng/L		09/25/23 20:23	09/26/23 12:41	1
HFPO-DA (GenX)	ND		3.7	1.4	ng/L		09/25/23 20:23	09/26/23 12:41	1
9CI-PF3ONS	ND		1.9	0.22	ng/L		09/25/23 20:23	09/26/23 12:41	1
11CI-PF3OUdS	ND		1.9	0.30	ng/L		09/25/23 20:23	09/26/23 12:41	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	87		25 - 150	09/25/23 20:23	09/26/23 12:41	1
13C5 PFPeA	106		25 - 150	09/25/23 20:23	09/26/23 12:41	1
13C2 PFHxA	95		25 - 150	09/25/23 20:23	09/26/23 12:41	1
13C4 PFHpA	103		25 - 150	09/25/23 20:23	09/26/23 12:41	1
13C4 PFOA	96		25 - 150	09/25/23 20:23	09/26/23 12:41	1
13C5 PFNA	99		25 - 150	09/25/23 20:23	09/26/23 12:41	1
13C2 PFDA	112		25 - 150	09/25/23 20:23	09/26/23 12:41	1
13C2 PFUnA	102		25 - 150	09/25/23 20:23	09/26/23 12:41	1
13C2 PFDoA	97		25 - 150	09/25/23 20:23	09/26/23 12:41	1
13C2 PFTeDA	85		25 - 150	09/25/23 20:23	09/26/23 12:41	1
13C3 PFBS	104		25 - 150	09/25/23 20:23	09/26/23 12:41	1
18O2 PFHxS	102		25 - 150	09/25/23 20:23	09/26/23 12:41	1
13C4 PFOS	101		25 - 150	09/25/23 20:23	09/26/23 12:41	1
13C8 FOSA	100		10 - 150	09/25/23 20:23	09/26/23 12:41	1
d3-NMeFOSAA	79		25 - 150	09/25/23 20:23	09/26/23 12:41	1
d5-NEtFOSAA	89		25 - 150	09/25/23 20:23	09/26/23 12:41	1
d-N-MeFOSA-M	61		10 - 150	09/25/23 20:23	09/26/23 12:41	1
d-N-EtFOSA-M	59		10 - 150	09/25/23 20:23	09/26/23 12:41	1
d7-N-MeFOSE-M	81		10 - 150	09/25/23 20:23	09/26/23 12:41	1
d9-N-EtFOSE-M	77		10 - 150	09/25/23 20:23	09/26/23 12:41	1
M2-4:2 FTS	96		25 - 150	09/25/23 20:23	09/26/23 12:41	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: EB01 20230912

Lab Sample ID: 320-104868-3

Date Collected: 09/12/23 08:05

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	102		25 - 150	09/25/23 20:23	09/26/23 12:41	1
M2-8:2 FTS	114		25 - 150	09/25/23 20:23	09/26/23 12:41	1
13C3 HFPO-DA	84		25 - 150	09/25/23 20:23	09/26/23 12:41	1

Client Sample ID: Bio A-22-20230912

Lab Sample ID: 320-104868-4

Date Collected: 09/12/23 08:23

Matrix: Solid

Date Received: 09/14/23 09:30

Percent Solids: 27.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	3.0		3.0	0.68	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluoropentanoic acid (PFPA)	7.6		3.0	0.61	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorohexanoic acid (PFHxA)	15	B	3.0	0.46	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluoroheptanoic acid (PFHpA)	1.2	J	3.0	0.57	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorooctanoic acid (PFOA)	9.2		3.0	0.79	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorononanoic acid (PFNA)	0.90	J	3.0	0.33	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorodecanoic acid (PFDA)	7.4		3.0	0.71	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluoroundecanoic acid (PFUnA)	1.0	J	3.0	0.62	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorododecanoic acid (PFDoA)	3.0		3.0	0.45	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorotridecanoic acid (PFTTrDA)	ND	F1	3.0	0.31	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorotetradecanoic acid (PFTTeA)	0.71	J	3.0	0.55	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorobutanesulfonic acid (PFBS)	1.1	J I	3.0	0.57	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.0	0.55	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorohexanesulfonic acid (PFHxS)	ND		3.0	0.43	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.0	0.73	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorooctanesulfonic acid (PFOS)	9.9		3.0	0.64	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorononanesulfonic acid (PFNS)	ND		3.0	0.43	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorodecanesulfonic acid (PFDS)	1.4	J I	3.0	0.77	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.0	0.70	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorooctanesulfonamide (FOSA)	1.1	J	3.0	0.49	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
NEtFOSA	ND		3.0	0.70	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
NMeFOSA	ND		3.0	0.73	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
NMeFOSAA	20		3.0	0.34	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
NEtFOSAA	6.5		3.0	0.71	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
NMeFOSE	19		3.0	0.70	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
NEtFOSE	10	F1	3.0	0.42	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
4:2 FTS	ND		3.0	0.76	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
6:2 FTS	0.90	J	3.0	0.40	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
8:2 FTS	0.88	J	3.0	0.52	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.0	0.58	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
HFPO-DA (GenX)	ND		3.0	0.61	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
9CI-PF3ONS	ND		3.0	0.52	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Bio A-22-20230912

Lab Sample ID: 320-104868-4

Date Collected: 09/12/23 08:23

Matrix: Solid

Date Received: 09/14/23 09:30

Percent Solids: 27.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
11CI-PF3OUdS	ND	F1	3.0	0.46	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFBA	82		25 - 150				09/27/23 20:00	09/29/23 02:45	1
13C5 PFPeA	83		25 - 150				09/27/23 20:00	09/29/23 02:45	1
13C2 PFHxA	82		25 - 150				09/27/23 20:00	09/29/23 02:45	1
13C4 PFHpA	92		25 - 150				09/27/23 20:00	09/29/23 02:45	1
13C4 PFOA	94		25 - 150				09/27/23 20:00	09/29/23 02:45	1
13C5 PFNA	91		25 - 150				09/27/23 20:00	09/29/23 02:45	1
13C2 PFDA	80		25 - 150				09/27/23 20:00	09/29/23 02:45	1
13C2 PFUnA	79		25 - 150				09/27/23 20:00	09/29/23 02:45	1
13C2 PFDoA	47		25 - 150				09/27/23 20:00	09/29/23 02:45	1
13C2 PFTeDA	40		25 - 150				09/27/23 20:00	09/29/23 02:45	1
13C3 PFBS	84		25 - 150				09/27/23 20:00	09/29/23 02:45	1
18O2 PFHxS	93		25 - 150				09/27/23 20:00	09/29/23 02:45	1
13C4 PFOS	90		25 - 150				09/27/23 20:00	09/29/23 02:45	1
13C8 FOSA	85		10 - 150				09/27/23 20:00	09/29/23 02:45	1
d3-NMeFOSAA	51		25 - 150				09/27/23 20:00	09/29/23 02:45	1
d5-NEtFOSAA	58		25 - 150				09/27/23 20:00	09/29/23 02:45	1
d-N-MeFOSA-M	32		10 - 150				09/27/23 20:00	09/29/23 02:45	1
d-N-EtFOSA-M	44		10 - 150				09/27/23 20:00	09/29/23 02:45	1
d7-N-MeFOSE-M	35		10 - 150				09/27/23 20:00	09/29/23 02:45	1
d9-N-EtFOSE-M	26		10 - 150				09/27/23 20:00	09/29/23 02:45	1
M2-4:2 FTS	110		25 - 150				09/27/23 20:00	09/29/23 02:45	1
M2-6:2 FTS	133		25 - 150				09/27/23 20:00	09/29/23 02:45	1
M2-8:2 FTS	82		25 - 150				09/27/23 20:00	09/29/23 02:45	1
13C3 HFPO-DA	83		25 - 150				09/27/23 20:00	09/29/23 02:45	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	3.4	J	3.5	0.80	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluoropentanoic acid (PFPA)	10		3.5	0.72	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluorohexanoic acid (PFHxA)	18		3.5	0.54	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluoroheptanoic acid (PFHpA)	1.4	J	3.5	0.66	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluorooctanoic acid (PFOA)	9.5		3.5	0.93	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluorononanoic acid (PFNA)	1.0	J	3.5	0.38	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluorodecanoic acid (PFDA)	7.7		3.5	0.84	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluoroundecanoic acid (PFUnA)	1.3	J	3.5	0.73	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluorododecanoic acid (PFDoA)	3.5		3.5	0.52	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluorotridecanoic acid (PFTTrDA)	ND	*+	3.5	0.37	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluorotetradecanoic acid (PFTeA)	1.0	J I	3.5	0.65	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluorobutanesulfonic acid (PFBS)	4.4		3.5	0.66	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.5	0.65	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluorohexanesulfonic acid (PFHxS)	4.1	I	3.5	0.51	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.5	0.86	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Bio A-22-20230912

Lab Sample ID: 320-104868-4

Date Collected: 09/12/23 08:23

Matrix: Solid

Date Received: 09/14/23 09:30

Percent Solids: 27.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	21	I	3.5	0.75	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluorononanesulfonic acid (PFNS)	ND		3.5	0.51	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluorodecanesulfonic acid (PFDS)	1.6	J	3.5	0.91	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.5	0.82	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluorooctanesulfonamide (FOSA)	1.0	J	3.5	0.58	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
NMeFOSA	ND		3.5	0.86	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
NEtFOSA	ND		3.5	0.82	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
NMeFOSAA	15		3.5	0.40	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
NEtFOSAA	4.3		3.5	0.84	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
NMeFOSE	7.5		3.5	0.82	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
NEtFOSE	7.8		3.5	0.49	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
4:2 FTS	ND		3.5	0.89	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
6:2 FTS	1.6	J	3.5	0.47	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
8:2 FTS	1.1	J	3.5	0.61	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
HFPO-DA (GenX)	ND		3.5	0.72	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
9CI-PF3ONS	ND		3.5	0.61	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
11CI-PF3OUdS	ND		3.5	0.54	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
4,8-Dioxa-3H-perfluoronanoic acid (ADONA)	ND		3.5	0.68	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	96		25 - 150	09/19/23 21:36	09/28/23 14:32	1
13C5 PFPeA	96		25 - 150	09/19/23 21:36	09/28/23 14:32	1
13C2 PFHxA	100		25 - 150	09/19/23 21:36	09/28/23 14:32	1
13C4 PFHpA	105		25 - 150	09/19/23 21:36	09/28/23 14:32	1
13C4 PFOA	105		25 - 150	09/19/23 21:36	09/28/23 14:32	1
13C5 PFNA	104		25 - 150	09/19/23 21:36	09/28/23 14:32	1
13C2 PFDA	94		25 - 150	09/19/23 21:36	09/28/23 14:32	1
13C2 PFUnA	89		25 - 150	09/19/23 21:36	09/28/23 14:32	1
13C2 PFDoA	42		25 - 150	09/19/23 21:36	09/28/23 14:32	1
13C2 PFTeDA	12	*5-	25 - 150	09/19/23 21:36	09/28/23 14:32	1
13C3 PFBS	107		25 - 150	09/19/23 21:36	09/28/23 14:32	1
18O2 PFHxS	102		25 - 150	09/19/23 21:36	09/28/23 14:32	1
13C4 PFOS	98		25 - 150	09/19/23 21:36	09/28/23 14:32	1
13C8 FOSA	101		25 - 150	09/19/23 21:36	09/28/23 14:32	1
M2-4:2 FTS	128		25 - 150	09/19/23 21:36	09/28/23 14:32	1
M2-6:2 FTS	137		25 - 150	09/19/23 21:36	09/28/23 14:32	1
M2-8:2 FTS	140		25 - 150	09/19/23 21:36	09/28/23 14:32	1
13C3 HFPO-DA	91		25 - 150	09/19/23 21:36	09/28/23 14:32	1
d3-NMeFOSAA	79		25 - 150	09/19/23 21:36	09/28/23 14:32	1
d5-NEtFOSAA	103		25 - 150	09/19/23 21:36	09/28/23 14:32	1
d-N-MeFOSA-M	50		25 - 150	09/19/23 21:36	09/28/23 14:32	1
d-N-EtFOSA-M	46		25 - 150	09/19/23 21:36	09/28/23 14:32	1
d7-N-MeFOSE-M	56		25 - 150	09/19/23 21:36	09/28/23 14:32	1
d9-N-EtFOSE-M	41		25 - 150	09/19/23 21:36	09/28/23 14:32	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Bio A-22-20230912

Lab Sample ID: 320-104868-4

Date Collected: 09/12/23 08:23

Matrix: Solid

Date Received: 09/14/23 09:30

Percent Solids: 27.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	170		3.6	0.83	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluoropentanoic acid (PFPA)	91	B **	3.6	0.74	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorohexanoic acid (PFHxA)	70	**	3.6	0.56	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluoroheptanoic acid (PFHpA)	31	**	3.6	0.68	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorooctanoic acid (PFOA)	52		3.6	0.96	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorononanoic acid (PFNA)	15	**	3.6	0.40	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorodecanoic acid (PFDA)	17	**	3.6	0.86	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluoroundecanoic acid (PFUnA)	5.8		3.6	0.75	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorododecanoic acid (PFDoA)	6.0		3.6	0.54	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorotridecanoic acid (PFTrDA)	1.5	J	3.6	0.38	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorotetradecanoic acid (PFTeA)	2.1	J	3.6	0.66	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorobutanesulfonic acid (PFBS)	28		3.6	0.68	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.6	0.66	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorohexanesulfonic acid (PFHxS)	3.3	J	3.6	0.52	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.6	0.88	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorooctanesulfonic acid (PFOS)	21		3.6	0.78	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorononanesulfonic acid (PFNS)	ND		3.6	0.52	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorodecanesulfonic acid (PFDS)	1.2	J	3.6	0.93	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.6	0.85	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorooctanesulfonamide (FOSA)	ND		3.6	0.59	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
NMeFOSAA	ND		3.6	0.41	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
NEtFOSAA	ND		3.6	0.86	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
4:2 FTS	ND		3.6	0.92	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
6:2 FTS	ND		3.6	0.49	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
8:2 FTS	ND		3.6	0.63	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
NEtFOSA	ND		3.6	0.85	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
NMeFOSA	ND		3.6	0.88	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
NMeFOSE	ND		3.6	0.85	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
NEtFOSE	ND		3.6	0.50	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
HFPO-DA (GenX)	ND		3.6	0.74	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
9Cl-PF3ONS	ND		3.6	0.63	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
11Cl-PF3OUdS	ND		3.6	0.56	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.6	0.70	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	119		25 - 150	09/19/23 21:36	09/28/23 12:40	1
13C4 PFBA	95		25 - 150	09/19/23 21:36	09/28/23 12:40	1
13C5 PFPeA	98		25 - 150	09/19/23 21:36	09/28/23 12:40	1
13C2 PFHxA	94		25 - 150	09/19/23 21:36	09/28/23 12:40	1
13C4 PFHpA	108		25 - 150	09/19/23 21:36	09/28/23 12:40	1
13C4 PFOA	101		25 - 150	09/19/23 21:36	09/28/23 12:40	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Bio A-22-20230912

Lab Sample ID: 320-104868-4

Date Collected: 09/12/23 08:23

Matrix: Solid

Date Received: 09/14/23 09:30

Percent Solids: 27.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFNA	101		25 - 150	09/19/23 21:36	09/28/23 12:40	1
13C2 PFDA	96		25 - 150	09/19/23 21:36	09/28/23 12:40	1
13C2 PFUnA	104		25 - 150	09/19/23 21:36	09/28/23 12:40	1
13C2 PFDoA	94		25 - 150	09/19/23 21:36	09/28/23 12:40	1
13C2 PFTeDA	87		25 - 150	09/19/23 21:36	09/28/23 12:40	1
13C3 PFBS	105		25 - 150	09/19/23 21:36	09/28/23 12:40	1
18O2 PFHxS	103		25 - 150	09/19/23 21:36	09/28/23 12:40	1
13C4 PFOS	95		25 - 150	09/19/23 21:36	09/28/23 12:40	1
d3-NMeFOSAA	105		25 - 150	09/19/23 21:36	09/28/23 12:40	1
d5-NEtFOSAA	126		25 - 150	09/19/23 21:36	09/28/23 12:40	1
M2-4:2 FTS	0		0 - 10	09/19/23 21:36	09/28/23 12:40	1
M2-6:2 FTS	91		25 - 150	09/19/23 21:36	09/28/23 12:40	1
M2-8:2 FTS	100		25 - 150	09/19/23 21:36	09/28/23 12:40	1
d-N-MeFOSA-M	85		25 - 150	09/19/23 21:36	09/28/23 12:40	1
d-N-EtFOSA-M	95		25 - 150	09/19/23 21:36	09/28/23 12:40	1
d7-N-MeFOSE-M	83		25 - 150	09/19/23 21:36	09/28/23 12:40	1
d9-N-EtFOSE-M	86		25 - 150	09/19/23 21:36	09/28/23 12:40	1
13C3 HFPO-DA	95		25 - 150	09/19/23 21:36	09/28/23 12:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	72.4		0.1	0.1	%			09/14/23 15:00	1
Percent Solids (ASTM D 2216)	27.6		0.1	0.1	%			09/14/23 15:00	1

Client Sample ID: Eff 20230912

Lab Sample ID: 320-104868-5

Date Collected: 09/12/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	6.6		4.8	2.3	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluoropentanoic acid (PFPA)	21		1.9	0.47	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluorohexanoic acid (PFHxA)	22		1.9	0.56	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluoroheptanoic acid (PFHpA)	2.1		1.9	0.24	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluorooctanoic acid (PFOA)	7.8		1.9	0.82	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluorononanoic acid (PFNA)	0.63	J	1.9	0.26	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluorodecanoic acid (PFDA)	1.1	J	1.9	0.30	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.9	1.3	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.71	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluorobutanesulfonic acid (PFBS)	6.8	I	1.9	0.19	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluoropentanesulfonic acid (PFPeS)	0.83	J	1.9	0.29	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluorohexanesulfonic acid (PFHxS)	7.3		1.9	0.55	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluorooctanesulfonic acid (PFOS)	5.2		1.9	0.52	ng/L		09/25/23 20:23	09/26/23 12:51	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Eff 20230912

Lab Sample ID: 320-104868-5

Date Collected: 09/12/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.36	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.31	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.94	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.95	ng/L		09/25/23 20:23	09/26/23 12:51	1
NEtFOSA	ND		1.9	0.84	ng/L		09/25/23 20:23	09/26/23 12:51	1
NMeFOSA	ND		1.9	0.42	ng/L		09/25/23 20:23	09/26/23 12:51	1
NMeFOSAA	1.2	J	4.8	1.2	ng/L		09/25/23 20:23	09/26/23 12:51	1
NEtFOSAA	ND		4.8	1.3	ng/L		09/25/23 20:23	09/26/23 12:51	1
NMeFOSE	ND		3.9	1.4	ng/L		09/25/23 20:23	09/26/23 12:51	1
NEtFOSE	ND		1.9	0.82	ng/L		09/25/23 20:23	09/26/23 12:51	1
4:2 FTS	ND		1.9	0.23	ng/L		09/25/23 20:23	09/26/23 12:51	1
6:2 FTS	ND		4.8	2.4	ng/L		09/25/23 20:23	09/26/23 12:51	1
8:2 FTS	ND		1.9	0.45	ng/L		09/25/23 20:23	09/26/23 12:51	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.39	ng/L		09/25/23 20:23	09/26/23 12:51	1
HFPO-DA (GenX)	ND		3.9	1.5	ng/L		09/25/23 20:23	09/26/23 12:51	1
9CI-PF3ONS	ND		1.9	0.23	ng/L		09/25/23 20:23	09/26/23 12:51	1
11CI-PF3OUdS	ND		1.9	0.31	ng/L		09/25/23 20:23	09/26/23 12:51	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFBA	44		25 - 150				09/25/23 20:23	09/26/23 12:51	1
13C5 PFPeA	54		25 - 150				09/25/23 20:23	09/26/23 12:51	1
13C2 PFHxA	87		25 - 150				09/25/23 20:23	09/26/23 12:51	1
13C4 PFHpA	104		25 - 150				09/25/23 20:23	09/26/23 12:51	1
13C4 PFOA	96		25 - 150				09/25/23 20:23	09/26/23 12:51	1
13C5 PFNA	95		25 - 150				09/25/23 20:23	09/26/23 12:51	1
13C2 PFDA	96		25 - 150				09/25/23 20:23	09/26/23 12:51	1
13C2 PFUnA	83		25 - 150				09/25/23 20:23	09/26/23 12:51	1
13C2 PFDoA	68		25 - 150				09/25/23 20:23	09/26/23 12:51	1
13C2 PFTeDA	44		25 - 150				09/25/23 20:23	09/26/23 12:51	1
13C3 PFBS	72		25 - 150				09/25/23 20:23	09/26/23 12:51	1
18O2 PFHxS	83		25 - 150				09/25/23 20:23	09/26/23 12:51	1
13C4 PFOS	87		25 - 150				09/25/23 20:23	09/26/23 12:51	1
13C8 FOSA	90		10 - 150				09/25/23 20:23	09/26/23 12:51	1
d3-NMeFOSAA	72		25 - 150				09/25/23 20:23	09/26/23 12:51	1
d5-NEtFOSAA	74		25 - 150				09/25/23 20:23	09/26/23 12:51	1
d-N-MeFOSA-M	57		10 - 150				09/25/23 20:23	09/26/23 12:51	1
d-N-EtFOSA-M	51		10 - 150				09/25/23 20:23	09/26/23 12:51	1
d7-N-MeFOSE-M	57		10 - 150				09/25/23 20:23	09/26/23 12:51	1
d9-N-EtFOSE-M	56		10 - 150				09/25/23 20:23	09/26/23 12:51	1
M2-4:2 FTS	90		25 - 150				09/25/23 20:23	09/26/23 12:51	1
M2-6:2 FTS	93		25 - 150				09/25/23 20:23	09/26/23 12:51	1
M2-8:2 FTS	86		25 - 150				09/25/23 20:23	09/26/23 12:51	1
13C3 HFPO-DA	81		25 - 150				09/25/23 20:23	09/26/23 12:51	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	8.3	J	13	6.0	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluoropentanoic acid (PFPA)	20		5.0	1.2	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorohexanoic acid (PFHxA)	20		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 21:50	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Eff 20230912

Lab Sample ID: 320-104868-5

Date Collected: 09/12/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	2.5	J	5.0	0.63	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorooctanoic acid (PFOA)	8.5		5.0	2.1	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorodecanoic acid (PFDA)	0.99	J	5.0	0.78	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorotetradecanoic acid (PFTeA)	1.2	J I	5.0	0.73	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorobutanesulfonic acid (PFBS)	4.4	J I	5.0	0.50	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorohexanesulfonic acid (PFHxS)	7.0		5.0	0.43	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorooctanesulfonic acid (PFOS)	5.1		5.0	0.80	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorooctanesulfonamide (FOSA)	1.0	J	5.0	0.88	ng/L		09/19/23 23:06	09/28/23 21:50	1
NMeFOSAA	ND		13	3.0	ng/L		09/19/23 23:06	09/28/23 21:50	1
NEtFOSAA	ND		13	3.3	ng/L		09/19/23 23:06	09/28/23 21:50	1
4:2 FTS	ND		5.0	0.60	ng/L		09/19/23 23:06	09/28/23 21:50	1
6:2 FTS	ND		13	6.3	ng/L		09/19/23 23:06	09/28/23 21:50	1
8:2 FTS	ND		5.0	1.2	ng/L		09/19/23 23:06	09/28/23 21:50	1
NEtFOSA	ND		5.0	2.2	ng/L		09/19/23 23:06	09/28/23 21:50	1
NMeFOSA	ND		5.0	1.1	ng/L		09/19/23 23:06	09/28/23 21:50	1
NMeFOSE	ND		10	3.5	ng/L		09/19/23 23:06	09/28/23 21:50	1
NEtFOSE	4.5	J	5.0	2.2	ng/L		09/19/23 23:06	09/28/23 21:50	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		09/19/23 23:06	09/28/23 21:50	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		09/19/23 23:06	09/28/23 21:50	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		09/19/23 23:06	09/28/23 21:50	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		09/19/23 23:06	09/28/23 21:50	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	111		25 - 150	09/19/23 23:06	09/28/23 21:50	1
13C4 PFBA	82		25 - 150	09/19/23 23:06	09/28/23 21:50	1
13C5 PFPeA	94		25 - 150	09/19/23 23:06	09/28/23 21:50	1
13C2 PFHxA	95		25 - 150	09/19/23 23:06	09/28/23 21:50	1
13C4 PFHpA	103		25 - 150	09/19/23 23:06	09/28/23 21:50	1
13C4 PFOA	95		25 - 150	09/19/23 23:06	09/28/23 21:50	1
13C5 PFNA	101		25 - 150	09/19/23 23:06	09/28/23 21:50	1
13C2 PFDA	96		25 - 150	09/19/23 23:06	09/28/23 21:50	1
13C2 PFUnA	82		25 - 150	09/19/23 23:06	09/28/23 21:50	1
13C2 PFDoA	44		25 - 150	09/19/23 23:06	09/28/23 21:50	1
13C2 PFTeDA	50		25 - 150	09/19/23 23:06	09/28/23 21:50	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Eff 20230912

Lab Sample ID: 320-104868-5

Date Collected: 09/12/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	98		25 - 150	09/19/23 23:06	09/28/23 21:50	1
18O2 PFHxS	107		25 - 150	09/19/23 23:06	09/28/23 21:50	1
13C4 PFOS	91		25 - 150	09/19/23 23:06	09/28/23 21:50	1
d3-NMeFOSAA	81		25 - 150	09/19/23 23:06	09/28/23 21:50	1
d5-NEtFOSAA	96		25 - 150	09/19/23 23:06	09/28/23 21:50	1
M2-4:2 FTS	115		25 - 150	09/19/23 23:06	09/28/23 21:50	1
M2-6:2 FTS	120		25 - 150	09/19/23 23:06	09/28/23 21:50	1
M2-8:2 FTS	123		25 - 150	09/19/23 23:06	09/28/23 21:50	1
d-N-MeFOSA-M	70		25 - 150	09/19/23 23:06	09/28/23 21:50	1
d-N-EtFOSA-M	60		25 - 150	09/19/23 23:06	09/28/23 21:50	1
d7-N-MeFOSE-M	68		25 - 150	09/19/23 23:06	09/28/23 21:50	1
d9-N-EtFOSE-M	58		25 - 150	09/19/23 23:06	09/28/23 21:50	1
13C3 HFPO-DA	78		25 - 150	09/19/23 23:06	09/28/23 21:50	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	37	B **	13	6.0	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluoropentanoic acid (PFPA)	25	**	5.0	1.2	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorohexanoic acid (PFHxA)	21	**	5.0	1.4	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluoroheptanoic acid (PFHpA)	3.3	J **	5.0	0.63	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorooctanoic acid (PFOA)	9.3		5.0	2.1	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorononanoic acid (PFNA)	0.69	J **	5.0	0.68	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorodecanoic acid (PFDA)	1.1	J **	5.0	0.78	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorododecanoic acid (PFDoA)	ND	**	5.0	1.4	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorotridecanoic acid (PFTrDA)	ND	**	5.0	3.2	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorobutanesulfonic acid (PFBS)	2.7	J	5.0	0.50	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorohexanesulfonic acid (PFHxS)	6.8		5.0	0.43	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorooctanesulfonic acid (PFOS)	4.2	J	5.0	0.80	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		09/19/23 20:05	09/28/23 16:24	1
NMeFOSAA	ND		13	3.0	ng/L		09/19/23 20:05	09/28/23 16:24	1
NEtFOSAA	ND		13	3.3	ng/L		09/19/23 20:05	09/28/23 16:24	1
4:2 FTS	ND		5.0	0.60	ng/L		09/19/23 20:05	09/28/23 16:24	1
6:2 FTS	ND		13	6.3	ng/L		09/19/23 20:05	09/28/23 16:24	1
8:2 FTS	ND		5.0	1.2	ng/L		09/19/23 20:05	09/28/23 16:24	1
NEtFOSA	ND		5.0	2.2	ng/L		09/19/23 20:05	09/28/23 16:24	1
NMeFOSA	ND		5.0	1.1	ng/L		09/19/23 20:05	09/28/23 16:24	1
NMeFOSE	ND		10	3.5	ng/L		09/19/23 20:05	09/28/23 16:24	1
NEtFOSE	ND		5.0	2.2	ng/L		09/19/23 20:05	09/28/23 16:24	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Eff 20230912

Lab Sample ID: 320-104868-5

Date Collected: 09/12/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA (GenX)	ND		10	3.8	ng/L		09/19/23 20:05	09/28/23 16:24	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		09/19/23 20:05	09/28/23 16:24	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		09/19/23 20:05	09/28/23 16:24	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		09/19/23 20:05	09/28/23 16:24	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	110		25 - 150				09/19/23 20:05	09/28/23 16:24	1
13C4 PFBA	50		25 - 150				09/19/23 20:05	09/28/23 16:24	1
13C5 PFPeA	97		25 - 150				09/19/23 20:05	09/28/23 16:24	1
13C2 PFHxA	95		25 - 150				09/19/23 20:05	09/28/23 16:24	1
13C4 PFHpA	97		25 - 150				09/19/23 20:05	09/28/23 16:24	1
13C4 PFOA	94		25 - 150				09/19/23 20:05	09/28/23 16:24	1
13C5 PFNA	92		25 - 150				09/19/23 20:05	09/28/23 16:24	1
13C2 PFDA	92		25 - 150				09/19/23 20:05	09/28/23 16:24	1
13C2 PFUnA	93		25 - 150				09/19/23 20:05	09/28/23 16:24	1
13C2 PFDoA	73		25 - 150				09/19/23 20:05	09/28/23 16:24	1
13C2 PFTeDA	94		25 - 150				09/19/23 20:05	09/28/23 16:24	1
13C3 PFBS	100		25 - 150				09/19/23 20:05	09/28/23 16:24	1
18O2 PFHxS	98		25 - 150				09/19/23 20:05	09/28/23 16:24	1
13C4 PFOS	89		25 - 150				09/19/23 20:05	09/28/23 16:24	1
d3-NMeFOSAA	88		25 - 150				09/19/23 20:05	09/28/23 16:24	1
d5-NEtFOSAA	109		25 - 150				09/19/23 20:05	09/28/23 16:24	1
M2-4:2 FTS	0		0 - 10				09/19/23 20:05	09/28/23 16:24	1
M2-6:2 FTS	89		25 - 150				09/19/23 20:05	09/28/23 16:24	1
M2-8:2 FTS	97		25 - 150				09/19/23 20:05	09/28/23 16:24	1
d-N-MeFOSA-M	89		25 - 150				09/19/23 20:05	09/28/23 16:24	1
d-N-EtFOSA-M	82		25 - 150				09/19/23 20:05	09/28/23 16:24	1
d7-N-MeFOSE-M	79		25 - 150				09/19/23 20:05	09/28/23 16:24	1
d9-N-EtFOSE-M	76		25 - 150				09/19/23 20:05	09/28/23 16:24	1
13C3 HFPO-DA	88		25 - 150				09/19/23 20:05	09/28/23 16:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	5.8		5.0	1.9	mg/L			09/19/23 15:53	1

Client Sample ID: Inf02 20230911

Lab Sample ID: 320-104869-1

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	3.3	J	4.9	2.3	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluoropentanoic acid (PFPA)	3.4		2.0	0.48	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluorohexanoic acid (PFHxA)	6.4	I	2.0	0.57	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluoroheptanoic acid (PFHpA)	1.4	J	2.0	0.24	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluorooctanoic acid (PFOA)	3.0		2.0	0.83	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluorononanoic acid (PFNA)	0.64	J	2.0	0.26	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluorodecanoic acid (PFDA)	0.69	J	2.0	0.30	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		09/25/23 20:23	09/28/23 21:00	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf02 20230911

Lab Sample ID: 320-104869-1

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.54	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.71	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluorobutanesulfonic acid (PFBS)	1.7	J I	2.0	0.20	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.29	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluorohexanesulfonic acid (PFHxS)	3.5		2.0	0.56	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.19	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.53	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.36	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.31	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.95	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.96	ng/L		09/25/23 20:23	09/28/23 21:00	1
NEtFOSA	ND		2.0	0.85	ng/L		09/25/23 20:23	09/28/23 21:00	1
NMeFOSA	ND		2.0	0.42	ng/L		09/25/23 20:23	09/28/23 21:00	1
NMeFOSAA	ND		4.9	1.2	ng/L		09/25/23 20:23	09/28/23 21:00	1
NEtFOSAA	ND		4.9	1.3	ng/L		09/25/23 20:23	09/28/23 21:00	1
NMeFOSE	ND		3.9	1.4	ng/L		09/25/23 20:23	09/28/23 21:00	1
NEtFOSE	ND		2.0	0.83	ng/L		09/25/23 20:23	09/28/23 21:00	1
4:2 FTS	ND		2.0	0.23	ng/L		09/25/23 20:23	09/28/23 21:00	1
6:2 FTS	ND		4.9	2.4	ng/L		09/25/23 20:23	09/28/23 21:00	1
8:2 FTS	ND		2.0	0.45	ng/L		09/25/23 20:23	09/28/23 21:00	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.39	ng/L		09/25/23 20:23	09/28/23 21:00	1
HFPO-DA (GenX)	ND		3.9	1.5	ng/L		09/25/23 20:23	09/28/23 21:00	1
9Cl-PF3ONS	ND		2.0	0.23	ng/L		09/25/23 20:23	09/28/23 21:00	1
11Cl-PF3OUdS	ND		2.0	0.31	ng/L		09/25/23 20:23	09/28/23 21:00	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	39		25 - 150				09/25/23 20:23	09/28/23 21:00	1
13C5 PFPeA	46		25 - 150				09/25/23 20:23	09/28/23 21:00	1
13C2 PFHxA	60		25 - 150				09/25/23 20:23	09/28/23 21:00	1
13C4 PFHpA	112		25 - 150				09/25/23 20:23	09/28/23 21:00	1
13C4 PFOA	100		25 - 150				09/25/23 20:23	09/28/23 21:00	1
13C5 PFNA	102		25 - 150				09/25/23 20:23	09/28/23 21:00	1
13C2 PFDA	99		25 - 150				09/25/23 20:23	09/28/23 21:00	1
13C2 PFUnA	74		25 - 150				09/25/23 20:23	09/28/23 21:00	1
13C2 PFDoA	55		25 - 150				09/25/23 20:23	09/28/23 21:00	1
13C2 PFTeDA	35		25 - 150				09/25/23 20:23	09/28/23 21:00	1
13C3 PFBS	61		25 - 150				09/25/23 20:23	09/28/23 21:00	1
18O2 PFHxS	89		25 - 150				09/25/23 20:23	09/28/23 21:00	1
13C4 PFOS	94		25 - 150				09/25/23 20:23	09/28/23 21:00	1
13C8 FOSA	74		10 - 150				09/25/23 20:23	09/28/23 21:00	1
d3-NMeFOSAA	39		25 - 150				09/25/23 20:23	09/28/23 21:00	1
d5-NEtFOSAA	58		25 - 150				09/25/23 20:23	09/28/23 21:00	1
d-N-MeFOSA-M	15		10 - 150				09/25/23 20:23	09/28/23 21:00	1
d-N-EtFOSA-M	30		10 - 150				09/25/23 20:23	09/28/23 21:00	1
d7-N-MeFOSE-M	25		10 - 150				09/25/23 20:23	09/28/23 21:00	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf02 20230911

Lab Sample ID: 320-104869-1

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d9-N-EtFOSE-M	50		10 - 150	09/25/23 20:23	09/28/23 21:00	1
M2-4:2 FTS	51		25 - 150	09/25/23 20:23	09/28/23 21:00	1
M2-6:2 FTS	147		25 - 150	09/25/23 20:23	09/28/23 21:00	1
M2-8:2 FTS	124		25 - 150	09/25/23 20:23	09/28/23 21:00	1
13C3 HFPO-DA	89		25 - 150	09/25/23 20:23	09/28/23 21:00	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		13	6.0	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluoropentanoic acid (PFPA)	4.9	J	5.0	1.2	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorohexanoic acid (PFHxA)	5.4		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluoroheptanoic acid (PFHpA)	1.7	J	5.0	0.63	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorooctanoic acid (PFOA)	3.3	J	5.0	2.1	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorodecanoic acid (PFDA)	0.97	J	5.0	0.78	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0	0.50	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0	0.43	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.0	0.80	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		09/19/23 23:06	09/28/23 22:01	1
NMeFOSAA	ND		13	3.0	ng/L		09/19/23 23:06	09/28/23 22:01	1
NEtFOSAA	ND		13	3.3	ng/L		09/19/23 23:06	09/28/23 22:01	1
4:2 FTS	ND		5.0	0.60	ng/L		09/19/23 23:06	09/28/23 22:01	1
6:2 FTS	ND		13	6.3	ng/L		09/19/23 23:06	09/28/23 22:01	1
8:2 FTS	ND		5.0	1.2	ng/L		09/19/23 23:06	09/28/23 22:01	1
NEtFOSA	ND		5.0	2.2	ng/L		09/19/23 23:06	09/28/23 22:01	1
NMeFOSA	ND		5.0	1.1	ng/L		09/19/23 23:06	09/28/23 22:01	1
NMeFOSE	4.8	J	10	3.5	ng/L		09/19/23 23:06	09/28/23 22:01	1
NEtFOSE	9.4		5.0	2.2	ng/L		09/19/23 23:06	09/28/23 22:01	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		09/19/23 23:06	09/28/23 22:01	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		09/19/23 23:06	09/28/23 22:01	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		09/19/23 23:06	09/28/23 22:01	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		09/19/23 23:06	09/28/23 22:01	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	82		25 - 150	09/19/23 23:06	09/28/23 22:01	1
13C4 PFBA	76		25 - 150	09/19/23 23:06	09/28/23 22:01	1
13C5 PFPeA	86		25 - 150	09/19/23 23:06	09/28/23 22:01	1
13C2 PFHxA	92		25 - 150	09/19/23 23:06	09/28/23 22:01	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf02 20230911

Lab Sample ID: 320-104869-1

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFHpA	93		25 - 150	09/19/23 23:06	09/28/23 22:01	1
13C4 PFOA	94		25 - 150	09/19/23 23:06	09/28/23 22:01	1
13C5 PFNA	96		25 - 150	09/19/23 23:06	09/28/23 22:01	1
13C2 PFDA	84		25 - 150	09/19/23 23:06	09/28/23 22:01	1
13C2 PFUnA	71		25 - 150	09/19/23 23:06	09/28/23 22:01	1
13C2 PFDoA	38		25 - 150	09/19/23 23:06	09/28/23 22:01	1
13C2 PFTeDA	34		25 - 150	09/19/23 23:06	09/28/23 22:01	1
13C3 PFBS	89		25 - 150	09/19/23 23:06	09/28/23 22:01	1
18O2 PFHxS	92		25 - 150	09/19/23 23:06	09/28/23 22:01	1
13C4 PFOS	86		25 - 150	09/19/23 23:06	09/28/23 22:01	1
d3-NMeFOSAA	58		25 - 150	09/19/23 23:06	09/28/23 22:01	1
d5-NEtFOSAA	63		25 - 150	09/19/23 23:06	09/28/23 22:01	1
M2-4:2 FTS	105		25 - 150	09/19/23 23:06	09/28/23 22:01	1
M2-6:2 FTS	132		25 - 150	09/19/23 23:06	09/28/23 22:01	1
M2-8:2 FTS	97		25 - 150	09/19/23 23:06	09/28/23 22:01	1
d-N-MeFOSA-M	50		25 - 150	09/19/23 23:06	09/28/23 22:01	1
d-N-EtFOSA-M	46		25 - 150	09/19/23 23:06	09/28/23 22:01	1
d7-N-MeFOSE-M	57		25 - 150	09/19/23 23:06	09/28/23 22:01	1
d9-N-EtFOSE-M	43		25 - 150	09/19/23 23:06	09/28/23 22:01	1
13C3 HFPO-DA	74		25 - 150	09/19/23 23:06	09/28/23 22:01	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	33	B **	13	6.0	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluoropentanoic acid (PFPA)	33	**	5.0	1.2	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorohexanoic acid (PFHxA)	18	**	5.0	1.4	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluoroheptanoic acid (PFHpA)	7.3	**	5.0	0.63	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorooctanoic acid (PFOA)	7.2		5.0	2.1	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorononanoic acid (PFNA)	1.8	J **	5.0	0.68	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorodecanoic acid (PFDA)	1.6	J **	5.0	0.78	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorododecanoic acid (PFDoA)	ND	**	5.0	1.4	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorotridecanoic acid (PFTrDA)	ND	**	5.0	3.2	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorobutanesulfonic acid (PFBS)	1.6	J	5.0	0.50	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorohexanesulfonic acid (PFHxS)	3.1	J	5.0	0.43	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorooctanesulfonic acid (PFOS)	2.8	J	5.0	0.80	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		09/19/23 20:05	09/28/23 16:35	1
NMeFOSAA	ND		13	3.0	ng/L		09/19/23 20:05	09/28/23 16:35	1
NEtFOSAA	ND		13	3.3	ng/L		09/19/23 20:05	09/28/23 16:35	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf02 20230911

Lab Sample ID: 320-104869-1

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 FTS	ND		5.0	0.60	ng/L		09/19/23 20:05	09/28/23 16:35	1
6:2 FTS	ND		13	6.3	ng/L		09/19/23 20:05	09/28/23 16:35	1
8:2 FTS	ND		5.0	1.2	ng/L		09/19/23 20:05	09/28/23 16:35	1
NEtFOSA	ND		5.0	2.2	ng/L		09/19/23 20:05	09/28/23 16:35	1
NMeFOSA	ND		5.0	1.1	ng/L		09/19/23 20:05	09/28/23 16:35	1
NMeFOSE	ND		10	3.5	ng/L		09/19/23 20:05	09/28/23 16:35	1
NEtFOSE	ND		5.0	2.2	ng/L		09/19/23 20:05	09/28/23 16:35	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		09/19/23 20:05	09/28/23 16:35	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		09/19/23 20:05	09/28/23 16:35	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		09/19/23 20:05	09/28/23 16:35	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		09/19/23 20:05	09/28/23 16:35	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	102		25 - 150	09/19/23 20:05	09/28/23 16:35	1
13C4 PFBA	101		25 - 150	09/19/23 20:05	09/28/23 16:35	1
13C5 PFPeA	96		25 - 150	09/19/23 20:05	09/28/23 16:35	1
13C2 PFHxA	98		25 - 150	09/19/23 20:05	09/28/23 16:35	1
13C4 PFHpA	105		25 - 150	09/19/23 20:05	09/28/23 16:35	1
13C4 PFOA	101		25 - 150	09/19/23 20:05	09/28/23 16:35	1
13C5 PFNA	104		25 - 150	09/19/23 20:05	09/28/23 16:35	1
13C2 PFDA	94		25 - 150	09/19/23 20:05	09/28/23 16:35	1
13C2 PFUnA	88		25 - 150	09/19/23 20:05	09/28/23 16:35	1
13C2 PFDaA	70		25 - 150	09/19/23 20:05	09/28/23 16:35	1
13C2 PFTeDA	89		25 - 150	09/19/23 20:05	09/28/23 16:35	1
13C3 PFBS	105		25 - 150	09/19/23 20:05	09/28/23 16:35	1
18O2 PFHxS	103		25 - 150	09/19/23 20:05	09/28/23 16:35	1
13C4 PFOS	90		25 - 150	09/19/23 20:05	09/28/23 16:35	1
d3-NMeFOSAA	87		25 - 150	09/19/23 20:05	09/28/23 16:35	1
d5-NEtFOSAA	100		25 - 150	09/19/23 20:05	09/28/23 16:35	1
M2-4:2 FTS	0		0 - 10	09/19/23 20:05	09/28/23 16:35	1
M2-6:2 FTS	89		25 - 150	09/19/23 20:05	09/28/23 16:35	1
M2-8:2 FTS	93		25 - 150	09/19/23 20:05	09/28/23 16:35	1
d-N-MeFOSA-M	66		25 - 150	09/19/23 20:05	09/28/23 16:35	1
d-N-EtFOSA-M	57		25 - 150	09/19/23 20:05	09/28/23 16:35	1
d7-N-MeFOSE-M	66		25 - 150	09/19/23 20:05	09/28/23 16:35	1
d9-N-EtFOSE-M	55		25 - 150	09/19/23 20:05	09/28/23 16:35	1
13C3 HFPO-DA	95		25 - 150	09/19/23 20:05	09/28/23 16:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	220		33	13	mg/L			09/17/23 21:35	1

Client Sample ID: Inf07 20230911

Lab Sample ID: 320-104869-2

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	9.8		4.9	2.3	ng/L		09/25/23 20:23	09/27/23 15:23	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf07 20230911

Lab Sample ID: 320-104869-2

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanoic acid (PFPA)	7.0		2.0	0.48	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorohexanoic acid (PFHxA)	16		2.0	0.57	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluoroheptanoic acid (PFHpA)	3.0		2.0	0.24	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorooctanoic acid (PFOA)	9.2		2.0	0.83	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorononanoic acid (PFNA)	0.78	J	2.0	0.26	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorodecanoic acid (PFDA)	0.63	J	2.0	0.30	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.54	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.71	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorobutanesulfonic acid (PFBS)	5.8		2.0	0.20	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluoropentanesulfonic acid (PFPeS)	1.4	J	2.0	0.29	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorohexanesulfonic acid (PFHxS)	12		2.0	0.56	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.19	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorooctanesulfonic acid (PFOS)	6.8		2.0	0.53	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.36	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.31	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.95	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.96	ng/L		09/25/23 20:23	09/27/23 15:23	1
NEtFOSA	ND		2.0	0.85	ng/L		09/25/23 20:23	09/27/23 15:23	1
NMeFOSA	ND		2.0	0.42	ng/L		09/25/23 20:23	09/27/23 15:23	1
NMeFOSAA	ND		4.9	1.2	ng/L		09/25/23 20:23	09/27/23 15:23	1
NEtFOSAA	ND		4.9	1.3	ng/L		09/25/23 20:23	09/27/23 15:23	1
NMeFOSE	1.9	J	3.9	1.4	ng/L		09/25/23 20:23	09/27/23 15:23	1
NEtFOSE	ND		2.0	0.83	ng/L		09/25/23 20:23	09/27/23 15:23	1
4:2 FTS	ND		2.0	0.23	ng/L		09/25/23 20:23	09/27/23 15:23	1
6:2 FTS	3.1	J	4.9	2.4	ng/L		09/25/23 20:23	09/27/23 15:23	1
8:2 FTS	0.49	J	2.0	0.45	ng/L		09/25/23 20:23	09/27/23 15:23	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.39	ng/L		09/25/23 20:23	09/27/23 15:23	1
HFPO-DA (GenX)	ND		3.9	1.5	ng/L		09/25/23 20:23	09/27/23 15:23	1
9Cl-PF3ONS	ND		2.0	0.23	ng/L		09/25/23 20:23	09/27/23 15:23	1
11Cl-PF3OUdS	ND		2.0	0.31	ng/L		09/25/23 20:23	09/27/23 15:23	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	56		25 - 150				09/25/23 20:23	09/27/23 15:23	1
13C5 PFPeA	51		25 - 150				09/25/23 20:23	09/27/23 15:23	1
13C2 PFHxA	74		25 - 150				09/25/23 20:23	09/27/23 15:23	1
13C4 PFHpA	120		25 - 150				09/25/23 20:23	09/27/23 15:23	1
13C4 PFOA	103		25 - 150				09/25/23 20:23	09/27/23 15:23	1
13C5 PFNA	134		25 - 150				09/25/23 20:23	09/27/23 15:23	1
13C2 PFDA	144		25 - 150				09/25/23 20:23	09/27/23 15:23	1
13C2 PFUnA	122		25 - 150				09/25/23 20:23	09/27/23 15:23	1
13C2 PFDoA	88		25 - 150				09/25/23 20:23	09/27/23 15:23	1
13C2 PFTeDA	48		25 - 150				09/25/23 20:23	09/27/23 15:23	1
13C3 PFBS	67		25 - 150				09/25/23 20:23	09/27/23 15:23	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf07 20230911

Lab Sample ID: 320-104869-2

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	111		25 - 150	09/25/23 20:23	09/27/23 15:23	1
13C4 PFOS	139		25 - 150	09/25/23 20:23	09/27/23 15:23	1
13C8 FOSA	111		10 - 150	09/25/23 20:23	09/27/23 15:23	1
d3-NMeFOSAA	49		25 - 150	09/25/23 20:23	09/27/23 15:23	1
d5-NEtFOSAA	88		25 - 150	09/25/23 20:23	09/27/23 15:23	1
d-N-MeFOSA-M	24		10 - 150	09/25/23 20:23	09/27/23 15:23	1
d-N-EtFOSA-M	40		10 - 150	09/25/23 20:23	09/27/23 15:23	1
d7-N-MeFOSE-M	38		10 - 150	09/25/23 20:23	09/27/23 15:23	1
d9-N-EtFOSE-M	80		10 - 150	09/25/23 20:23	09/27/23 15:23	1
M2-4:2 FTS	68		25 - 150	09/25/23 20:23	09/27/23 15:23	1
M2-6:2 FTS	177	*5+	25 - 150	09/25/23 20:23	09/27/23 15:23	1
M2-8:2 FTS	176	*5+	25 - 150	09/25/23 20:23	09/27/23 15:23	1
13C3 HFPO-DA	113		25 - 150	09/25/23 20:23	09/27/23 15:23	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	15		13	6.0	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluoropentanoic acid (PFPA)	9.4		5.0	1.2	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorohexanoic acid (PFHxA)	15		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluoroheptanoic acid (PFHpA)	3.2	J	5.0	0.63	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorooctanoic acid (PFOA)	8.8		5.0	2.1	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorodecanoic acid (PFDA)	ND		5.0	0.78	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorotridecanoic acid (PFTTrDA)	ND		5.0	3.2	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorobutanesulfonic acid (PFBS)	3.8	J	5.0	0.50	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorohexanesulfonic acid (PFHxS)	12		5.0	0.43	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorooctanesulfonic acid (PFOS)	6.4		5.0	0.80	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		09/19/23 23:06	09/28/23 22:12	1
NMeFOSAA	ND		13	3.0	ng/L		09/19/23 23:06	09/28/23 22:12	1
NEtFOSAA	ND		13	3.3	ng/L		09/19/23 23:06	09/28/23 22:12	1
4:2 FTS	ND		5.0	0.60	ng/L		09/19/23 23:06	09/28/23 22:12	1
6:2 FTS	ND		13	6.3	ng/L		09/19/23 23:06	09/28/23 22:12	1
8:2 FTS	ND		5.0	1.2	ng/L		09/19/23 23:06	09/28/23 22:12	1
NEtFOSA	ND		5.0	2.2	ng/L		09/19/23 23:06	09/28/23 22:12	1
NMeFOSA	ND		5.0	1.1	ng/L		09/19/23 23:06	09/28/23 22:12	1
NMeFOSE	ND		10	3.5	ng/L		09/19/23 23:06	09/28/23 22:12	1
NEtFOSE	ND		5.0	2.2	ng/L		09/19/23 23:06	09/28/23 22:12	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf07 20230911

Lab Sample ID: 320-104869-2

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA (GenX)	ND		10	3.8	ng/L		09/19/23 23:06	09/28/23 22:12	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		09/19/23 23:06	09/28/23 22:12	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		09/19/23 23:06	09/28/23 22:12	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		09/19/23 23:06	09/28/23 22:12	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	98		25 - 150				09/19/23 23:06	09/28/23 22:12	1
13C4 PFBA	91		25 - 150				09/19/23 23:06	09/28/23 22:12	1
13C5 PFPeA	92		25 - 150				09/19/23 23:06	09/28/23 22:12	1
13C2 PFHxA	94		25 - 150				09/19/23 23:06	09/28/23 22:12	1
13C4 PFHpA	100		25 - 150				09/19/23 23:06	09/28/23 22:12	1
13C4 PFOA	99		25 - 150				09/19/23 23:06	09/28/23 22:12	1
13C5 PFNA	108		25 - 150				09/19/23 23:06	09/28/23 22:12	1
13C2 PFDA	99		25 - 150				09/19/23 23:06	09/28/23 22:12	1
13C2 PFUnA	84		25 - 150				09/19/23 23:06	09/28/23 22:12	1
13C2 PFDoA	48		25 - 150				09/19/23 23:06	09/28/23 22:12	1
13C2 PFTeDA	38		25 - 150				09/19/23 23:06	09/28/23 22:12	1
13C3 PFBS	103		25 - 150				09/19/23 23:06	09/28/23 22:12	1
18O2 PFHxS	102		25 - 150				09/19/23 23:06	09/28/23 22:12	1
13C4 PFOS	95		25 - 150				09/19/23 23:06	09/28/23 22:12	1
d3-NMeFOSAA	64		25 - 150				09/19/23 23:06	09/28/23 22:12	1
d5-NEtFOSAA	79		25 - 150				09/19/23 23:06	09/28/23 22:12	1
M2-4:2 FTS	96		25 - 150				09/19/23 23:06	09/28/23 22:12	1
M2-6:2 FTS	135		25 - 150				09/19/23 23:06	09/28/23 22:12	1
M2-8:2 FTS	107		25 - 150				09/19/23 23:06	09/28/23 22:12	1
d-N-MeFOSA-M	58		25 - 150				09/19/23 23:06	09/28/23 22:12	1
d-N-EtFOSA-M	51		25 - 150				09/19/23 23:06	09/28/23 22:12	1
d7-N-MeFOSE-M	70		25 - 150				09/19/23 23:06	09/28/23 22:12	1
d9-N-EtFOSE-M	62		25 - 150				09/19/23 23:06	09/28/23 22:12	1
13C3 HFPO-DA	95		25 - 150				09/19/23 23:06	09/28/23 22:12	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	59	B **	13	6.0	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluoropentanoic acid (PFPA)	63	**	5.0	1.2	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorohexanoic acid (PFHxA)	45	**	5.0	1.4	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluoroheptanoic acid (PFHpA)	14	**	5.0	0.63	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorooctanoic acid (PFOA)	16		5.0	2.1	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorononanoic acid (PFNA)	2.8	J **	5.0	0.68	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorodecanoic acid (PFDA)	2.9	J **	5.0	0.78	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorododecanoic acid (PFDoA)	ND	**	5.0	1.4	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorotridecanoic acid (PFTTrDA)	ND	**	5.0	3.2	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorobutanesulfonic acid (PFBS)	3.9	J	5.0	0.50	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluoropentanesulfonic acid (PFPeS)	0.85	J	5.0	0.75	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorohexanesulfonic acid (PFHxS)	11		5.0	0.43	ng/L		09/19/23 20:05	09/28/23 16:46	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf07 20230911

Lab Sample ID: 320-104869-2

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorooctanesulfonic acid (PFOS)	5.0		5.0	0.80	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		09/19/23 20:05	09/28/23 16:46	1
NMeFOSAA	ND		13	3.0	ng/L		09/19/23 20:05	09/28/23 16:46	1
NEtFOSAA	ND		13	3.3	ng/L		09/19/23 20:05	09/28/23 16:46	1
4:2 FTS	ND		5.0	0.60	ng/L		09/19/23 20:05	09/28/23 16:46	1
6:2 FTS	ND		13	6.3	ng/L		09/19/23 20:05	09/28/23 16:46	1
8:2 FTS	ND		5.0	1.2	ng/L		09/19/23 20:05	09/28/23 16:46	1
NEtFOSA	ND		5.0	2.2	ng/L		09/19/23 20:05	09/28/23 16:46	1
NMeFOSA	ND		5.0	1.1	ng/L		09/19/23 20:05	09/28/23 16:46	1
NMeFOSE	ND		10	3.5	ng/L		09/19/23 20:05	09/28/23 16:46	1
NEtFOSE	ND		5.0	2.2	ng/L		09/19/23 20:05	09/28/23 16:46	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		09/19/23 20:05	09/28/23 16:46	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		09/19/23 20:05	09/28/23 16:46	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		09/19/23 20:05	09/28/23 16:46	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		09/19/23 20:05	09/28/23 16:46	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	83		25 - 150	09/19/23 20:05	09/28/23 16:46	1
13C4 PFBA	68		25 - 150	09/19/23 20:05	09/28/23 16:46	1
13C5 PFPeA	71		25 - 150	09/19/23 20:05	09/28/23 16:46	1
13C2 PFHxA	72		25 - 150	09/19/23 20:05	09/28/23 16:46	1
13C4 PFHpA	75		25 - 150	09/19/23 20:05	09/28/23 16:46	1
13C4 PFOA	73		25 - 150	09/19/23 20:05	09/28/23 16:46	1
13C5 PFNA	75		25 - 150	09/19/23 20:05	09/28/23 16:46	1
13C2 PFDA	73		25 - 150	09/19/23 20:05	09/28/23 16:46	1
13C2 PFUnA	69		25 - 150	09/19/23 20:05	09/28/23 16:46	1
13C2 PFDoA	52		25 - 150	09/19/23 20:05	09/28/23 16:46	1
13C2 PFTeDA	62		25 - 150	09/19/23 20:05	09/28/23 16:46	1
13C3 PFBS	76		25 - 150	09/19/23 20:05	09/28/23 16:46	1
18O2 PFHxS	70		25 - 150	09/19/23 20:05	09/28/23 16:46	1
13C4 PFOS	66		25 - 150	09/19/23 20:05	09/28/23 16:46	1
d3-NMeFOSAA	66		25 - 150	09/19/23 20:05	09/28/23 16:46	1
d5-NEtFOSAA	84		25 - 150	09/19/23 20:05	09/28/23 16:46	1
M2-4:2 FTS	0		0 - 10	09/19/23 20:05	09/28/23 16:46	1
M2-6:2 FTS	65		25 - 150	09/19/23 20:05	09/28/23 16:46	1
M2-8:2 FTS	67		25 - 150	09/19/23 20:05	09/28/23 16:46	1
d-N-MeFOSA-M	49		25 - 150	09/19/23 20:05	09/28/23 16:46	1
d-N-EtFOSA-M	41		25 - 150	09/19/23 20:05	09/28/23 16:46	1
d7-N-MeFOSE-M	49		25 - 150	09/19/23 20:05	09/28/23 16:46	1
d9-N-EtFOSE-M	42		25 - 150	09/19/23 20:05	09/28/23 16:46	1
13C3 HFPO-DA	71		25 - 150	09/19/23 20:05	09/28/23 16:46	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf07 20230911

Lab Sample ID: 320-104869-2

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	230		36	14	mg/L			09/17/23 21:39	1

Client Sample ID: Inf08 20230911

Lab Sample ID: 320-104869-3

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	4.3	J	4.8	2.3	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluoropentanoic acid (PFPA)	4.5		1.9	0.47	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorohexanoic acid (PFHxA)	9.3		1.9	0.56	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluoroheptanoic acid (PFHpA)	1.2	J	1.9	0.24	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorooctanoic acid (PFOA)	2.4		1.9	0.82	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorononanoic acid (PFNA)	0.44	J	1.9	0.26	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorodecanoic acid (PFDA)	0.58	J	1.9	0.30	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorododecanoic acid (PFDoA)	0.62	J	1.9	0.53	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.9	1.3	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorotetradecanoic acid (PFTeA)	2.8		1.9	0.71	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorobutanesulfonic acid (PFBS)	1.8	J	1.9	0.19	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.9	0.29	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorohexanesulfonic acid (PFHxS)	4.1		1.9	0.55	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorooctanesulfonic acid (PFOS)	3.1		1.9	0.52	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.36	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.31	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.94	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.95	ng/L		09/25/23 20:23	09/28/23 21:10	1
NEtFOSA	ND		1.9	0.84	ng/L		09/25/23 20:23	09/28/23 21:10	1
NMeFOSA	ND		1.9	0.42	ng/L		09/25/23 20:23	09/28/23 21:10	1
NMeFOSAA	ND		4.8	1.2	ng/L		09/25/23 20:23	09/28/23 21:10	1
NEtFOSAA	ND		4.8	1.3	ng/L		09/25/23 20:23	09/28/23 21:10	1
NMeFOSE	ND		3.9	1.4	ng/L		09/25/23 20:23	09/28/23 21:10	1
NEtFOSE	ND		1.9	0.82	ng/L		09/25/23 20:23	09/28/23 21:10	1
4:2 FTS	ND		1.9	0.23	ng/L		09/25/23 20:23	09/28/23 21:10	1
6:2 FTS	ND		4.8	2.4	ng/L		09/25/23 20:23	09/28/23 21:10	1
8:2 FTS	0.52	J	1.9	0.45	ng/L		09/25/23 20:23	09/28/23 21:10	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.39	ng/L		09/25/23 20:23	09/28/23 21:10	1
HFPO-DA (GenX)	ND		3.9	1.5	ng/L		09/25/23 20:23	09/28/23 21:10	1
9CI-PF3ONS	ND		1.9	0.23	ng/L		09/25/23 20:23	09/28/23 21:10	1
11CI-PF3OUdS	ND		1.9	0.31	ng/L		09/25/23 20:23	09/28/23 21:10	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf08 20230911

Lab Sample ID: 320-104869-3

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	35		25 - 150	09/25/23 20:23	09/28/23 21:10	1
13C5 PFPeA	42		25 - 150	09/25/23 20:23	09/28/23 21:10	1
13C2 PFHxA	60		25 - 150	09/25/23 20:23	09/28/23 21:10	1
13C4 PFHpA	110		25 - 150	09/25/23 20:23	09/28/23 21:10	1
13C4 PFOA	100		25 - 150	09/25/23 20:23	09/28/23 21:10	1
13C5 PFNA	102		25 - 150	09/25/23 20:23	09/28/23 21:10	1
13C2 PFDA	96		25 - 150	09/25/23 20:23	09/28/23 21:10	1
13C2 PFUnA	76		25 - 150	09/25/23 20:23	09/28/23 21:10	1
13C2 PFDoA	56		25 - 150	09/25/23 20:23	09/28/23 21:10	1
13C2 PFTeDA	26		25 - 150	09/25/23 20:23	09/28/23 21:10	1
13C3 PFBS	63		25 - 150	09/25/23 20:23	09/28/23 21:10	1
18O2 PFHxS	86		25 - 150	09/25/23 20:23	09/28/23 21:10	1
13C4 PFOS	95		25 - 150	09/25/23 20:23	09/28/23 21:10	1
13C8 FOSA	78		10 - 150	09/25/23 20:23	09/28/23 21:10	1
d3-NMeFOSAA	36		25 - 150	09/25/23 20:23	09/28/23 21:10	1
d5-NEtFOSAA	56		25 - 150	09/25/23 20:23	09/28/23 21:10	1
d-N-MeFOSA-M	14		10 - 150	09/25/23 20:23	09/28/23 21:10	1
d-N-EtFOSA-M	28		10 - 150	09/25/23 20:23	09/28/23 21:10	1
d7-N-MeFOSE-M	24		10 - 150	09/25/23 20:23	09/28/23 21:10	1
d9-N-EtFOSE-M	48		10 - 150	09/25/23 20:23	09/28/23 21:10	1
M2-4:2 FTS	60		25 - 150	09/25/23 20:23	09/28/23 21:10	1
M2-6:2 FTS	153	*5+	25 - 150	09/25/23 20:23	09/28/23 21:10	1
M2-8:2 FTS	106		25 - 150	09/25/23 20:23	09/28/23 21:10	1
13C3 HFPO-DA	82		25 - 150	09/25/23 20:23	09/28/23 21:10	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		13	6.0	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluoropentanoic acid (PFPA)	6.1		5.0	1.2	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorohexanoic acid (PFHxA)	8.5		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluoroheptanoic acid (PFHpA)	1.4	J	5.0	0.63	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorooctanoic acid (PFOA)	2.4	J	5.0	2.1	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorodecanoic acid (PFDA)	ND		5.0	0.78	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorotridecanoic acid (PFTTrDA)	ND		5.0	3.2	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorobutanesulfonic acid (PFBS)	1.6	J I	5.0	0.50	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorohexanesulfonic acid (PFHxS)	3.8	J I	5.0	0.43	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.0	0.80	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		09/19/23 23:06	09/28/23 22:24	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf08 20230911

Lab Sample ID: 320-104869-3

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NMeFOSAA	ND		13	3.0	ng/L		09/19/23 23:06	09/28/23 22:24	1
NEtFOSAA	ND		13	3.3	ng/L		09/19/23 23:06	09/28/23 22:24	1
4:2 FTS	ND		5.0	0.60	ng/L		09/19/23 23:06	09/28/23 22:24	1
6:2 FTS	ND		13	6.3	ng/L		09/19/23 23:06	09/28/23 22:24	1
8:2 FTS	ND		5.0	1.2	ng/L		09/19/23 23:06	09/28/23 22:24	1
NEtFOSA	ND		5.0	2.2	ng/L		09/19/23 23:06	09/28/23 22:24	1
NMeFOSA	ND		5.0	1.1	ng/L		09/19/23 23:06	09/28/23 22:24	1
NMeFOSE	ND		10	3.5	ng/L		09/19/23 23:06	09/28/23 22:24	1
NEtFOSE	ND		5.0	2.2	ng/L		09/19/23 23:06	09/28/23 22:24	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		09/19/23 23:06	09/28/23 22:24	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		09/19/23 23:06	09/28/23 22:24	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		09/19/23 23:06	09/28/23 22:24	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		09/19/23 23:06	09/28/23 22:24	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	88		25 - 150	09/19/23 23:06	09/28/23 22:24	1
13C4 PFBA	78		25 - 150	09/19/23 23:06	09/28/23 22:24	1
13C5 PFPeA	89		25 - 150	09/19/23 23:06	09/28/23 22:24	1
13C2 PFHxA	88		25 - 150	09/19/23 23:06	09/28/23 22:24	1
13C4 PFHpA	100		25 - 150	09/19/23 23:06	09/28/23 22:24	1
13C4 PFOA	98		25 - 150	09/19/23 23:06	09/28/23 22:24	1
13C5 PFNA	98		25 - 150	09/19/23 23:06	09/28/23 22:24	1
13C2 PFDA	90		25 - 150	09/19/23 23:06	09/28/23 22:24	1
13C2 PFUnA	71		25 - 150	09/19/23 23:06	09/28/23 22:24	1
13C2 PFDoA	44		25 - 150	09/19/23 23:06	09/28/23 22:24	1
13C2 PFTeDA	30		25 - 150	09/19/23 23:06	09/28/23 22:24	1
13C3 PFBS	94		25 - 150	09/19/23 23:06	09/28/23 22:24	1
18O2 PFHxS	98		25 - 150	09/19/23 23:06	09/28/23 22:24	1
13C4 PFOS	90		25 - 150	09/19/23 23:06	09/28/23 22:24	1
d3-NMeFOSAA	58		25 - 150	09/19/23 23:06	09/28/23 22:24	1
d5-NEtFOSAA	69		25 - 150	09/19/23 23:06	09/28/23 22:24	1
M2-4:2 FTS	102		25 - 150	09/19/23 23:06	09/28/23 22:24	1
M2-6:2 FTS	137		25 - 150	09/19/23 23:06	09/28/23 22:24	1
M2-8:2 FTS	110		25 - 150	09/19/23 23:06	09/28/23 22:24	1
d-N-MeFOSA-M	52		25 - 150	09/19/23 23:06	09/28/23 22:24	1
d-N-EtFOSA-M	50		25 - 150	09/19/23 23:06	09/28/23 22:24	1
d7-N-MeFOSE-M	55		25 - 150	09/19/23 23:06	09/28/23 22:24	1
d9-N-EtFOSE-M	38		25 - 150	09/19/23 23:06	09/28/23 22:24	1
13C3 HFPO-DA	76		25 - 150	09/19/23 23:06	09/28/23 22:24	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	32	B **	13	6.0	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluoropentanoic acid (PFPA)	32	**	5.0	1.2	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluorohexanoic acid (PFHxA)	27	**	5.0	1.4	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluoroheptanoic acid (PFHpA)	8.6	**	5.0	0.63	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluorooctanoic acid (PFOA)	8.6		5.0	2.1	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluorononanoic acid (PFNA)	2.5	J **	5.0	0.68	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluorodecanoic acid (PFDA)	2.2	J **	5.0	0.78	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		09/19/23 20:05	09/28/23 16:58	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf08 20230911

Lab Sample ID: 320-104869-3

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	ND	*+	5.0	1.4	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluorotridecanoic acid (PFTrDA)	ND	*+	5.0	3.2	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluorobutanesulfonic acid (PFBS)	1.3	J	5.0	0.50	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluorohexanesulfonic acid (PFHxS)	3.0	J	5.0	0.43	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluorooctanesulfonic acid (PFOS)	3.0	J	5.0	0.80	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		09/19/23 20:05	09/28/23 16:58	1
NMeFOSAA	ND		13	3.0	ng/L		09/19/23 20:05	09/28/23 16:58	1
NEtFOSAA	ND		13	3.3	ng/L		09/19/23 20:05	09/28/23 16:58	1
4:2 FTS	ND		5.0	0.60	ng/L		09/19/23 20:05	09/28/23 16:58	1
6:2 FTS	ND		13	6.3	ng/L		09/19/23 20:05	09/28/23 16:58	1
8:2 FTS	ND		5.0	1.2	ng/L		09/19/23 20:05	09/28/23 16:58	1
NEtFOSA	ND		5.0	2.2	ng/L		09/19/23 20:05	09/28/23 16:58	1
NMeFOSA	ND		5.0	1.1	ng/L		09/19/23 20:05	09/28/23 16:58	1
NMeFOSE	ND		10	3.5	ng/L		09/19/23 20:05	09/28/23 16:58	1
NEtFOSE	ND		5.0	2.2	ng/L		09/19/23 20:05	09/28/23 16:58	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		09/19/23 20:05	09/28/23 16:58	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		09/19/23 20:05	09/28/23 16:58	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		09/19/23 20:05	09/28/23 16:58	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		09/19/23 20:05	09/28/23 16:58	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	69		25 - 150	09/19/23 20:05	09/28/23 16:58	1
13C4 PFBA	60		25 - 150	09/19/23 20:05	09/28/23 16:58	1
13C5 PFPeA	63		25 - 150	09/19/23 20:05	09/28/23 16:58	1
13C2 PFHxA	62		25 - 150	09/19/23 20:05	09/28/23 16:58	1
13C4 PFHpA	67		25 - 150	09/19/23 20:05	09/28/23 16:58	1
13C4 PFOA	63		25 - 150	09/19/23 20:05	09/28/23 16:58	1
13C5 PFNA	58		25 - 150	09/19/23 20:05	09/28/23 16:58	1
13C2 PFDA	54		25 - 150	09/19/23 20:05	09/28/23 16:58	1
13C2 PFUnA	46		25 - 150	09/19/23 20:05	09/28/23 16:58	1
13C2 PFDoA	34		25 - 150	09/19/23 20:05	09/28/23 16:58	1
13C2 PFTeDA	42		25 - 150	09/19/23 20:05	09/28/23 16:58	1
13C3 PFBS	59		25 - 150	09/19/23 20:05	09/28/23 16:58	1
18O2 PFHxS	60		25 - 150	09/19/23 20:05	09/28/23 16:58	1
13C4 PFOS	50		25 - 150	09/19/23 20:05	09/28/23 16:58	1
d3-NMeFOSAA	51		25 - 150	09/19/23 20:05	09/28/23 16:58	1
d5-NEtFOSAA	52		25 - 150	09/19/23 20:05	09/28/23 16:58	1
M2-4:2 FTS	0		0 - 10	09/19/23 20:05	09/28/23 16:58	1
M2-6:2 FTS	54		25 - 150	09/19/23 20:05	09/28/23 16:58	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf08 20230911

Lab Sample ID: 320-104869-3

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-8:2 FTS	53		25 - 150	09/19/23 20:05	09/28/23 16:58	1
d-N-MeFOSA-M	44		25 - 150	09/19/23 20:05	09/28/23 16:58	1
d-N-EtFOSA-M	34		25 - 150	09/19/23 20:05	09/28/23 16:58	1
d7-N-MeFOSE-M	39		25 - 150	09/19/23 20:05	09/28/23 16:58	1
d9-N-EtFOSE-M	20	*5-	25 - 150	09/19/23 20:05	09/28/23 16:58	1
13C3 HFPO-DA	56		25 - 150	09/19/23 20:05	09/28/23 16:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	200		28	11	mg/L			09/17/23 21:42	1

Client Sample ID: Inf11 20230911

Lab Sample ID: 320-104869-4

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		49	24	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluoropentanoic acid (PFPA)	ND		20	4.8	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorohexanoic acid (PFHxA)	7.8	J I	20	5.7	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluoroheptanoic acid (PFHpA)	ND		20	2.5	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorooctanoic acid (PFOA)	ND		20	8.4	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorononanoic acid (PFNA)	ND		20	2.7	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorodecanoic acid (PFDA)	ND		20	3.1	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluoroundecanoic acid (PFUnA)	ND		20	11	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorododecanoic acid (PFDoA)	ND		20	5.4	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorotridecanoic acid (PFTrDA)	ND		20	13	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorotetradecanoic acid (PFTeA)	ND		20	7.2	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorobutanesulfonic acid (PFBS)	ND		20	2.0	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluoropentanesulfonic acid (PFPeS)	ND		20	3.0	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorohexanesulfonic acid (PFHxS)	ND		20	5.6	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluoroheptanesulfonic acid (PFHpS)	ND		20	1.9	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorooctanesulfonic acid (PFOS)	6.5	J	20	5.3	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorononanesulfonic acid (PFNS)	ND		20	3.7	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorodecanesulfonic acid (PFDS)	ND		20	3.2	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorododecanesulfonic acid (PFDoS)	ND		20	9.6	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorooctanesulfonamide (FOSA)	ND		20	9.7	ng/L		09/25/23 20:23	10/02/23 23:43	10
NEtFOSA	ND		20	8.6	ng/L		09/25/23 20:23	10/02/23 23:43	10
NMeFOSA	ND		20	4.2	ng/L		09/25/23 20:23	10/02/23 23:43	10
NMeFOSAA	ND		49	12	ng/L		09/25/23 20:23	10/02/23 23:43	10
NEtFOSAA	ND		49	13	ng/L		09/25/23 20:23	10/02/23 23:43	10
NMeFOSE	ND		39	14	ng/L		09/25/23 20:23	10/02/23 23:43	10
NEtFOSE	ND		20	8.4	ng/L		09/25/23 20:23	10/02/23 23:43	10
4:2 FTS	ND		20	2.4	ng/L		09/25/23 20:23	10/02/23 23:43	10
6:2 FTS	ND		49	25	ng/L		09/25/23 20:23	10/02/23 23:43	10
8:2 FTS	ND		20	4.5	ng/L		09/25/23 20:23	10/02/23 23:43	10

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf11 20230911

Lab Sample ID: 320-104869-4

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		20	3.9	ng/L		09/25/23 20:23	10/02/23 23:43	10
HFPO-DA (GenX)	ND		39	15	ng/L		09/25/23 20:23	10/02/23 23:43	10
9CI-PF3ONS	ND		20	2.4	ng/L		09/25/23 20:23	10/02/23 23:43	10
11CI-PF3OUdS	ND		20	3.2	ng/L		09/25/23 20:23	10/02/23 23:43	10
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	114		25 - 150				09/25/23 20:23	10/02/23 23:43	10
13C5 PFPeA	110		25 - 150				09/25/23 20:23	10/02/23 23:43	10
13C2 PFHxA	114		25 - 150				09/25/23 20:23	10/02/23 23:43	10
13C4 PFHpA	111		25 - 150				09/25/23 20:23	10/02/23 23:43	10
13C4 PFOA	100		25 - 150				09/25/23 20:23	10/02/23 23:43	10
13C5 PFNA	101		25 - 150				09/25/23 20:23	10/02/23 23:43	10
13C2 PFDA	94		25 - 150				09/25/23 20:23	10/02/23 23:43	10
13C2 PFUnA	92		25 - 150				09/25/23 20:23	10/02/23 23:43	10
13C2 PFDoA	62		25 - 150				09/25/23 20:23	10/02/23 23:43	10
13C2 PFTeDA	48		25 - 150				09/25/23 20:23	10/02/23 23:43	10
13C3 PFBS	106		25 - 150				09/25/23 20:23	10/02/23 23:43	10
18O2 PFHxS	114		25 - 150				09/25/23 20:23	10/02/23 23:43	10
13C4 PFOS	99		25 - 150				09/25/23 20:23	10/02/23 23:43	10
13C8 FOSA	89		10 - 150				09/25/23 20:23	10/02/23 23:43	10
d3-NMeFOSAA	69		25 - 150				09/25/23 20:23	10/02/23 23:43	10
d5-NEtFOSAA	88		25 - 150				09/25/23 20:23	10/02/23 23:43	10
d-N-MeFOSA-M	43		10 - 150				09/25/23 20:23	10/02/23 23:43	10
d-N-EtFOSA-M	67		10 - 150				09/25/23 20:23	10/02/23 23:43	10
d7-N-MeFOSE-M	62		10 - 150				09/25/23 20:23	10/02/23 23:43	10
d9-N-EtFOSE-M	67		10 - 150				09/25/23 20:23	10/02/23 23:43	10
M2-4:2 FTS	142		25 - 150				09/25/23 20:23	10/02/23 23:43	10
M2-6:2 FTS	127		25 - 150				09/25/23 20:23	10/02/23 23:43	10
M2-8:2 FTS	108		25 - 150				09/25/23 20:23	10/02/23 23:43	10
13C3 HFPO-DA	99		25 - 150				09/25/23 20:23	10/02/23 23:43	10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		13	6.0	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluoropentanoic acid (PFPA)	ND		5.0	1.2	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorohexanoic acid (PFHxA)	5.1		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluoroheptanoic acid (PFHpA)	0.92 J		5.0	0.63	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorooctanoic acid (PFOA)	2.1 J		5.0	2.1	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorodecanoic acid (PFDA)	ND		5.0	0.78	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorobutanesulfonic acid (PFBS)	0.88 J		5.0	0.50	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0	0.43	ng/L		09/19/23 23:06	09/28/23 22:46	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf11 20230911

Lab Sample ID: 320-104869-4

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorooctanesulfonic acid (PFOS)	3.6	J	5.0	0.80	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		09/19/23 23:06	09/28/23 22:46	1
NMeFOSAA	ND		13	3.0	ng/L		09/19/23 23:06	09/28/23 22:46	1
NEtFOSAA	ND		13	3.3	ng/L		09/19/23 23:06	09/28/23 22:46	1
4:2 FTS	ND		5.0	0.60	ng/L		09/19/23 23:06	09/28/23 22:46	1
6:2 FTS	ND		13	6.3	ng/L		09/19/23 23:06	09/28/23 22:46	1
8:2 FTS	ND		5.0	1.2	ng/L		09/19/23 23:06	09/28/23 22:46	1
NEtFOSA	ND		5.0	2.2	ng/L		09/19/23 23:06	09/28/23 22:46	1
NMeFOSA	ND		5.0	1.1	ng/L		09/19/23 23:06	09/28/23 22:46	1
NMeFOSE	ND		10	3.5	ng/L		09/19/23 23:06	09/28/23 22:46	1
NEtFOSE	ND		5.0	2.2	ng/L		09/19/23 23:06	09/28/23 22:46	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		09/19/23 23:06	09/28/23 22:46	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		09/19/23 23:06	09/28/23 22:46	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		09/19/23 23:06	09/28/23 22:46	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		09/19/23 23:06	09/28/23 22:46	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C8 FOSA	86		25 - 150				09/19/23 23:06	09/28/23 22:46	1
13C4 PFBA	92		25 - 150				09/19/23 23:06	09/28/23 22:46	1
13C5 PFPeA	99		25 - 150				09/19/23 23:06	09/28/23 22:46	1
13C2 PFHxA	105		25 - 150				09/19/23 23:06	09/28/23 22:46	1
13C4 PFHpA	106		25 - 150				09/19/23 23:06	09/28/23 22:46	1
13C4 PFOA	96		25 - 150				09/19/23 23:06	09/28/23 22:46	1
13C5 PFNA	111		25 - 150				09/19/23 23:06	09/28/23 22:46	1
13C2 PFDA	93		25 - 150				09/19/23 23:06	09/28/23 22:46	1
13C2 PFUnA	78		25 - 150				09/19/23 23:06	09/28/23 22:46	1
13C2 PFDoA	38		25 - 150				09/19/23 23:06	09/28/23 22:46	1
13C2 PFTeDA	27		25 - 150				09/19/23 23:06	09/28/23 22:46	1
13C3 PFBS	106		25 - 150				09/19/23 23:06	09/28/23 22:46	1
18O2 PFHxS	107		25 - 150				09/19/23 23:06	09/28/23 22:46	1
13C4 PFOS	104		25 - 150				09/19/23 23:06	09/28/23 22:46	1
d3-NMeFOSAA	52		25 - 150				09/19/23 23:06	09/28/23 22:46	1
d5-NEtFOSAA	73		25 - 150				09/19/23 23:06	09/28/23 22:46	1
M2-4:2 FTS	122		25 - 150				09/19/23 23:06	09/28/23 22:46	1
M2-6:2 FTS	141		25 - 150				09/19/23 23:06	09/28/23 22:46	1
M2-8:2 FTS	102		25 - 150				09/19/23 23:06	09/28/23 22:46	1
d-N-MeFOSA-M	48		25 - 150				09/19/23 23:06	09/28/23 22:46	1
d-N-EtFOSA-M	63		25 - 150				09/19/23 23:06	09/28/23 22:46	1
d7-N-MeFOSE-M	64		25 - 150				09/19/23 23:06	09/28/23 22:46	1
d9-N-EtFOSE-M	61		25 - 150				09/19/23 23:06	09/28/23 22:46	1
13C3 HFPO-DA	96		25 - 150				09/19/23 23:06	09/28/23 22:46	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf11 20230911

Lab Sample ID: 320-104869-4

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	40	B **	13	6.0	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluoropentanoic acid (PFPA)	44	**	5.0	1.2	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorohexanoic acid (PFHxA)	25	**	5.0	1.4	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluoroheptanoic acid (PFHpA)	12	**	5.0	0.63	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorooctanoic acid (PFOA)	13		5.0	2.1	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorononanoic acid (PFNA)	2.7	J **	5.0	0.68	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorodecanoic acid (PFDA)	2.2	J **	5.0	0.78	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorododecanoic acid (PFDoA)	ND	**	5.0	1.4	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorotridecanoic acid (PFTrDA)	ND	**	5.0	3.2	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorobutanesulfonic acid (PFBS)	1.6	J	5.0	0.50	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorohexanesulfonic acid (PFHxS)	2.1	J	5.0	0.43	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorooctanesulfonic acid (PFOS)	2.8	J	5.0	0.80	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		09/19/23 20:05	09/28/23 17:09	1
NMeFOSAA	ND		13	3.0	ng/L		09/19/23 20:05	09/28/23 17:09	1
NEtFOSAA	ND		13	3.3	ng/L		09/19/23 20:05	09/28/23 17:09	1
4:2 FTS	ND		5.0	0.60	ng/L		09/19/23 20:05	09/28/23 17:09	1
6:2 FTS	ND		13	6.3	ng/L		09/19/23 20:05	09/28/23 17:09	1
8:2 FTS	ND		5.0	1.2	ng/L		09/19/23 20:05	09/28/23 17:09	1
NEtFOSA	ND		5.0	2.2	ng/L		09/19/23 20:05	09/28/23 17:09	1
NMeFOSA	ND		5.0	1.1	ng/L		09/19/23 20:05	09/28/23 17:09	1
NMeFOSE	ND		10	3.5	ng/L		09/19/23 20:05	09/28/23 17:09	1
NEtFOSE	ND		5.0	2.2	ng/L		09/19/23 20:05	09/28/23 17:09	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		09/19/23 20:05	09/28/23 17:09	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		09/19/23 20:05	09/28/23 17:09	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		09/19/23 20:05	09/28/23 17:09	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		09/19/23 20:05	09/28/23 17:09	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	117		25 - 150	09/19/23 20:05	09/28/23 17:09	1
13C4 PFBA	103		25 - 150	09/19/23 20:05	09/28/23 17:09	1
13C5 PFPeA	102		25 - 150	09/19/23 20:05	09/28/23 17:09	1
13C2 PFHxA	105		25 - 150	09/19/23 20:05	09/28/23 17:09	1
13C4 PFHpA	108		25 - 150	09/19/23 20:05	09/28/23 17:09	1
13C4 PFOA	105		25 - 150	09/19/23 20:05	09/28/23 17:09	1
13C5 PFNA	109		25 - 150	09/19/23 20:05	09/28/23 17:09	1
13C2 PFDA	114		25 - 150	09/19/23 20:05	09/28/23 17:09	1
13C2 PFUnA	102		25 - 150	09/19/23 20:05	09/28/23 17:09	1
13C2 PFDoA	83		25 - 150	09/19/23 20:05	09/28/23 17:09	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf11 20230911

Lab Sample ID: 320-104869-4

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFTeDA	100		25 - 150	09/19/23 20:05	09/28/23 17:09	1
13C3 PFBS	108		25 - 150	09/19/23 20:05	09/28/23 17:09	1
18O2 PFHxS	101		25 - 150	09/19/23 20:05	09/28/23 17:09	1
13C4 PFOS	99		25 - 150	09/19/23 20:05	09/28/23 17:09	1
d3-NMeFOSAA	99		25 - 150	09/19/23 20:05	09/28/23 17:09	1
d5-NEtFOSAA	110		25 - 150	09/19/23 20:05	09/28/23 17:09	1
M2-4:2 FTS	0		0 - 10	09/19/23 20:05	09/28/23 17:09	1
M2-6:2 FTS	101		25 - 150	09/19/23 20:05	09/28/23 17:09	1
M2-8:2 FTS	102		25 - 150	09/19/23 20:05	09/28/23 17:09	1
d-N-MeFOSA-M	84		25 - 150	09/19/23 20:05	09/28/23 17:09	1
d-N-EtFOSA-M	75		25 - 150	09/19/23 20:05	09/28/23 17:09	1
d7-N-MeFOSE-M	82		25 - 150	09/19/23 20:05	09/28/23 17:09	1
d9-N-EtFOSE-M	70		25 - 150	09/19/23 20:05	09/28/23 17:09	1
13C3 HFPO-DA	106		25 - 150	09/19/23 20:05	09/28/23 17:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	260		33	13	mg/L			09/17/23 21:46	1

Client Sample ID: Inf18 20230911

Lab Sample ID: 320-104869-5

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	7.8		4.9	2.3	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluoropentanoic acid (PFPA)	5.9		1.9	0.48	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorohexanoic acid (PFHxA)	10		1.9	0.56	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluoroheptanoic acid (PFHpA)	2.2		1.9	0.24	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorooctanoic acid (PFOA)	8.3		1.9	0.82	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorononanoic acid (PFNA)	0.50	J	1.9	0.26	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorodecanoic acid (PFDA)	0.37	J	1.9	0.30	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.3	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.71	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorobutanesulfonic acid (PFBS)	4.0		1.9	0.19	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluoropentanesulfonic acid (PFPeS)	3.3		1.9	0.29	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorohexanesulfonic acid (PFHxS)	17		1.9	0.55	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorooctanesulfonic acid (PFOS)	7.1		1.9	0.52	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.36	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.31	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.94	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.95	ng/L		09/25/23 20:23	09/27/23 15:44	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf18 20230911

Lab Sample ID: 320-104869-5

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSA	ND		1.9	0.84	ng/L		09/25/23 20:23	09/27/23 15:44	1
NMeFOSA	ND		1.9	0.42	ng/L		09/25/23 20:23	09/27/23 15:44	1
NMeFOSAA	ND		4.9	1.2	ng/L		09/25/23 20:23	09/27/23 15:44	1
NEtFOSAA	ND		4.9	1.3	ng/L		09/25/23 20:23	09/27/23 15:44	1
NMeFOSE	1.8	J	3.9	1.4	ng/L		09/25/23 20:23	09/27/23 15:44	1
NEtFOSE	ND		1.9	0.82	ng/L		09/25/23 20:23	09/27/23 15:44	1
4:2 FTS	ND		1.9	0.23	ng/L		09/25/23 20:23	09/27/23 15:44	1
6:2 FTS	2.6	J	4.9	2.4	ng/L		09/25/23 20:23	09/27/23 15:44	1
8:2 FTS	ND		1.9	0.45	ng/L		09/25/23 20:23	09/27/23 15:44	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.39	ng/L		09/25/23 20:23	09/27/23 15:44	1
HFPO-DA (GenX)	ND		3.9	1.5	ng/L		09/25/23 20:23	09/27/23 15:44	1
9Cl-PF3ONS	ND		1.9	0.23	ng/L		09/25/23 20:23	09/27/23 15:44	1
11Cl-PF3OUdS	ND		1.9	0.31	ng/L		09/25/23 20:23	09/27/23 15:44	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	52		25 - 150				09/25/23 20:23	09/27/23 15:44	1
13C5 PFPeA	46		25 - 150				09/25/23 20:23	09/27/23 15:44	1
13C2 PFHxA	69		25 - 150				09/25/23 20:23	09/27/23 15:44	1
13C4 PFHpA	110		25 - 150				09/25/23 20:23	09/27/23 15:44	1
13C4 PFOA	100		25 - 150				09/25/23 20:23	09/27/23 15:44	1
13C5 PFNA	129		25 - 150				09/25/23 20:23	09/27/23 15:44	1
13C2 PFDA	137		25 - 150				09/25/23 20:23	09/27/23 15:44	1
13C2 PFUnA	121		25 - 150				09/25/23 20:23	09/27/23 15:44	1
13C2 PFDoA	82		25 - 150				09/25/23 20:23	09/27/23 15:44	1
13C2 PFTeDA	49		25 - 150				09/25/23 20:23	09/27/23 15:44	1
13C3 PFBS	60		25 - 150				09/25/23 20:23	09/27/23 15:44	1
18O2 PFHxS	103		25 - 150				09/25/23 20:23	09/27/23 15:44	1
13C4 PFOS	138		25 - 150				09/25/23 20:23	09/27/23 15:44	1
13C8 FOSA	88		10 - 150				09/25/23 20:23	09/27/23 15:44	1
d3-NMeFOSAA	45		25 - 150				09/25/23 20:23	09/27/23 15:44	1
d5-NEtFOSAA	95		25 - 150				09/25/23 20:23	09/27/23 15:44	1
d-N-MeFOSA-M	22		10 - 150				09/25/23 20:23	09/27/23 15:44	1
d-N-EtFOSA-M	33		10 - 150				09/25/23 20:23	09/27/23 15:44	1
d7-N-MeFOSE-M	33		10 - 150				09/25/23 20:23	09/27/23 15:44	1
d9-N-EtFOSE-M	59		10 - 150				09/25/23 20:23	09/27/23 15:44	1
M2-4:2 FTS	65		25 - 150				09/25/23 20:23	09/27/23 15:44	1
M2-6:2 FTS	176	*5+	25 - 150				09/25/23 20:23	09/27/23 15:44	1
M2-8:2 FTS	182	*5+	25 - 150				09/25/23 20:23	09/27/23 15:44	1
13C3 HFPO-DA	106		25 - 150				09/25/23 20:23	09/27/23 15:44	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	14		13	6.0	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluoropentanoic acid (PFPA)	6.4		5.0	1.2	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluorohexanoic acid (PFHxA)	10		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluoroheptanoic acid (PFHpA)	2.7	J	5.0	0.63	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluorooctanoic acid (PFOA)	8.4		5.0	2.1	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluorodecanoic acid (PFDA)	ND		5.0	0.78	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		09/19/23 23:06	09/28/23 22:57	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf18 20230911

Lab Sample ID: 320-104869-5

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluorobutanesulfonic acid (PFBS)	3.3	J	5.0	0.50	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluoropentanesulfonic acid (PFPeS)	0.96	J I	5.0	0.75	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluorohexanesulfonic acid (PFHxS)	16		5.0	0.43	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluorooctanesulfonic acid (PFOS)	10		5.0	0.80	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		09/19/23 23:06	09/28/23 22:57	1
NMeFOSAA	ND		13	3.0	ng/L		09/19/23 23:06	09/28/23 22:57	1
NEtFOSAA	ND		13	3.3	ng/L		09/19/23 23:06	09/28/23 22:57	1
4:2 FTS	ND		5.0	0.60	ng/L		09/19/23 23:06	09/28/23 22:57	1
6:2 FTS	ND		13	6.3	ng/L		09/19/23 23:06	09/28/23 22:57	1
8:2 FTS	ND		5.0	1.2	ng/L		09/19/23 23:06	09/28/23 22:57	1
NEtFOSA	ND		5.0	2.2	ng/L		09/19/23 23:06	09/28/23 22:57	1
NMeFOSA	ND		5.0	1.1	ng/L		09/19/23 23:06	09/28/23 22:57	1
NMeFOSE	ND		10	3.5	ng/L		09/19/23 23:06	09/28/23 22:57	1
NEtFOSE	ND		5.0	2.2	ng/L		09/19/23 23:06	09/28/23 22:57	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		09/19/23 23:06	09/28/23 22:57	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		09/19/23 23:06	09/28/23 22:57	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		09/19/23 23:06	09/28/23 22:57	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		09/19/23 23:06	09/28/23 22:57	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	91		25 - 150	09/19/23 23:06	09/28/23 22:57	1
13C4 PFBA	91		25 - 150	09/19/23 23:06	09/28/23 22:57	1
13C5 PFPeA	94		25 - 150	09/19/23 23:06	09/28/23 22:57	1
13C2 PFHxA	93		25 - 150	09/19/23 23:06	09/28/23 22:57	1
13C4 PFHpA	100		25 - 150	09/19/23 23:06	09/28/23 22:57	1
13C4 PFOA	100		25 - 150	09/19/23 23:06	09/28/23 22:57	1
13C5 PFNA	109		25 - 150	09/19/23 23:06	09/28/23 22:57	1
13C2 PFDA	99		25 - 150	09/19/23 23:06	09/28/23 22:57	1
13C2 PFUnA	82		25 - 150	09/19/23 23:06	09/28/23 22:57	1
13C2 PFDoA	45		25 - 150	09/19/23 23:06	09/28/23 22:57	1
13C2 PFTeDA	43		25 - 150	09/19/23 23:06	09/28/23 22:57	1
13C3 PFBS	100		25 - 150	09/19/23 23:06	09/28/23 22:57	1
18O2 PFHxS	103		25 - 150	09/19/23 23:06	09/28/23 22:57	1
13C4 PFOS	96		25 - 150	09/19/23 23:06	09/28/23 22:57	1
d3-NMeFOSAA	66		25 - 150	09/19/23 23:06	09/28/23 22:57	1
d5-NEtFOSAA	77		25 - 150	09/19/23 23:06	09/28/23 22:57	1
M2-4:2 FTS	93		25 - 150	09/19/23 23:06	09/28/23 22:57	1
M2-6:2 FTS	136		25 - 150	09/19/23 23:06	09/28/23 22:57	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf18 20230911

Lab Sample ID: 320-104869-5

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-8:2 FTS	105		25 - 150	09/19/23 23:06	09/28/23 22:57	1
d-N-MeFOSA-M	52		25 - 150	09/19/23 23:06	09/28/23 22:57	1
d-N-EtFOSA-M	65		25 - 150	09/19/23 23:06	09/28/23 22:57	1
d7-N-MeFOSE-M	74		25 - 150	09/19/23 23:06	09/28/23 22:57	1
d9-N-EtFOSE-M	71		25 - 150	09/19/23 23:06	09/28/23 22:57	1
13C3 HFPO-DA	91		25 - 150	09/19/23 23:06	09/28/23 22:57	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	62	B **	13	6.0	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluoropentanoic acid (PFPA)	73	**	5.0	1.2	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorohexanoic acid (PFHxA)	47	**	5.0	1.4	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluoroheptanoic acid (PFHpA)	14	**	5.0	0.63	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorooctanoic acid (PFOA)	16		5.0	2.1	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorononanoic acid (PFNA)	2.5	J **	5.0	0.68	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorodecanoic acid (PFDA)	2.4	J **	5.0	0.78	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorododecanoic acid (PFDoA)	ND	**	5.0	1.4	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorotridecanoic acid (PFTrDA)	ND	**	5.0	3.2	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorobutanesulfonic acid (PFBS)	3.8	J	5.0	0.50	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluoropentanesulfonic acid (PFPeS)	1.1	J	5.0	0.75	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorohexanesulfonic acid (PFHxS)	14		5.0	0.43	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorooctanesulfonic acid (PFOS)	7.0		5.0	0.80	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		09/19/23 20:05	09/28/23 17:31	1
NMeFOSAA	ND		13	3.0	ng/L		09/19/23 20:05	09/28/23 17:31	1
NEtFOSAA	ND		13	3.3	ng/L		09/19/23 20:05	09/28/23 17:31	1
4:2 FTS	ND		5.0	0.60	ng/L		09/19/23 20:05	09/28/23 17:31	1
6:2 FTS	ND		13	6.3	ng/L		09/19/23 20:05	09/28/23 17:31	1
8:2 FTS	ND		5.0	1.2	ng/L		09/19/23 20:05	09/28/23 17:31	1
NEtFOSA	ND		5.0	2.2	ng/L		09/19/23 20:05	09/28/23 17:31	1
NMeFOSA	ND		5.0	1.1	ng/L		09/19/23 20:05	09/28/23 17:31	1
NMeFOSE	ND		10	3.5	ng/L		09/19/23 20:05	09/28/23 17:31	1
NEtFOSE	ND		5.0	2.2	ng/L		09/19/23 20:05	09/28/23 17:31	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		09/19/23 20:05	09/28/23 17:31	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		09/19/23 20:05	09/28/23 17:31	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		09/19/23 20:05	09/28/23 17:31	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		09/19/23 20:05	09/28/23 17:31	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	100		25 - 150				09/19/23 20:05	09/28/23 17:31	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf18 20230911

Lab Sample ID: 320-104869-5

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFBA	86		25 - 150	09/19/23 20:05	09/28/23 17:31	1
13C5 PFPeA	90		25 - 150	09/19/23 20:05	09/28/23 17:31	1
13C2 PFHxA	91		25 - 150	09/19/23 20:05	09/28/23 17:31	1
13C4 PFHpA	93		25 - 150	09/19/23 20:05	09/28/23 17:31	1
13C4 PFOA	93		25 - 150	09/19/23 20:05	09/28/23 17:31	1
13C5 PFNA	94		25 - 150	09/19/23 20:05	09/28/23 17:31	1
13C2 PFDA	86		25 - 150	09/19/23 20:05	09/28/23 17:31	1
13C2 PFUnA	83		25 - 150	09/19/23 20:05	09/28/23 17:31	1
13C2 PFDoA	74		25 - 150	09/19/23 20:05	09/28/23 17:31	1
13C2 PFTeDA	85		25 - 150	09/19/23 20:05	09/28/23 17:31	1
13C3 PFBS	93		25 - 150	09/19/23 20:05	09/28/23 17:31	1
18O2 PFHxS	93		25 - 150	09/19/23 20:05	09/28/23 17:31	1
13C4 PFOS	79		25 - 150	09/19/23 20:05	09/28/23 17:31	1
d3-NMeFOSAA	83		25 - 150	09/19/23 20:05	09/28/23 17:31	1
d5-NEtFOSAA	98		25 - 150	09/19/23 20:05	09/28/23 17:31	1
M2-4:2 FTS	0		0 - 10	09/19/23 20:05	09/28/23 17:31	1
M2-6:2 FTS	80		25 - 150	09/19/23 20:05	09/28/23 17:31	1
M2-8:2 FTS	82		25 - 150	09/19/23 20:05	09/28/23 17:31	1
d-N-MeFOSA-M	53		25 - 150	09/19/23 20:05	09/28/23 17:31	1
d-N-EtFOSA-M	54		25 - 150	09/19/23 20:05	09/28/23 17:31	1
d7-N-MeFOSE-M	61		25 - 150	09/19/23 20:05	09/28/23 17:31	1
d9-N-EtFOSE-M	54		25 - 150	09/19/23 20:05	09/28/23 17:31	1
13C3 HFPO-DA	90		25 - 150	09/19/23 20:05	09/28/23 17:31	1

General Chemistry

<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Total Suspended Solids (SM 2540D)	200		31	12	mg/L			09/17/23 21:49	1

Total Oxidation Precursors

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

TestAmerica Job ID: 320-104868-1

Client Sample ID: Bio B 20230912

Lab Sample ID: 320-104868-2
Matrix: Solid

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference ¹	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	ND		ug/Kg	170		ug/Kg	170	ug/Kg
Perfluoropentanoic acid (PFPA)	ND		ug/Kg	120		ug/Kg	120	ug/Kg
Perfluorohexanoic acid (PFHxA)	3.2	J	ug/Kg	64		ug/Kg	61	ug/Kg
Perfluoroheptanoic acid (PFHpA)	ND		ug/Kg	42		ug/Kg	42	ug/Kg
Perfluorooctanoic acid (PFOA)	ND		ug/Kg	44		ug/Kg	44	ug/Kg
Perfluorononanoic acid (PFNA)	ND		ug/Kg	19		ug/Kg	19	ug/Kg
Total Perfluoroalkyl carboxylic acid	3.2		ug/Kg	460		ug/Kg	460	ug/Kg

Client Sample ID: Bio A-22-20230912

Lab Sample ID: 320-104868-4
Matrix: Solid

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference ¹	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	3.4	J	ug/Kg	170		ug/Kg	170	ug/Kg
Perfluoropentanoic acid (PFPA)	10		ug/Kg	91		ug/Kg	80	ug/Kg
Perfluorohexanoic acid (PFHxA)	18		ug/Kg	70		ug/Kg	52	ug/Kg
Perfluoroheptanoic acid (PFHpA)	1.4	J	ug/Kg	31		ug/Kg	29	ug/Kg
Perfluorooctanoic acid (PFOA)	9.5		ug/Kg	52		ug/Kg	42	ug/Kg
Perfluorononanoic acid (PFNA)	1.0	J	ug/Kg	15		ug/Kg	14	ug/Kg
Total Perfluoroalkyl carboxylic acid	43		ug/Kg	430		ug/Kg	390	ug/Kg

Client Sample ID: Eff 20230912

Lab Sample ID: 320-104868-5
Matrix: Water

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference ¹	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	8.3	J	ng/L	37		ng/L	29	ng/L
Perfluorobutanoic acid (PFBA)	8.3	J	ng/L	37		ng/L	29	ng/L
Perfluoropentanoic acid (PFPA)	20		ng/L	25		ng/L	4.9	ng/L
Perfluoropentanoic acid (PFPA)	20		ng/L	25		ng/L	4.9	ng/L
Perfluorohexanoic acid (PFHxA)	20		ng/L	21		ng/L	0.65	ng/L
Perfluorohexanoic acid (PFHxA)	20		ng/L	21		ng/L	0.65	ng/L
Perfluoroheptanoic acid (PFHpA)	2.5	J	ng/L	3.3	J	ng/L	0.76	ng/L
Perfluoroheptanoic acid (PFHpA)	2.5	J	ng/L	3.3	J	ng/L	0.76	ng/L
Perfluorooctanoic acid (PFOA)	8.5		ng/L	9.3		ng/L	0.85	ng/L
Perfluorooctanoic acid (PFOA)	8.5		ng/L	9.3		ng/L	0.85	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	0.69	J	ng/L	0.69	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	0.69	J	ng/L	0.69	ng/L
Total Perfluoroalkyl carboxylic acid	59		ng/L	96		ng/L	37	ng/L

¹ Difference = Post-Treatment - Pre-Treatment

Total Oxidation Precursors

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

TestAmerica Job ID: 320-104869-1

Client Sample ID: Inf02 20230911

Lab Sample ID: 320-104869-1
Matrix: Water

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference ¹	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	ND		ng/L	33		ng/L	33	ng/L
Perfluorobutanoic acid (PFBA)	ND		ng/L	33		ng/L	33	ng/L
Perfluoropentanoic acid (PFPA)	4.9	J	ng/L	33		ng/L	28	ng/L
Perfluoropentanoic acid (PFPA)	4.9	J	ng/L	33		ng/L	28	ng/L
Perfluorohexanoic acid (PFHxA)	5.4		ng/L	18		ng/L	12	ng/L
Perfluorohexanoic acid (PFHxA)	5.4		ng/L	18		ng/L	12	ng/L
Perfluoroheptanoic acid (PFHpA)	1.7	J	ng/L	7.3		ng/L	5.6	ng/L
Perfluoroheptanoic acid (PFHpA)	1.7	J	ng/L	7.3		ng/L	5.6	ng/L
Perfluorooctanoic acid (PFOA)	3.3	J	ng/L	7.2		ng/L	3.9	ng/L
Perfluorooctanoic acid (PFOA)	3.3	J	ng/L	7.2		ng/L	3.9	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	1.8	J	ng/L	1.8	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	1.8	J	ng/L	1.8	ng/L
Total Perfluoroalkyl carboxylic acid	15		ng/L	100		ng/L	85	ng/L

Client Sample ID: Inf07 20230911

Lab Sample ID: 320-104869-2
Matrix: Water

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference ¹	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	15		ng/L	59		ng/L	44	ng/L
Perfluorobutanoic acid (PFBA)	15		ng/L	59		ng/L	44	ng/L
Perfluoropentanoic acid (PFPA)	9.4		ng/L	63		ng/L	54	ng/L
Perfluoropentanoic acid (PFPA)	9.4		ng/L	63		ng/L	54	ng/L
Perfluorohexanoic acid (PFHxA)	15		ng/L	45		ng/L	29	ng/L
Perfluorohexanoic acid (PFHxA)	15		ng/L	45		ng/L	29	ng/L
Perfluoroheptanoic acid (PFHpA)	3.2	J	ng/L	14		ng/L	11	ng/L
Perfluoroheptanoic acid (PFHpA)	3.2	J	ng/L	14		ng/L	11	ng/L
Perfluorooctanoic acid (PFOA)	8.8		ng/L	16		ng/L	7.6	ng/L
Perfluorooctanoic acid (PFOA)	8.8		ng/L	16		ng/L	7.6	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	2.8	J	ng/L	2.8	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	2.8	J	ng/L	2.8	ng/L
Total Perfluoroalkyl carboxylic acid	51		ng/L	200		ng/L	150	ng/L

¹ Difference = Post-Treatment - Pre-Treatment

Total Oxidation Precursors

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

TestAmerica Job ID: 320-104869-1

Client Sample ID: Inf08 20230911

Lab Sample ID: 320-104869-3
Matrix: Water

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference ¹	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	ND		ng/L	32		ng/L	32	ng/L
Perfluorobutanoic acid (PFBA)	ND		ng/L	32		ng/L	32	ng/L
Perfluoropentanoic acid (PFPA)	6.1		ng/L	32		ng/L	26	ng/L
Perfluoropentanoic acid (PFPA)	6.1		ng/L	32		ng/L	26	ng/L
Perfluorohexanoic acid (PFHxA)	8.5		ng/L	27		ng/L	18	ng/L
Perfluorohexanoic acid (PFHxA)	8.5		ng/L	27		ng/L	18	ng/L
Perfluoroheptanoic acid (PFHpA)	1.4	J	ng/L	8.6		ng/L	7.2	ng/L
Perfluoroheptanoic acid (PFHpA)	1.4	J	ng/L	8.6		ng/L	7.2	ng/L
Perfluorooctanoic acid (PFOA)	2.4	J	ng/L	8.6		ng/L	6.2	ng/L
Perfluorooctanoic acid (PFOA)	2.4	J	ng/L	8.6		ng/L	6.2	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	2.5	J	ng/L	2.5	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	2.5	J	ng/L	2.5	ng/L
Total Perfluoroalkyl carboxylic acid	18		ng/L	110		ng/L	92	ng/L

Client Sample ID: Inf11 20230911

Lab Sample ID: 320-104869-4
Matrix: Water

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference ¹	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	ND		ng/L	40		ng/L	40	ng/L
Perfluorobutanoic acid (PFBA)	ND		ng/L	40		ng/L	40	ng/L
Perfluoropentanoic acid (PFPA)	ND		ng/L	44		ng/L	44	ng/L
Perfluoropentanoic acid (PFPA)	ND		ng/L	44		ng/L	44	ng/L
Perfluorohexanoic acid (PFHxA)	5.1		ng/L	25		ng/L	20	ng/L
Perfluorohexanoic acid (PFHxA)	5.1		ng/L	25		ng/L	20	ng/L
Perfluoroheptanoic acid (PFHpA)	0.92	J	ng/L	12		ng/L	11	ng/L
Perfluoroheptanoic acid (PFHpA)	0.92	J	ng/L	12		ng/L	11	ng/L
Perfluorooctanoic acid (PFOA)	2.1	J	ng/L	13		ng/L	11	ng/L
Perfluorooctanoic acid (PFOA)	2.1	J	ng/L	13		ng/L	11	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	2.7	J	ng/L	2.7	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	2.7	J	ng/L	2.7	ng/L
Total Perfluoroalkyl carboxylic acid	8.1		ng/L	140		ng/L	130	ng/L

¹ Difference = Post-Treatment - Pre-Treatment

Total Oxidation Precursors

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

TestAmerica Job ID: 320-104869-1

Client Sample ID: Inf18 20230911

Lab Sample ID: 320-104869-5
Matrix: Water

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference ¹	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	14		ng/L	62		ng/L	47	ng/L
Perfluorobutanoic acid (PFBA)	14		ng/L	62		ng/L	47	ng/L
Perfluoropentanoic acid (PFPA)	6.4		ng/L	73		ng/L	67	ng/L
Perfluoropentanoic acid (PFPA)	6.4		ng/L	73		ng/L	67	ng/L
Perfluorohexanoic acid (PFHxA)	10		ng/L	47		ng/L	37	ng/L
Perfluorohexanoic acid (PFHxA)	10		ng/L	47		ng/L	37	ng/L
Perfluoroheptanoic acid (PFHpA)	2.7	J	ng/L	14		ng/L	11	ng/L
Perfluoroheptanoic acid (PFHpA)	2.7	J	ng/L	14		ng/L	11	ng/L
Perfluorooctanoic acid (PFOA)	8.4		ng/L	16		ng/L	7.2	ng/L
Perfluorooctanoic acid (PFOA)	8.4		ng/L	16		ng/L	7.2	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	2.5	J	ng/L	2.5	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	2.5	J	ng/L	2.5	ng/L
Total Perfluoroalkyl carboxylic acid	42		ng/L	210		ng/L	170	ng/L

¹ Difference = Post-Treatment - Pre-Treatment

Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-104868-2	Bio B 20230912	68	59	44	90	113	88	56	74
320-104868-4	Bio A-22-20230912	82	83	82	92	94	91	80	79
320-104868-4 MS	Bio A-22-20230912	75	87	80	90	93	90	79	80
320-104868-4 MSD	Bio A-22-20230912	82	86	83	96	92	95	85	80
LCS 320-707212/2-A	Lab Control Sample	30	89	92	87	115	91	93	93
LCS 320-709418/2-A	Lab Control Sample	42	95	86	97	101	97	101	104
MB 320-707212/1-A	Method Blank	37	92	87	96	115	90	94	89
MB 320-709418/1-A	Method Blank	51	94	88	96	96	99	100	90

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDaA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
320-104868-2	Bio B 20230912	72	24 *5-	75	87	81	59	37	56
320-104868-4	Bio A-22-20230912	47	40	84	93	90	85	51	58
320-104868-4 MS	Bio A-22-20230912	45	48	87	98	92	88	54	61
320-104868-4 MSD	Bio A-22-20230912	48	50	86	98	94	89	53	64
LCS 320-707212/2-A	Lab Control Sample	93	86	99	89	90	95	83	88
LCS 320-709418/2-A	Lab Control Sample	91	101	91	108	100	109	103	102
MB 320-707212/1-A	Method Blank	92	85	98	91	88	92	83	84
MB 320-709418/1-A	Method Blank	87	97	92	104	98	108	97	94

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	dMeFOSA (10-150)	dEtFOSA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	HFPODA (25-150)
320-104868-2	Bio B 20230912	12	22	23	41	51	89	52	67
320-104868-4	Bio A-22-20230912	32	44	35	26	110	133	82	83
320-104868-4 MS	Bio A-22-20230912	37	48	43	28	108	132	78	84
320-104868-4 MSD	Bio A-22-20230912	34	48	38	29	128	127	85	86
LCS 320-707212/2-A	Lab Control Sample	85	86	85	85	91	85	88	77
LCS 320-709418/2-A	Lab Control Sample	92	95	107	111	94	107	111	90
MB 320-707212/1-A	Method Blank	80	79	81	83	88	86	88	77
MB 320-709418/1-A	Method Blank	84	86	96	102	94	106	117	89

Surrogate Legend

- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- C4PFHA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDaA = 13C2 PFDaA
- PFTDA = 13C2 PFTeDA
- C3PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- PFOSA = 13C8 FOSA
- d3NMFOS = d3-NMeFOSAA
- d5NEFOS = d5-NEtFOSAA
- dMeFOSA = d-N-MeFOSA-M

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Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

dEtFOSA = d-N-EtFOSA-M
 NMFM = d7-N-MeFOSE-M
 NEFM = d9-N-EtFOSE-M
 M242FTS = M2-4:2 FTS
 M262FTS = M2-6:2 FTS
 M282FTS = M2-8:2 FTS
 HFPODA = 13C3 HFPO-DA

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Solid

Prep Type: Pre-Treatment

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-104868-2	Bio B 20230912	64	97	101	103	102	106	109	106
320-104868-4	Bio A-22-20230912	96	96	100	105	105	104	94	89
LCS 320-707541/2-A	Lab Control Sample	94	91	95	103	100	106	102	107
LCS D 320-707541/3-A	Lab Control Sample Dup	25	100	100	110	99	106	94	110
MB 320-707541/1-A	Method Blank	96	103	100	112	101	101	112	107

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (25-150)	M242FTS (25-150)	M262FTS (25-150)
320-104868-2	Bio B 20230912	52	14 *5-	96	104	97	117	128	129
320-104868-4	Bio A-22-20230912	42	12 *5-	107	102	98	101	128	137
LCS 320-707541/2-A	Lab Control Sample	86	93	100	104	104	112	95	90
LCS D 320-707541/3-A	Lab Control Sample Dup	81	102	107	114	106	129	95	102
MB 320-707541/1-A	Method Blank	74	115	106	110	102	112	95	89

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M282FTS (25-150)	HFPODA (25-150)	d3NMFOS (25-150)	d5NEFOS (25-150)	dMeFOSA (25-150)	dEtFOSA (25-150)	NMFM (25-150)	NEFM (25-150)
320-104868-2	Bio B 20230912	136	92	100	116	76	59	57	48
320-104868-4	Bio A-22-20230912	140	91	79	103	50	46	56	41
LCS 320-707541/2-A	Lab Control Sample	97	87	110	117	89	70	83	60
LCS D 320-707541/3-A	Lab Control Sample Dup	101	100	108	125	108	107	89	73
MB 320-707541/1-A	Method Blank	93	93	96	129	74	72	81	71

Surrogate Legend

PFBA = 13C4 PFBA
 PFPeA = 13C5 PFPeA
 PFHxA = 13C2 PFHxA
 C4PFHA = 13C4 PFHpA
 PFOA = 13C4 PFOA
 PFNA = 13C5 PFNA
 PFDA = 13C2 PFDA
 PFUnA = 13C2 PFUnA
 PFDoA = 13C2 PFDoA
 PFTDA = 13C2 PFTeDA
 C3PFBS = 13C3 PFBS
 PFHxS = 18O2 PFHxS
 PFOS = 13C4 PFOS
 PFOSA = 13C8 FOSA
 M242FTS = M2-4:2 FTS
 M262FTS = M2-6:2 FTS
 M282FTS = M2-8:2 FTS
 HFPODA = 13C3 HFPO-DA
 d3NMFOS = d3-NMeFOSAA

Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District

Job ID: 320-104868-1

Project/Site: PFAS Sampling

d5NEFOS = d5-NEtFOSAA
 dMeFOSA = d-N-MeFOSA-M
 dEtFOSA = d-N-EtFOSA-M
 NMFM = d7-N-MeFOSE-M
 NEFM = d9-N-EtFOSE-M

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Solid

Prep Type: Post-Treatment

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFOSA (25-150)	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)
320-104868-2	Bio B 20230912	121	93	97	91	102	96	102	93
320-104868-4	Bio A-22-20230912	119	95	98	94	108	101	101	96
LCS 320-707540/2-A	Lab Control Sample	131	64	107	104	106	101	105	108
LCS 320-707540/3-A	Lab Control Sample Dup	120	97	103	97	105	100	106	110
MB 320-707540/1-A	Method Blank	120	97	99	98	107	100	105	105

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PfUnA (25-150)	PfDoA (25-150)	PfTDA (25-150)	C3PFBS (25-150)	PfHxS (25-150)	PfOS (25-150)	d3NMfOS (25-150)	d5NEFOS (25-150)
320-104868-2	Bio B 20230912	112	104	97	100	103	97	108	125
320-104868-4	Bio A-22-20230912	104	94	87	105	103	95	105	126
LCS 320-707540/2-A	Lab Control Sample	123	115	111	110	107	100	125	128
LCS 320-707540/3-A	Lab Control Sample Dup	115	113	109	111	107	104	114	131
MB 320-707540/1-A	Method Blank	101	106	113	105	105	102	110	134

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M242FTS (0-10)	M262FTS (25-150)	M282FTS (25-150)	dMeFOSA (25-150)	dEtFOSA (25-150)	NMFM (25-150)	NEFM (25-150)	HFPODA (25-150)
320-104868-2	Bio B 20230912	0	99	98	85	90	85	84	89
320-104868-4	Bio A-22-20230912	0	91	100	85	95	83	86	95
LCS 320-707540/2-A	Lab Control Sample	0	91	100	109	109	103	100	90
LCS 320-707540/3-A	Lab Control Sample Dup	0	95	99	102	104	95	97	88
MB 320-707540/1-A	Method Blank	0	91	100	89	105	98	94	95

Surrogate Legend

PFOSA = 13C8 FOSA
 PFBA = 13C4 PFBA
 PFPeA = 13C5 PFPeA
 PFHxA = 13C2 PFHxA
 C4PFHA = 13C4 PFHpA
 PFOA = 13C4 PFOA
 PFNA = 13C5 PFNA
 PFDA = 13C2 PFDA
 PFUnA = 13C2 PFUnA
 PFDoA = 13C2 PFDoA
 PfTDA = 13C2 PFTeDA
 C3PFBS = 13C3 PFBS
 PfHxS = 18O2 PFHxS
 PfOS = 13C4 PfOS
 d3NMfOS = d3-NMeFOSAA
 d5NEFOS = d5-NEtFOSAA
 M242FTS = M2-4:2 FTS
 M262FTS = M2-6:2 FTS
 M282FTS = M2-8:2 FTS
 dMeFOSA = d-N-MeFOSA-M
 dEtFOSA = d-N-EtFOSA-M

Eurofins Sacramento

Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District

Job ID: 320-104868-1

Project/Site: PFAS Sampling

NMFM = d7-N-MeFOSE-M

NEFM = d9-N-EtFOSE-M

HFPODA = 13C3 HFPO-DA

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-104868-1	Inf Comp 20230911	51	53	75	125	101	123	132	113
320-104868-3	EB01 20230912	87	106	95	103	96	99	112	102
320-104868-5	Eff 20230912	44	54	87	104	96	95	96	83
320-104869-1	Inf02 20230911	39	46	60	112	100	102	99	74
320-104869-2	Inf07 20230911	56	51	74	120	103	134	144	122
320-104869-3	Inf08 20230911	35	42	60	110	100	102	96	76
320-104869-4	Inf11 20230911	114	110	114	111	100	101	94	92
320-104869-5	Inf18 20230911	52	46	69	110	100	129	137	121
LCS 320-708839/2-A	Lab Control Sample	96	108	101	100	95	103	109	97
LCSD 320-708839/3-A	Lab Control Sample Dup	87	105	94	101	93	92	96	95
MB 320-708839/1-A	Method Blank	94	111	96	102	94	99	104	99

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDaA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
320-104868-1	Inf Comp 20230911	77	42	72	110	139	95	41	70
320-104868-3	EB01 20230912	97	85	104	102	101	100	79	89
320-104868-5	Eff 20230912	68	44	72	83	87	90	72	74
320-104869-1	Inf02 20230911	55	35	61	89	94	74	39	58
320-104869-2	Inf07 20230911	88	48	67	111	139	111	49	88
320-104869-3	Inf08 20230911	56	26	63	86	95	78	36	56
320-104869-4	Inf11 20230911	62	48	106	114	99	89	69	88
320-104869-5	Inf18 20230911	82	49	60	103	138	88	45	95
LCS 320-708839/2-A	Lab Control Sample	95	71	99	94	98	88	83	94
LCSD 320-708839/3-A	Lab Control Sample Dup	86	59	97	89	97	69	80	79
MB 320-708839/1-A	Method Blank	78	61	96	88	101	79	81	82

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	dMeFOSA (10-150)	dEtFOSA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	HFPODA (25-150)
320-104868-1	Inf Comp 20230911	23	33	32	63	74	181 *5+	159 *5+	110
320-104868-3	EB01 20230912	61	59	81	77	96	102	114	84
320-104868-5	Eff 20230912	57	51	57	56	90	93	86	81
320-104869-1	Inf02 20230911	15	30	25	50	51	147	124	89
320-104869-2	Inf07 20230911	24	40	38	80	68	177 *5+	176 *5+	113
320-104869-3	Inf08 20230911	14	28	24	48	60	153 *5+	106	82
320-104869-4	Inf11 20230911	43	67	62	67	142	127	108	99
320-104869-5	Inf18 20230911	22	33	33	59	65	176 *5+	182 *5+	106
LCS 320-708839/2-A	Lab Control Sample	64	59	67	69	97	94	95	83
LCSD 320-708839/3-A	Lab Control Sample Dup	46	46	54	54	84	88	86	80
MB 320-708839/1-A	Method Blank	62	58	61	60	88	91	97	79

Surrogate Legend

- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- C4PFHA = 13C4 PFHxA
- PFOA = 13C4 PFOA

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Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDoA = 13C2 PFDoA
- PFTDA = 13C2 PFTeDA
- C3PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- PFOSA = 13C8 FOSA
- d3NMFOS = d3-NMeFOSAA
- d5NEFOS = d5-NEtFOSAA
- dMeFOSA = d-N-MeFOSA-M
- dEtFOSA = d-N-EtFOSA-M
- NMFM = d7-N-MeFOSE-M
- NEFM = d9-N-EtFOSE-M
- M242FTS = M2-4:2 FTS
- M262FTS = M2-6:2 FTS
- M282FTS = M2-8:2 FTS
- HFPODA = 13C3 HFPO-DA

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Pre-Treatment

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFOSA	PFBA	PFPeA	PFHxA	C4PFHA	PFOA	PFNA	PFDA
		(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)
320-104868-5	Eff 20230912	111	82	94	95	103	95	101	96
320-104869-1	Inf02 20230911	82	76	86	92	93	94	96	84
320-104869-2	Inf07 20230911	98	91	92	94	100	99	108	99
320-104869-3	Inf08 20230911	88	78	89	88	100	98	98	90
320-104869-4	Inf11 20230911	86	92	99	105	106	96	111	93
320-104869-5	Inf18 20230911	91	91	94	93	100	100	109	99
LCS 320-707546/2-A	Lab Control Sample	114	90	94	100	105	96	115	103
LCSD 320-707546/3-A	Lab Control Sample Dup	113	95	101	95	104	101	110	113
MB 320-707546/1-A	Method Blank	113	88	96	94	108	98	106	107

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFUnA	PFDoA	PFTDA	C3PFBS	PFHxS	PFOS	d3NMFOS	d5NEFOS
		(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)
320-104868-5	Eff 20230912	82	44	50	98	107	91	81	96
320-104869-1	Inf02 20230911	71	38	34	89	92	86	58	63
320-104869-2	Inf07 20230911	84	48	38	103	102	95	64	79
320-104869-3	Inf08 20230911	71	44	30	94	98	90	58	69
320-104869-4	Inf11 20230911	78	38	27	106	107	104	52	73
320-104869-5	Inf18 20230911	82	45	43	100	103	96	66	77
LCS 320-707546/2-A	Lab Control Sample	106	107	114	100	102	105	106	117
LCSD 320-707546/3-A	Lab Control Sample Dup	103	98	99	101	97	101	108	109
MB 320-707546/1-A	Method Blank	112	100	93	99	98	99	110	121

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M242FTS	M262FTS	M282FTS	dMeFOSA	dEtFOSA	NMFM	NEFM	HFPODA
		(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)
320-104868-5	Eff 20230912	115	120	123	70	60	68	58	78
320-104869-1	Inf02 20230911	105	132	97	50	46	57	43	74
320-104869-2	Inf07 20230911	96	135	107	58	51	70	62	95
320-104869-3	Inf08 20230911	102	137	110	52	50	55	38	76
320-104869-4	Inf11 20230911	122	141	102	48	63	64	61	96
320-104869-5	Inf18 20230911	93	136	105	52	65	74	71	91

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Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Matrix: Water

Prep Type: Pre-Treatment

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	dMeFOSA (25-150)	dEtFOSA (25-150)	NMFM (25-150)	NEFM (25-150)	HFPODA (25-150)
LCS 320-707546/2-A	Lab Control Sample	118	118	140	96	81	87	88	89
LCS 320-707546/3-A	Lab Control Sample Dup	113	121	135	84	73	86	77	97
MB 320-707546/1-A	Method Blank	116	111	135	90	82	85	70	89

Surrogate Legend

- PFOSA = 13C8 FOSA
- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- C4PFHA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDaA = 13C2 PFDaA
- PFTDA = 13C2 PFTeDA
- C3PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- d3NMFOA = d3-NMeFOA
- d5NEFOA = d5-NEtFOA
- M242FTS = M2-4:2 FTS
- M262FTS = M2-6:2 FTS
- M282FTS = M2-8:2 FTS
- dMeFOSA = d-N-MeFOSA-M
- dEtFOSA = d-N-EtFOSA-M
- NMFM = d7-N-MeFOSE-M
- NEFM = d9-N-EtFOSE-M
- HFPODA = 13C3 HFPO-DA

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Post-Treatment

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFOSA (25-150)	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)
320-104868-5	Eff 20230912	110	50	97	95	97	94	92	92
320-104869-1	Inf02 20230911	102	101	96	98	105	101	104	94
320-104869-2	Inf07 20230911	83	68	71	72	75	73	75	73
320-104869-3	Inf08 20230911	69	60	63	62	67	63	58	54
320-104869-4	Inf11 20230911	117	103	102	105	108	105	109	114
320-104869-5	Inf18 20230911	100	86	90	91	93	93	94	86
LCS 320-707538/2-A	Lab Control Sample	112	91	101	100	108	100	106	109
LCS 320-707538/3-A	Lab Control Sample Dup	114	23 *5-	94	91	100	95	100	100
MB 320-707538/1-A	Method Blank	124	35	103	102	102	97	105	102

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFUnA (25-150)	PFDaA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	d3NMFOA (25-150)	d5NEFOA (25-150)
320-104868-5	Eff 20230912	93	73	94	100	98	89	88	109
320-104869-1	Inf02 20230911	88	70	89	105	103	90	87	100
320-104869-2	Inf07 20230911	69	52	62	76	70	66	66	84

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Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Matrix: Water

Prep Type: Post-Treatment

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFUnA (25-150)	PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
320-104869-3	Inf08 20230911	46	34	42	59	60	50	51	52
320-104869-4	Inf11 20230911	102	83	100	108	101	99	99	110
320-104869-5	Inf18 20230911	83	74	85	93	93	79	83	98
LCS 320-707538/2-A	Lab Control Sample	114	71	97	107	103	100	107	115
LCSD 320-707538/3-A	Lab Control Sample Dup	101	72	96	97	95	92	101	111
MB 320-707538/1-A	Method Blank	109	87	96	105	103	102	101	116

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M242FTS (0-10)	M262FTS (25-150)	M282FTS (25-150)	dMeFOSA (25-150)	dEtFOSA (25-150)	NMFM (25-150)	NEFM (25-150)	HFPODA (25-150)
320-104868-5	Eff 20230912	0	89	97	89	82	79	76	88
320-104869-1	Inf02 20230911	0	89	93	66	57	66	55	95
320-104869-2	Inf07 20230911	0	65	67	49	41	49	42	71
320-104869-3	Inf08 20230911	0	54	53	44	34	39	20 *5-	56
320-104869-4	Inf11 20230911	0	101	102	84	75	82	70	106
320-104869-5	Inf18 20230911	0	80	82	53	54	61	54	90
LCS 320-707538/2-A	Lab Control Sample	0	75	92	93	78	92	72	106
LCSD 320-707538/3-A	Lab Control Sample Dup	0	71	90	95	74	88	63	99
MB 320-707538/1-A	Method Blank	0	80	98	104	82	91	76	104

Surrogate Legend

- PFOSA = 13C8 FOSA
- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- C4PFHA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDoA = 13C2 PFDoA
- PFTDA = 13C2 PFTeDA
- C3PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- d3NMFOS = d3-NMeFOSAA
- d5NEFOS = d5-NEtFOSAA
- M242FTS = M2-4:2 FTS
- M262FTS = M2-6:2 FTS
- M282FTS = M2-8:2 FTS
- dMeFOSA = d-N-MeFOSA-M
- dEtFOSA = d-N-EtFOSA-M
- NMFM = d7-N-MeFOSE-M
- NEFM = d9-N-EtFOSE-M
- HFPODA = 13C3 HFPO-DA

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-707212/1-A

Matrix: Solid

Analysis Batch: 707393

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 707212

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	ND		0.20	0.046	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
Perfluoropentanoic acid (PFPA)	ND		0.20	0.041	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.031	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.038	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.053	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.022	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.048	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.042	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.030	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.20	0.021	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.037	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.038	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.20	0.037	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.029	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.20	0.049	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.20	0.043	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
Perfluorononanesulfonic acid (PFNS)	ND		0.20	0.029	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.20	0.052	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.20	0.047	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
Perfluorooctanesulfonamide (FOSA)	ND		0.20	0.033	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
NEtFOSA	ND		0.20	0.047	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
NMeFOSA	ND		0.20	0.049	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
NMeFOSAA	ND		0.20	0.023	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
NEtFOSAA	ND		0.20	0.048	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
NMeFOSE	ND		0.20	0.047	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
NEtFOSE	ND		0.20	0.028	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
4:2 FTS	ND		0.20	0.051	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
6:2 FTS	ND		0.20	0.027	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
8:2 FTS	ND		0.20	0.035	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.039	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
HFPO-DA (GenX)	ND		0.20	0.041	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
9Cl-PF3ONS	ND		0.20	0.035	ug/Kg		09/18/23 20:20	09/19/23 12:12	1
11Cl-PF3OUdS	ND		0.20	0.031	ug/Kg		09/18/23 20:20	09/19/23 12:12	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C4 PFBA	37		25 - 150	09/18/23 20:20	09/19/23 12:12	1
13C5 PFPeA	92		25 - 150	09/18/23 20:20	09/19/23 12:12	1
13C2 PFHxA	87		25 - 150	09/18/23 20:20	09/19/23 12:12	1
13C4 PFHpA	96		25 - 150	09/18/23 20:20	09/19/23 12:12	1
13C4 PFOA	115		25 - 150	09/18/23 20:20	09/19/23 12:12	1
13C5 PFNA	90		25 - 150	09/18/23 20:20	09/19/23 12:12	1
13C2 PFDA	94		25 - 150	09/18/23 20:20	09/19/23 12:12	1
13C2 PFUnA	89		25 - 150	09/18/23 20:20	09/19/23 12:12	1
13C2 PFDoA	92		25 - 150	09/18/23 20:20	09/19/23 12:12	1
13C2 PFTeDA	85		25 - 150	09/18/23 20:20	09/19/23 12:12	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-707212/1-A
Matrix: Solid
Analysis Batch: 707393

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 707212

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 PFBS	98		25 - 150	09/18/23 20:20	09/19/23 12:12	1
18O2 PFHxS	91		25 - 150	09/18/23 20:20	09/19/23 12:12	1
13C4 PFOS	88		25 - 150	09/18/23 20:20	09/19/23 12:12	1
13C8 FOSA	92		10 - 150	09/18/23 20:20	09/19/23 12:12	1
d3-NMeFOSAA	83		25 - 150	09/18/23 20:20	09/19/23 12:12	1
d5-NEtFOSAA	84		25 - 150	09/18/23 20:20	09/19/23 12:12	1
d-N-MeFOSA-M	80		10 - 150	09/18/23 20:20	09/19/23 12:12	1
d-N-EtFOSA-M	79		10 - 150	09/18/23 20:20	09/19/23 12:12	1
d7-N-MeFOSE-M	81		10 - 150	09/18/23 20:20	09/19/23 12:12	1
d9-N-EtFOSE-M	83		10 - 150	09/18/23 20:20	09/19/23 12:12	1
M2-4:2 FTS	88		25 - 150	09/18/23 20:20	09/19/23 12:12	1
M2-6:2 FTS	86		25 - 150	09/18/23 20:20	09/19/23 12:12	1
M2-8:2 FTS	88		25 - 150	09/18/23 20:20	09/19/23 12:12	1
13C3 HFPO-DA	77		25 - 150	09/18/23 20:20	09/19/23 12:12	1

Lab Sample ID: LCS 320-707212/2-A
Matrix: Solid
Analysis Batch: 707393

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 707212

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	2.00	2.12		ug/Kg		106	60 - 135
Perfluoropentanoic acid (PFPA)	2.00	1.83		ug/Kg		92	60 - 135
Perfluorohexanoic acid (PFHxA)	2.00	2.19		ug/Kg		110	60 - 135
Perfluoroheptanoic acid (PFHpA)	2.00	2.20		ug/Kg		110	60 - 135
Perfluorooctanoic acid (PFOA)	2.00	1.49		ug/Kg		74	60 - 135
Perfluorononanoic acid (PFNA)	2.00	2.12		ug/Kg		106	60 - 135
Perfluorodecanoic acid (PFDA)	2.00	2.08		ug/Kg		104	60 - 135
Perfluoroundecanoic acid (PFUnA)	2.00	2.26		ug/Kg		113	60 - 135
Perfluorododecanoic acid (PFDoA)	2.00	2.19		ug/Kg		109	60 - 135
Perfluorotridecanoic acid (PFTrDA)	2.00	2.07		ug/Kg		104	60 - 135
Perfluorotetradecanoic acid (PFTeA)	2.00	2.00		ug/Kg		100	60 - 135
Perfluorobutanesulfonic acid (PFBS)	1.78	1.62		ug/Kg		91	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	1.88	1.68		ug/Kg		89	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.71		ug/Kg		94	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	1.91	1.85		ug/Kg		97	60 - 135
Perfluorooctanesulfonic acid (PFOS)	1.86	1.81		ug/Kg		97	60 - 135
Perfluorononanesulfonic acid (PFNS)	1.92	1.90		ug/Kg		99	60 - 135
Perfluorodecanesulfonic acid (PFDS)	1.93	1.79		ug/Kg		93	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	1.94	1.83		ug/Kg		94	60 - 135

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-707212/2-A
Matrix: Solid
Analysis Batch: 707393

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 707212

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	2.00	1.95		ug/Kg		97	60 - 135
NEtFOSA	2.00	1.92		ug/Kg		96	60 - 135
NMeFOSA	2.00	2.10		ug/Kg		105	60 - 135
NMeFOSAA	2.00	2.00		ug/Kg		100	60 - 135
NEtFOSAA	2.00	2.02		ug/Kg		101	60 - 135
NMeFOSE	2.00	2.04		ug/Kg		102	60 - 135
NEtFOSE	2.00	1.92		ug/Kg		96	60 - 135
4:2 FTS	1.88	1.87		ug/Kg		100	60 - 135
6:2 FTS	1.90	1.92		ug/Kg		101	60 - 135
8:2 FTS	1.92	1.99		ug/Kg		103	60 - 135
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.89	2.21		ug/Kg		117	60 - 135
HFPO-DA (GenX)	2.00	2.14		ug/Kg		107	60 - 135
9Cl-PF3ONS	1.87	1.86		ug/Kg		99	60 - 135
11Cl-PF3OUdS	1.89	1.83		ug/Kg		97	60 - 135

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	30		25 - 150
13C5 PFPeA	89		25 - 150
13C2 PFHxA	92		25 - 150
13C4 PFHpA	87		25 - 150
13C4 PFOA	115		25 - 150
13C5 PFNA	91		25 - 150
13C2 PFDA	93		25 - 150
13C2 PFUnA	93		25 - 150
13C2 PFDa	93		25 - 150
13C2 PFTeDA	86		25 - 150
13C3 PFBS	99		25 - 150
18O2 PFHxS	89		25 - 150
13C4 PFOS	90		25 - 150
13C8 FOSA	95		10 - 150
d3-NMeFOSAA	83		25 - 150
d5-NEtFOSAA	88		25 - 150
d-N-MeFOSA-M	85		10 - 150
d-N-EtFOSA-M	86		10 - 150
d7-N-MeFOSE-M	85		10 - 150
d9-N-EtFOSE-M	85		10 - 150
M2-4:2 FTS	91		25 - 150
M2-6:2 FTS	85		25 - 150
M2-8:2 FTS	88		25 - 150
13C3 HFPO-DA	77		25 - 150

Lab Sample ID: MB 320-708839/1-A
Matrix: Water
Analysis Batch: 708946

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 708839

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		09/25/23 20:23	09/26/23 12:00	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-708839/1-A
Matrix: Water
Analysis Batch: 708946

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 708839

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanoic acid (PFPA)	ND		2.0	0.49	ng/L		09/25/23 20:23	09/26/23 12:00	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		09/25/23 20:23	09/26/23 12:00	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		09/25/23 20:23	09/26/23 12:00	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		09/25/23 20:23	09/26/23 12:00	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		09/25/23 20:23	09/26/23 12:00	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		09/25/23 20:23	09/26/23 12:00	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		09/25/23 20:23	09/26/23 12:00	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		09/25/23 20:23	09/26/23 12:00	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		09/25/23 20:23	09/26/23 12:00	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		09/25/23 20:23	09/26/23 12:00	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		09/25/23 20:23	09/26/23 12:00	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.30	ng/L		09/25/23 20:23	09/26/23 12:00	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		09/25/23 20:23	09/26/23 12:00	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.19	ng/L		09/25/23 20:23	09/26/23 12:00	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		09/25/23 20:23	09/26/23 12:00	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.37	ng/L		09/25/23 20:23	09/26/23 12:00	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		09/25/23 20:23	09/26/23 12:00	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.97	ng/L		09/25/23 20:23	09/26/23 12:00	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		09/25/23 20:23	09/26/23 12:00	1
NEtFOSA	ND		2.0	0.87	ng/L		09/25/23 20:23	09/26/23 12:00	1
NMeFOSA	ND		2.0	0.43	ng/L		09/25/23 20:23	09/26/23 12:00	1
NMeFOSAA	ND		5.0	1.2	ng/L		09/25/23 20:23	09/26/23 12:00	1
NEtFOSAA	ND		5.0	1.3	ng/L		09/25/23 20:23	09/26/23 12:00	1
NMeFOSE	ND		4.0	1.4	ng/L		09/25/23 20:23	09/26/23 12:00	1
NEtFOSE	ND		2.0	0.85	ng/L		09/25/23 20:23	09/26/23 12:00	1
4:2 FTS	ND		2.0	0.24	ng/L		09/25/23 20:23	09/26/23 12:00	1
6:2 FTS	ND		5.0	2.5	ng/L		09/25/23 20:23	09/26/23 12:00	1
8:2 FTS	ND		2.0	0.46	ng/L		09/25/23 20:23	09/26/23 12:00	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.40	ng/L		09/25/23 20:23	09/26/23 12:00	1
HFPO-DA (GenX)	ND		4.0	1.5	ng/L		09/25/23 20:23	09/26/23 12:00	1
9CI-PF3ONS	ND		2.0	0.24	ng/L		09/25/23 20:23	09/26/23 12:00	1
11CI-PF3OUdS	ND		2.0	0.32	ng/L		09/25/23 20:23	09/26/23 12:00	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	94		25 - 150	09/25/23 20:23	09/26/23 12:00	1
13C5 PFPeA	111		25 - 150	09/25/23 20:23	09/26/23 12:00	1
13C2 PFHxA	96		25 - 150	09/25/23 20:23	09/26/23 12:00	1
13C4 PFHpA	102		25 - 150	09/25/23 20:23	09/26/23 12:00	1
13C4 PFOA	94		25 - 150	09/25/23 20:23	09/26/23 12:00	1
13C5 PFNA	99		25 - 150	09/25/23 20:23	09/26/23 12:00	1
13C2 PFDA	104		25 - 150	09/25/23 20:23	09/26/23 12:00	1
13C2 PFUnA	99		25 - 150	09/25/23 20:23	09/26/23 12:00	1
13C2 PFDoA	78		25 - 150	09/25/23 20:23	09/26/23 12:00	1
13C2 PFTeDA	61		25 - 150	09/25/23 20:23	09/26/23 12:00	1
13C3 PFBS	96		25 - 150	09/25/23 20:23	09/26/23 12:00	1
18O2 PFHxS	88		25 - 150	09/25/23 20:23	09/26/23 12:00	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-708839/1-A
Matrix: Water
Analysis Batch: 708946

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 708839

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C4 PFOS	101		25 - 150	09/25/23 20:23	09/26/23 12:00	1
13C8 FOSA	79		10 - 150	09/25/23 20:23	09/26/23 12:00	1
d3-NMeFOSAA	81		25 - 150	09/25/23 20:23	09/26/23 12:00	1
d5-NEtFOSAA	82		25 - 150	09/25/23 20:23	09/26/23 12:00	1
d-N-MeFOSA-M	62		10 - 150	09/25/23 20:23	09/26/23 12:00	1
d-N-EtFOSA-M	58		10 - 150	09/25/23 20:23	09/26/23 12:00	1
d7-N-MeFOSE-M	61		10 - 150	09/25/23 20:23	09/26/23 12:00	1
d9-N-EtFOSE-M	60		10 - 150	09/25/23 20:23	09/26/23 12:00	1
M2-4:2 FTS	88		25 - 150	09/25/23 20:23	09/26/23 12:00	1
M2-6:2 FTS	91		25 - 150	09/25/23 20:23	09/26/23 12:00	1
M2-8:2 FTS	97		25 - 150	09/25/23 20:23	09/26/23 12:00	1
13C3 HFPO-DA	79		25 - 150	09/25/23 20:23	09/26/23 12:00	1

Lab Sample ID: LCS 320-708839/2-A
Matrix: Water
Analysis Batch: 708946

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 708839

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	40.0	42.0		ng/L		105	60 - 135
Perfluoropentanoic acid (PFPA)	40.0	41.2		ng/L		103	60 - 135
Perfluorohexanoic acid (PFHxA)	40.0	43.9		ng/L		110	60 - 135
Perfluoroheptanoic acid (PFHpA)	40.0	45.1		ng/L		113	60 - 135
Perfluorooctanoic acid (PFOA)	40.0	45.3		ng/L		113	60 - 135
Perfluorononanoic acid (PFNA)	40.0	41.5		ng/L		104	60 - 135
Perfluorodecanoic acid (PFDA)	40.0	41.3		ng/L		103	60 - 135
Perfluoroundecanoic acid (PFUnA)	40.0	43.5		ng/L		109	60 - 135
Perfluorododecanoic acid (PFDoA)	40.0	44.9		ng/L		112	60 - 135
Perfluorotridecanoic acid (PFTrDA)	40.0	34.0		ng/L		85	60 - 135
Perfluorotetradecanoic acid (PFTeA)	40.0	44.9		ng/L		112	60 - 135
Perfluorobutanesulfonic acid (PFBS)	35.5	36.8		ng/L		104	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	37.6	37.8		ng/L		101	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	36.5	34.9		ng/L		96	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	38.2	36.8		ng/L		96	60 - 135
Perfluorooctanesulfonic acid (PFOS)	37.2	39.0		ng/L		105	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.5	40.1		ng/L		104	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	39.3		ng/L		102	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.8	29.7		ng/L		77	60 - 135
Perfluorooctanesulfonamide (FOSA)	40.0	39.1		ng/L		98	60 - 135
NEtFOSA	40.0	40.8		ng/L		102	60 - 135

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-708839/2-A
Matrix: Water
Analysis Batch: 708946

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 708839

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
NMeFOSA	40.0	42.1		ng/L		105	60 - 135
NMeFOSAA	40.0	42.3		ng/L		106	60 - 135
NEtFOSAA	40.0	40.9		ng/L		102	60 - 135
NMeFOSE	40.0	41.6		ng/L		104	60 - 135
NEtFOSE	40.0	38.9		ng/L		97	60 - 135
4:2 FTS	37.5	43.4		ng/L		116	60 - 135
6:2 FTS	38.1	36.4		ng/L		96	60 - 135
8:2 FTS	38.4	42.8		ng/L		111	60 - 135
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	46.4		ng/L		123	60 - 135
HFPO-DA (GenX)	40.0	43.5		ng/L		109	60 - 135
9Cl-PF3ONS	37.4	37.5		ng/L		100	60 - 135
11Cl-PF3OUdS	37.8	35.0		ng/L		93	60 - 135

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFBA	96		25 - 150
13C5 PFPeA	108		25 - 150
13C2 PFHxA	101		25 - 150
13C4 PFHpA	100		25 - 150
13C4 PFOA	95		25 - 150
13C5 PFNA	103		25 - 150
13C2 PFDA	109		25 - 150
13C2 PFUnA	97		25 - 150
13C2 PFDoA	95		25 - 150
13C2 PFTeDA	71		25 - 150
13C3 PFBS	99		25 - 150
18O2 PFHxS	94		25 - 150
13C4 PFOS	98		25 - 150
13C8 FOSA	88		10 - 150
d3-NMeFOSAA	83		25 - 150
d5-NEtFOSAA	94		25 - 150
d-N-MeFOSA-M	64		10 - 150
d-N-EtFOSA-M	59		10 - 150
d7-N-MeFOSE-M	67		10 - 150
d9-N-EtFOSE-M	69		10 - 150
M2-4:2 FTS	97		25 - 150
M2-6:2 FTS	94		25 - 150
M2-8:2 FTS	95		25 - 150
13C3 HFPO-DA	83		25 - 150

Lab Sample ID: LCSD 320-708839/3-A
Matrix: Water
Analysis Batch: 709324

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 708839

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Perfluorobutanoic acid (PFBA)	40.0	43.3		ng/L		108	60 - 135	3	30
Perfluoropentanoic acid (PFPA)	40.0	40.3		ng/L		101	60 - 135	2	30
Perfluorohexanoic acid (PFHxA)	40.0	44.1		ng/L		110	60 - 135	0	30
Perfluoroheptanoic acid (PFHpA)	40.0	42.6		ng/L		106	60 - 135	6	30

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-708839/3-A
Matrix: Water
Analysis Batch: 709324

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 708839

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
Perfluorooctanoic acid (PFOA)	40.0	40.9		ng/L		102	60 - 135	10	30	
Perfluorononanoic acid (PFNA)	40.0	45.6		ng/L		114	60 - 135	9	30	
Perfluorodecanoic acid (PFDA)	40.0	41.7		ng/L		104	60 - 135	1	30	
Perfluoroundecanoic acid (PFUnA)	40.0	44.5		ng/L		111	60 - 135	2	30	
Perfluorododecanoic acid (PFDoA)	40.0	46.2		ng/L		115	60 - 135	3	30	
Perfluorotridecanoic acid (PFTrDA)	40.0	32.9		ng/L		82	60 - 135	3	30	
Perfluorotetradecanoic acid (PFTeA)	40.0	45.7		ng/L		114	60 - 135	2	30	
Perfluorobutanesulfonic acid (PFBS)	35.5	38.4		ng/L		108	60 - 135	4	30	
Perfluoropentanesulfonic acid (PFPeS)	37.6	36.3		ng/L		97	60 - 135	4	30	
Perfluorohexanesulfonic acid (PFHxS)	36.5	35.4		ng/L		97	60 - 135	1	30	
Perfluoroheptanesulfonic acid (PFHpS)	38.2	36.0		ng/L		94	60 - 135	2	30	
Perfluorooctanesulfonic acid (PFOS)	37.2	38.2		ng/L		103	60 - 135	2	30	
Perfluorononanesulfonic acid (PFNS)	38.5	39.0		ng/L		101	60 - 135	3	30	
Perfluorodecanesulfonic acid (PFDS)	38.6	37.2		ng/L		96	60 - 135	6	30	
Perfluorododecanesulfonic acid (PFDoS)	38.8	24.9		ng/L		64	60 - 135	18	30	
Perfluorooctanesulfonamide (FOSA)	40.0	39.0		ng/L		97	60 - 135	0	30	
NEtFOSA	40.0	44.7		ng/L		112	60 - 135	9	30	
NMeFOSA	40.0	46.1		ng/L		115	60 - 135	9	30	
NMeFOSAA	40.0	40.4		ng/L		101	60 - 135	5	30	
NEtFOSAA	40.0	41.5		ng/L		104	60 - 135	2	30	
NMeFOSE	40.0	41.8		ng/L		105	60 - 135	1	30	
NEtFOSE	40.0	39.9		ng/L		100	60 - 135	3	30	
4:2 FTS	37.5	42.8		ng/L		114	60 - 135	1	30	
6:2 FTS	38.1	37.8		ng/L		99	60 - 135	4	30	
8:2 FTS	38.4	44.0		ng/L		115	60 - 135	3	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	43.2		ng/L		114	60 - 135	7	30	
HFPO-DA (GenX)	40.0	43.8		ng/L		109	60 - 135	1	30	
9Cl-PF3ONS	37.4	39.2		ng/L		105	60 - 135	5	30	
11Cl-PF3OUdS	37.8	33.5		ng/L		89	60 - 135	4	30	

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C4 PFBA	87		25 - 150
13C5 PFPeA	105		25 - 150
13C2 PFHxA	94		25 - 150
13C4 PFHpA	101		25 - 150
13C4 PFOA	93		25 - 150
13C5 PFNA	92		25 - 150
13C2 PFDA	96		25 - 150

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-708839/3-A
Matrix: Water
Analysis Batch: 709324

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 708839

<i>Isotope Dilution</i>	<i>LCSD</i>	<i>LCSD</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C2 PFUnA	95		25 - 150
13C2 PFDoA	86		25 - 150
13C2 PFTeDA	59		25 - 150
13C3 PFBS	97		25 - 150
18O2 PFHxS	89		25 - 150
13C4 PFOS	97		25 - 150
13C8 FOSA	69		10 - 150
d3-NMeFOSAA	80		25 - 150
d5-NEtFOSAA	79		25 - 150
d-N-MeFOSA-M	46		10 - 150
d-N-EtFOSA-M	46		10 - 150
d7-N-MeFOSE-M	54		10 - 150
d9-N-EtFOSE-M	54		10 - 150
M2-4:2 FTS	84		25 - 150
M2-6:2 FTS	88		25 - 150
M2-8:2 FTS	86		25 - 150
13C3 HFPO-DA	80		25 - 150

Lab Sample ID: MB 320-709418/1-A
Matrix: Solid
Analysis Batch: 709577

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 709418

<i>Analyte</i>	<i>MB</i>	<i>MB</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
	<i>Result</i>	<i>Qualifier</i>							
Perfluorobutanoic acid (PFBA)	ND		0.20	0.046	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
Perfluoropentanoic acid (PFPA)	ND		0.20	0.041	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
Perfluorohexanoic acid (PFHxA)	0.0339	J	0.20	0.031	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.038	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.053	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.022	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.048	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.042	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.030	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.20	0.021	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.037	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.038	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.20	0.037	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.029	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.20	0.049	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.20	0.043	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
Perfluorononanesulfonic acid (PFNS)	ND		0.20	0.029	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.20	0.052	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.20	0.047	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
Perfluorooctanesulfonamide (FOSA)	ND		0.20	0.033	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
NEtFOSA	ND		0.20	0.047	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
NMeFOSA	ND		0.20	0.049	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
NMeFOSAA	ND		0.20	0.023	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
NEtFOSAA	ND		0.20	0.048	ug/Kg		09/27/23 20:00	09/29/23 02:24	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-709418/1-A
Matrix: Solid
Analysis Batch: 709577

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 709418

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NMeFOSE	ND		0.20	0.047	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
NEtFOSE	ND		0.20	0.028	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
4:2 FTS	ND		0.20	0.051	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
6:2 FTS	ND		0.20	0.027	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
8:2 FTS	ND		0.20	0.035	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.039	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
HFPO-DA (GenX)	ND		0.20	0.041	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
9Cl-PF3ONS	ND		0.20	0.035	ug/Kg		09/27/23 20:00	09/29/23 02:24	1
11Cl-PF3OUdS	ND		0.20	0.031	ug/Kg		09/27/23 20:00	09/29/23 02:24	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	51		25 - 150	09/27/23 20:00	09/29/23 02:24	1
13C5 PFPeA	94		25 - 150	09/27/23 20:00	09/29/23 02:24	1
13C2 PFHxA	88		25 - 150	09/27/23 20:00	09/29/23 02:24	1
13C4 PFHpA	96		25 - 150	09/27/23 20:00	09/29/23 02:24	1
13C4 PFOA	96		25 - 150	09/27/23 20:00	09/29/23 02:24	1
13C5 PFNA	99		25 - 150	09/27/23 20:00	09/29/23 02:24	1
13C2 PFDA	100		25 - 150	09/27/23 20:00	09/29/23 02:24	1
13C2 PFUnA	90		25 - 150	09/27/23 20:00	09/29/23 02:24	1
13C2 PFDoA	87		25 - 150	09/27/23 20:00	09/29/23 02:24	1
13C2 PFTeDA	97		25 - 150	09/27/23 20:00	09/29/23 02:24	1
13C3 PFBS	92		25 - 150	09/27/23 20:00	09/29/23 02:24	1
18O2 PFHxS	104		25 - 150	09/27/23 20:00	09/29/23 02:24	1
13C4 PFOS	98		25 - 150	09/27/23 20:00	09/29/23 02:24	1
13C8 FOSA	108		10 - 150	09/27/23 20:00	09/29/23 02:24	1
d3-NMeFOSAA	97		25 - 150	09/27/23 20:00	09/29/23 02:24	1
d5-NEtFOSAA	94		25 - 150	09/27/23 20:00	09/29/23 02:24	1
d-N-MeFOSA-M	84		10 - 150	09/27/23 20:00	09/29/23 02:24	1
d-N-EtFOSA-M	86		10 - 150	09/27/23 20:00	09/29/23 02:24	1
d7-N-MeFOSE-M	96		10 - 150	09/27/23 20:00	09/29/23 02:24	1
d9-N-EtFOSE-M	102		10 - 150	09/27/23 20:00	09/29/23 02:24	1
M2-4:2 FTS	94		25 - 150	09/27/23 20:00	09/29/23 02:24	1
M2-6:2 FTS	106		25 - 150	09/27/23 20:00	09/29/23 02:24	1
M2-8:2 FTS	117		25 - 150	09/27/23 20:00	09/29/23 02:24	1
13C3 HFPO-DA	89		25 - 150	09/27/23 20:00	09/29/23 02:24	1

Lab Sample ID: LCS 320-709418/2-A
Matrix: Solid
Analysis Batch: 709577

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 709418

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanoic acid (PFBA)	2.00	2.10		ug/Kg		105	60 - 135
Perfluoropentanoic acid (PFPA)	2.00	1.91		ug/Kg		95	60 - 135
Perfluorohexanoic acid (PFHxA)	2.00	2.20		ug/Kg		110	60 - 135
Perfluoroheptanoic acid (PFHpA)	2.00	2.10		ug/Kg		105	60 - 135
Perfluorooctanoic acid (PFOA)	2.00	2.02		ug/Kg		101	60 - 135
Perfluorononanoic acid (PFNA)	2.00	2.13		ug/Kg		106	60 - 135
Perfluorodecanoic acid (PFDA)	2.00	2.15		ug/Kg		108	60 - 135

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-709418/2-A
Matrix: Solid
Analysis Batch: 709577

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 709418

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	2.00	1.94		ug/Kg		97	60 - 135
Perfluorododecanoic acid (PFDoA)	2.00	2.24		ug/Kg		112	60 - 135
Perfluorotridecanoic acid (PFTTrDA)	2.00	2.34		ug/Kg		117	60 - 135
Perfluorotetradecanoic acid (PFTeA)	2.00	1.94		ug/Kg		97	60 - 135
Perfluorobutanesulfonic acid (PFBS)	1.78	1.77		ug/Kg		100	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	1.88	2.03		ug/Kg		108	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.78		ug/Kg		97	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	1.91	2.09		ug/Kg		110	60 - 135
Perfluorooctanesulfonic acid (PFOS)	1.86	1.94		ug/Kg		105	60 - 135
Perfluorononanesulfonic acid (PFNS)	1.92	2.03		ug/Kg		106	60 - 135
Perfluorodecanesulfonic acid (PFDS)	1.93	1.90		ug/Kg		99	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	1.94	1.94		ug/Kg		100	60 - 135
Perfluorooctanesulfonamide (FOSA)	2.00	2.05		ug/Kg		103	60 - 135
NEtFOSA	2.00	2.01		ug/Kg		101	60 - 135
NMeFOSA	2.00	2.11		ug/Kg		105	60 - 135
NMeFOSAA	2.00	2.03		ug/Kg		101	60 - 135
NEtFOSAA	2.00	2.12		ug/Kg		106	60 - 135
NMeFOSE	2.00	1.90		ug/Kg		95	60 - 135
NEtFOSE	2.00	1.88		ug/Kg		94	60 - 135
4:2 FTS	1.88	1.72		ug/Kg		92	60 - 135
6:2 FTS	1.90	1.82		ug/Kg		95	60 - 135
8:2 FTS	1.92	2.05		ug/Kg		107	60 - 135
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.89	1.94		ug/Kg		103	60 - 135
HFPO-DA (GenX)	2.00	2.15		ug/Kg		107	60 - 135
9Cl-PF3ONS	1.87	1.90		ug/Kg		102	60 - 135
11Cl-PF3OUdS	1.89	1.94		ug/Kg		103	60 - 135

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	42		25 - 150
13C5 PFPeA	95		25 - 150
13C2 PFHxA	86		25 - 150
13C4 PFHpA	97		25 - 150
13C4 PFOA	101		25 - 150
13C5 PFNA	97		25 - 150
13C2 PFDA	101		25 - 150
13C2 PFUnA	104		25 - 150
13C2 PFDoA	91		25 - 150
13C2 PFTeDA	101		25 - 150

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-709418/2-A
Matrix: Solid
Analysis Batch: 709577

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 709418

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C3 PFBS	91		25 - 150
18O2 PFHxS	108		25 - 150
13C4 PFOS	100		25 - 150
13C8 FOSA	109		10 - 150
d3-NMeFOSAA	103		25 - 150
d5-NEtFOSAA	102		25 - 150
d-N-MeFOSA-M	92		10 - 150
d-N-EtFOSA-M	95		10 - 150
d7-N-MeFOSE-M	107		10 - 150
d9-N-EtFOSE-M	111		10 - 150
M2-4:2 FTS	94		25 - 150
M2-6:2 FTS	107		25 - 150
M2-8:2 FTS	111		25 - 150
13C3 HFPO-DA	90		25 - 150

Lab Sample ID: 320-104868-4 MS
Matrix: Solid
Analysis Batch: 709577

Client Sample ID: Bio A-22-20230912
Prep Type: Total/NA
Prep Batch: 709418

Analyte	Sample Result	Sample Qualifier	Spike Added	MS MS		Unit	D	%Rec	%Rec Limits
				Result	Qualifier				
Perfluorobutanoic acid (PFBA)	3.0		34.2	37.4		ug/Kg	☼	101	70 - 130
Perfluoropentanoic acid (PFPA)	7.6		34.2	42.0		ug/Kg	☼	100	70 - 130
Perfluorohexanoic acid (PFHxA)	15	B	34.2	55.8		ug/Kg	☼	119	70 - 130
Perfluoroheptanoic acid (PFHpA)	1.2	J	34.2	36.8		ug/Kg	☼	104	70 - 130
Perfluorooctanoic acid (PFOA)	9.2		34.2	44.1		ug/Kg	☼	102	70 - 130
Perfluorononanoic acid (PFNA)	0.90	J	34.2	36.2		ug/Kg	☼	103	70 - 130
Perfluorodecanoic acid (PFDA)	7.4		34.2	43.8		ug/Kg	☼	106	70 - 130
Perfluoroundecanoic acid (PFUnA)	1.0	J	34.2	33.0		ug/Kg	☼	93	70 - 130
Perfluorododecanoic acid (PFDoA)	3.0		34.2	42.9		ug/Kg	☼	117	70 - 130
Perfluorotridecanoic acid (PFTrDA)	ND	F1	34.2	19.1	F1	ug/Kg	☼	56	70 - 130
Perfluorotetradecanoic acid (PFTeA)	0.71	J	34.2	37.2		ug/Kg	☼	107	70 - 130
Perfluorobutanesulfonic acid (PFBS)	1.1	J I	30.4	31.6		ug/Kg	☼	100	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	ND		32.2	34.2		ug/Kg	☼	106	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	ND		31.2	31.4	I	ug/Kg	☼	101	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	ND		32.7	36.4		ug/Kg	☼	111	70 - 130
Perfluorooctanesulfonic acid (PFOS)	9.9		31.8	41.7		ug/Kg	☼	100	70 - 130
Perfluorononanesulfonic acid (PFNS)	ND		32.9	29.4		ug/Kg	☼	89	70 - 130
Perfluorodecanesulfonic acid (PFDS)	1.4	J I	33.0	32.9		ug/Kg	☼	95	70 - 130
Perfluorododecanesulfonic acid (PFDoS)	ND		33.2	30.8		ug/Kg	☼	93	70 - 130

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 320-104868-4 MS

Matrix: Solid

Analysis Batch: 709577

Client Sample ID: Bio A-22-20230912

Prep Type: Total/NA

Prep Batch: 709418

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	1.1	J	34.2	35.1		ug/Kg	⊛	99	70 - 130
NEtFOSA	ND		34.2	35.8		ug/Kg	⊛	105	70 - 130
NMeFOSA	ND		34.2	32.9		ug/Kg	⊛	96	70 - 130
NMeFOSAA	20		34.2	55.8		ug/Kg	⊛	106	70 - 130
NEtFOSAA	6.5		34.2	41.4		ug/Kg	⊛	102	70 - 130
NMeFOSE	19		34.2	54.7		ug/Kg	⊛	106	70 - 130
NEtFOSE	10	F1	34.2	75.4	F1	ug/Kg	⊛	191	70 - 130
4:2 FTS	ND		32.1	32.1		ug/Kg	⊛	100	70 - 130
6:2 FTS	0.90	J	32.6	29.2		ug/Kg	⊛	87	70 - 130
8:2 FTS	0.88	J	32.9	35.8		ug/Kg	⊛	106	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		32.4	30.6		ug/Kg	⊛	94	70 - 130
HFPO-DA (GenX)	ND		34.2	36.8		ug/Kg	⊛	108	70 - 130
9Cl-PF3ONS	ND		32.0	34.9		ug/Kg	⊛	109	70 - 130
11Cl-PF3OUdS	ND	F1	32.3	18.6	F1	ug/Kg	⊛	57	70 - 130
		MS MS							
Isotope Dilution		%Recovery							Limits
13C4 PFBA		75							25 - 150
13C5 PFPeA		87							25 - 150
13C2 PFHxA		80							25 - 150
13C4 PFHpA		90							25 - 150
13C4 PFOA		93							25 - 150
13C5 PFNA		90							25 - 150
13C2 PFDA		79							25 - 150
13C2 PFUnA		80							25 - 150
13C2 PFDoA		45							25 - 150
13C2 PFTeDA		48							25 - 150
13C3 PFBS		87							25 - 150
18O2 PFHxS		98							25 - 150
13C4 PFOS		92							25 - 150
13C8 FOSA		88							10 - 150
d3-NMeFOSAA		54							25 - 150
d5-NEtFOSAA		61							25 - 150
d-N-MeFOSA-M		37							10 - 150
d-N-EtFOSA-M		48							10 - 150
d7-N-MeFOSE-M		43							10 - 150
d9-N-EtFOSE-M		28							10 - 150
M2-4:2 FTS		108							25 - 150
M2-6:2 FTS		132							25 - 150
M2-8:2 FTS		78							25 - 150
13C3 HFPO-DA		84							25 - 150

Lab Sample ID: 320-104868-4 MSD

Matrix: Solid

Analysis Batch: 709577

Client Sample ID: Bio A-22-20230912

Prep Type: Total/NA

Prep Batch: 709418

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	3.0		36.3	40.5		ug/Kg	⊛	103	70 - 130	8	30

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 320-104868-4 MSD

Matrix: Solid

Analysis Batch: 709577

Client Sample ID: Bio A-22-20230912

Prep Type: Total/NA

Prep Batch: 709418

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		
Perfluoropentanoic acid (PFPA)	7.6		36.3	46.1		ug/Kg	*	106	70 - 130	9	30
Perfluorohexanoic acid (PFHxA)	15	B	36.3	55.2		ug/Kg	*	111	70 - 130	1	30
Perfluoroheptanoic acid (PFHpA)	1.2	J	36.3	36.2		ug/Kg	*	96	70 - 130	2	30
Perfluorooctanoic acid (PFOA)	9.2		36.3	48.3		ug/Kg	*	108	70 - 130	9	30
Perfluorononanoic acid (PFNA)	0.90	J	36.3	35.9		ug/Kg	*	96	70 - 130	1	30
Perfluorodecanoic acid (PFDA)	7.4		36.3	43.0		ug/Kg	*	98	70 - 130	2	30
Perfluoroundecanoic acid (PFUnA)	1.0	J	36.3	35.2		ug/Kg	*	94	70 - 130	6	30
Perfluorododecanoic acid (PFDoA)	3.0		36.3	39.4		ug/Kg	*	101	70 - 130	8	30
Perfluorotridecanoic acid (PFTrDA)	ND	F1	36.3	19.6	F1	ug/Kg	*	54	70 - 130	3	30
Perfluorotetradecanoic acid (PFTeA)	0.71	J	36.3	35.9		ug/Kg	*	97	70 - 130	4	30
Perfluorobutanesulfonic acid (PFBS)	1.1	J I	32.2	32.9		ug/Kg	*	99	70 - 130	4	30
Perfluoropentanesulfonic acid (PFPeS)	ND		34.1	35.8		ug/Kg	*	105	70 - 130	5	30
Perfluorohexanesulfonic acid (PFHxS)	ND		33.1	33.5		ug/Kg	*	101	70 - 130	6	30
Perfluoroheptanesulfonic acid (PFHpS)	ND		34.6	38.5		ug/Kg	*	111	70 - 130	6	30
Perfluorooctanesulfonic acid (PFOS)	9.9		33.8	45.1		ug/Kg	*	104	70 - 130	8	30
Perfluorononanesulfonic acid (PFNS)	ND		34.9	29.1		ug/Kg	*	83	70 - 130	1	30
Perfluorodecanesulfonic acid (PFDS)	1.4	J I	35.0	33.2		ug/Kg	*	91	70 - 130	1	30
Perfluorododecanesulfonic acid (PFDoS)	ND		35.2	32.9		ug/Kg	*	94	70 - 130	7	30
Perfluorooctanesulfonamide (FOSA)	1.1	J	36.3	37.0		ug/Kg	*	99	70 - 130	5	30
NEtFOSA	ND		36.3	36.9		ug/Kg	*	102	70 - 130	3	30
NMeFOSA	ND		36.3	36.3		ug/Kg	*	100	70 - 130	10	30
NMeFOSAA	20		36.3	60.3		ug/Kg	*	112	70 - 130	8	30
NEtFOSAA	6.5		36.3	41.7		ug/Kg	*	97	70 - 130	1	30
NMeFOSE	19		36.3	52.3		ug/Kg	*	93	70 - 130	4	30
NEtFOSE	10	F1	36.3	78.0	F1	ug/Kg	*	187	70 - 130	3	30
4:2 FTS	ND		34.0	29.5		ug/Kg	*	87	70 - 130	9	30
6:2 FTS	0.90	J	34.6	33.5		ug/Kg	*	94	70 - 130	14	30
8:2 FTS	0.88	J	34.8	34.1		ug/Kg	*	95	70 - 130	5	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		34.3	31.2		ug/Kg	*	91	70 - 130	2	30
HFPO-DA (GenX)	ND		36.3	38.1		ug/Kg	*	105	70 - 130	3	30
9Cl-PF3ONS	ND		33.9	36.0		ug/Kg	*	106	70 - 130	3	30
11Cl-PF3OUdS	ND	F1	34.3	16.9	F1	ug/Kg	*	49	70 - 130	9	30
		MSD	MSD								
Isotope Dilution		%Recovery	Qualifier	Limits							
13C4 PFBA		82		25 - 150							
13C5 PFPeA		86		25 - 150							
13C2 PFHxA		83		25 - 150							
13C4 PFHpA		96		25 - 150							

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 320-104868-4 MSD
Matrix: Solid
Analysis Batch: 709577

Client Sample ID: Bio A-22-20230912
Prep Type: Total/NA
Prep Batch: 709418

<i>Isotope Dilution</i>	<i>MSD</i> <i>%Recovery</i>	<i>MSD</i> <i>Qualifier</i>	<i>Limits</i>
13C4 PFOA	92		25 - 150
13C5 PFNA	95		25 - 150
13C2 PFDA	85		25 - 150
13C2 PFUnA	80		25 - 150
13C2 PFDoA	48		25 - 150
13C2 PFTeDA	50		25 - 150
13C3 PFBS	86		25 - 150
18O2 PFHxS	98		25 - 150
13C4 PFOS	94		25 - 150
13C8 FOSA	89		10 - 150
d3-NMeFOSAA	53		25 - 150
d5-NEtFOSAA	64		25 - 150
d-N-MeFOSA-M	34		10 - 150
d-N-EtFOSA-M	48		10 - 150
d7-N-MeFOSE-M	38		10 - 150
d9-N-EtFOSE-M	29		10 - 150
M2-4:2 FTS	128		25 - 150
M2-6:2 FTS	127		25 - 150
M2-8:2 FTS	85		25 - 150
13C3 HFPO-DA	86		25 - 150

Lab Sample ID: MB 320-707541/1-A
Matrix: Solid
Analysis Batch: 709623

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 707541

<i>Analyte</i>	<i>MB</i> <i>Result</i>	<i>MB</i> <i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Perfluorobutanoic acid (PFBA)	ND		1.0	0.23	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
Perfluoropentanoic acid (PFPA)	ND		1.0	0.21	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
Perfluorohexanoic acid (PFHxA)	ND		1.0	0.16	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
Perfluoroheptanoic acid (PFHpA)	ND		1.0	0.19	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
Perfluorooctanoic acid (PFOA)	ND		1.0	0.27	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
Perfluorononanoic acid (PFNA)	ND		1.0	0.11	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
Perfluorodecanoic acid (PFDA)	ND		1.0	0.24	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
Perfluoroundecanoic acid (PFUnA)	ND		1.0	0.21	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
Perfluorododecanoic acid (PFDoA)	ND		1.0	0.15	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.0	0.11	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.0	0.19	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.0	0.19	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.0	0.19	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.0	0.15	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.0	0.25	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.0	0.22	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
Perfluorononanesulfonic acid (PFNS)	ND		1.0	0.15	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.0	0.26	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.0	0.24	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
Perfluorooctanesulfonamide (FOSA)	ND		1.0	0.17	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
NMeFOSAA	ND		1.0	0.12	ug/Kg		09/19/23 21:36	09/28/23 13:25	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-707541/1-A
Matrix: Solid
Analysis Batch: 709623

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 707541

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	ND		1.0	0.24	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
4:2 FTS	ND		1.0	0.26	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
6:2 FTS	ND		1.0	0.14	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
8:2 FTS	ND		1.0	0.18	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
NEtFOSA	ND		1.0	0.24	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
NMeFOSA	ND		1.0	0.25	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
NMeFOSE	ND		1.0	0.24	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
NEtFOSE	ND		1.0	0.14	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
HFPO-DA (GenX)	ND		1.0	0.21	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
9CI-PF3ONS	ND		1.0	0.18	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
11CI-PF3OUdS	ND		1.0	0.16	ug/Kg		09/19/23 21:36	09/28/23 13:25	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.0	0.20	ug/Kg		09/19/23 21:36	09/28/23 13:25	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	96		25 - 150	09/19/23 21:36	09/28/23 13:25	1
13C5 PFPeA	103		25 - 150	09/19/23 21:36	09/28/23 13:25	1
13C2 PFHxA	100		25 - 150	09/19/23 21:36	09/28/23 13:25	1
13C4 PFHpA	112		25 - 150	09/19/23 21:36	09/28/23 13:25	1
13C4 PFOA	101		25 - 150	09/19/23 21:36	09/28/23 13:25	1
13C5 PFNA	101		25 - 150	09/19/23 21:36	09/28/23 13:25	1
13C2 PFDA	112		25 - 150	09/19/23 21:36	09/28/23 13:25	1
13C2 PFUnA	107		25 - 150	09/19/23 21:36	09/28/23 13:25	1
13C2 PFDoA	74		25 - 150	09/19/23 21:36	09/28/23 13:25	1
13C2 PFTeDA	115		25 - 150	09/19/23 21:36	09/28/23 13:25	1
13C3 PFBS	106		25 - 150	09/19/23 21:36	09/28/23 13:25	1
18O2 PFHxS	110		25 - 150	09/19/23 21:36	09/28/23 13:25	1
13C4 PFOS	102		25 - 150	09/19/23 21:36	09/28/23 13:25	1
13C8 FOSA	112		25 - 150	09/19/23 21:36	09/28/23 13:25	1
M2-4:2 FTS	95		25 - 150	09/19/23 21:36	09/28/23 13:25	1
M2-6:2 FTS	89		25 - 150	09/19/23 21:36	09/28/23 13:25	1
M2-8:2 FTS	93		25 - 150	09/19/23 21:36	09/28/23 13:25	1
d3-NMeFOSAA	96		25 - 150	09/19/23 21:36	09/28/23 13:25	1
d5-NEtFOSAA	129		25 - 150	09/19/23 21:36	09/28/23 13:25	1
d-N-MeFOSA-M	74		25 - 150	09/19/23 21:36	09/28/23 13:25	1
d-N-EtFOSA-M	72		25 - 150	09/19/23 21:36	09/28/23 13:25	1
13C3 HFPO-DA	93		25 - 150	09/19/23 21:36	09/28/23 13:25	1
d7-N-MeFOSE-M	81		25 - 150	09/19/23 21:36	09/28/23 13:25	1
d9-N-EtFOSE-M	71		25 - 150	09/19/23 21:36	09/28/23 13:25	1

Lab Sample ID: LCS 320-707541/2-A
Matrix: Solid
Analysis Batch: 709623

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 707541

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	10.0	11.2		ug/Kg		112	76 - 136
Perfluoropentanoic acid (PFPA)	10.0	12.2		ug/Kg		122	69 - 129
Perfluorohexanoic acid (PFHxA)	10.0	11.2		ug/Kg		112	71 - 131
Perfluoroheptanoic acid (PFHpA)	10.0	11.5		ug/Kg		115	71 - 131

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-707541/2-A
Matrix: Solid
Analysis Batch: 709623

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 707541

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanoic acid (PFOA)	10.0	10.6		ug/Kg		106	72 - 132
Perfluorononanoic acid (PFNA)	10.0	10.2		ug/Kg		102	73 - 133
Perfluorodecanoic acid (PFDA)	10.0	11.2		ug/Kg		112	72 - 132
Perfluoroundecanoic acid (PFUnA)	10.0	11.0		ug/Kg		110	66 - 126
Perfluorododecanoic acid (PFDoA)	10.0	11.4		ug/Kg		114	71 - 131
Perfluorotridecanoic acid (PFTrDA)	10.0	14.0	*+	ug/Kg		140	71 - 131
Perfluorotetradecanoic acid (PFTeA)	10.0	11.8		ug/Kg		118	67 - 127
Perfluorobutanesulfonic acid (PFBS)	8.88	8.35		ug/Kg		94	69 - 129
Perfluoropentanesulfonic acid (PFPeS)	9.40	9.78		ug/Kg		104	66 - 126
Perfluorohexanesulfonic acid (PFHxS)	9.12	9.99		ug/Kg		110	62 - 122
Perfluoroheptanesulfonic acid (PFHpS)	9.54	10.6		ug/Kg		111	76 - 136
Perfluorooctanesulfonic acid (PFOS)	9.30	9.93		ug/Kg		107	68 - 141
Perfluorononanesulfonic acid (PFNS)	9.62	10.4		ug/Kg		108	72 - 132
Perfluorodecanesulfonic acid (PFDS)	9.64	9.16		ug/Kg		95	71 - 131
Perfluorododecanesulfonic acid (PFDoS)	9.70	10.6		ug/Kg		110	70 - 130
Perfluorooctanesulfonamide (FOSA)	10.0	10.4		ug/Kg		104	77 - 137
NMeFOSAA	10.0	10.4		ug/Kg		104	72 - 132
NEtFOSAA	10.0	10.6		ug/Kg		106	72 - 132
4:2 FTS	9.38	8.65		ug/Kg		92	68 - 143
6:2 FTS	9.52	10.2		ug/Kg		107	73 - 139
8:2 FTS	9.60	11.1		ug/Kg		115	75 - 135
NEtFOSA	10.0	11.2		ug/Kg		112	47 - 161
NMeFOSA	10.0	9.67		ug/Kg		97	63 - 148
NMeFOSE	10.0	11.0		ug/Kg		110	43 - 153
NEtFOSE	10.0	12.6		ug/Kg		126	44 - 155
HFPO-DA (GenX)	10.0	13.0		ug/Kg		130	53 - 158
9Cl-PF3ONS	9.34	9.48		ug/Kg		102	74 - 134
11Cl-PF3OUdS	9.44	9.82		ug/Kg		104	66 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.46	10.4		ug/Kg		110	79 - 139

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	94		25 - 150
13C5 PFPeA	91		25 - 150
13C2 PFHxA	95		25 - 150
13C4 PFHpA	103		25 - 150
13C4 PFOA	100		25 - 150
13C5 PFNA	106		25 - 150
13C2 PFDA	102		25 - 150

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-707541/2-A
Matrix: Solid
Analysis Batch: 709623

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 707541

<i>Isotope Dilution</i>	<i>LCS</i>	<i>LCS</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C2 PFUnA	107		25 - 150
13C2 PFDoA	86		25 - 150
13C2 PFTeDA	93		25 - 150
13C3 PFBS	100		25 - 150
18O2 PFHxS	104		25 - 150
13C4 PFOS	104		25 - 150
13C8 FOSA	112		25 - 150
M2-4:2 FTS	95		25 - 150
M2-6:2 FTS	90		25 - 150
M2-8:2 FTS	97		25 - 150
d3-NMeFOSAA	110		25 - 150
d5-NEtFOSAA	117		25 - 150
d-N-MeFOSA-M	89		25 - 150
d-N-EtFOSA-M	70		25 - 150
13C3 HFPO-DA	87		25 - 150
d7-N-MeFOSE-M	83		25 - 150
d9-N-EtFOSE-M	60		25 - 150

Lab Sample ID: LCSD 320-707541/3-A
Matrix: Solid
Analysis Batch: 709623

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 707541

<i>Analyte</i>	<i>Spike</i>	<i>LCSD</i>	<i>LCSD</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec</i>	<i>RPD</i>	<i>RPD</i>
	<i>Added</i>	<i>Result</i>	<i>Qualifier</i>				<i>Limits</i>		<i>Limit</i>
Perfluorobutanoic acid (PFBA)	10.0	11.4		ug/Kg		114	76 - 136	2	30
Perfluoropentanoic acid (PFPA)	10.0	10.6		ug/Kg		106	69 - 129	15	30
Perfluorohexanoic acid (PFHxA)	10.0	11.2		ug/Kg		112	71 - 131	1	30
Perfluoroheptanoic acid (PFHpA)	10.0	11.0		ug/Kg		110	71 - 131	4	30
Perfluorooctanoic acid (PFOA)	10.0	11.7		ug/Kg		117	72 - 132	10	30
Perfluorononanoic acid (PFNA)	10.0	11.0		ug/Kg		110	73 - 133	7	30
Perfluorodecanoic acid (PFDA)	10.0	12.7		ug/Kg		127	72 - 132	12	30
Perfluoroundecanoic acid (PFUnA)	10.0	11.3		ug/Kg		113	66 - 126	3	30
Perfluorododecanoic acid (PFDoA)	10.0	12.8		ug/Kg		128	71 - 131	11	30
Perfluorotridecanoic acid (PFTTrDA)	10.0	14.2	*+	ug/Kg		142	71 - 131	1	30
Perfluorotetradecanoic acid (PFTeA)	10.0	10.4		ug/Kg		104	67 - 127	13	30
Perfluorobutanesulfonic acid (PFBS)	8.88	8.51		ug/Kg		96	69 - 129	2	30
Perfluoropentanesulfonic acid (PFPeS)	9.40	9.59		ug/Kg		102	66 - 126	2	30
Perfluorohexanesulfonic acid (PFHxS)	9.12	9.40		ug/Kg		103	62 - 122	6	30
Perfluoroheptanesulfonic acid (PFHpS)	9.54	10.7		ug/Kg		112	76 - 136	0	30
Perfluorooctanesulfonic acid (PFOS)	9.30	9.88		ug/Kg		106	68 - 141	1	30
Perfluorononanesulfonic acid (PFNS)	9.62	10.3		ug/Kg		107	72 - 132	1	30
Perfluorodecanesulfonic acid (PFDS)	9.64	10.3		ug/Kg		107	71 - 131	12	30

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-707541/3-A
Matrix: Solid
Analysis Batch: 709623

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 707541

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorododecanesulfonic acid (PFDoS)	9.70	10.7		ug/Kg		110	70 - 130	0	30
Perfluorooctanesulfonamide (FOSA)	10.0	9.03		ug/Kg		90	77 - 137	14	30
NMeFOSAA	10.0	10.0		ug/Kg		100	72 - 132	4	30
NEtFOSAA	10.0	10.0		ug/Kg		100	72 - 132	5	30
4:2 FTS	9.38	7.66		ug/Kg		82	68 - 143	12	30
6:2 FTS	9.52	9.16		ug/Kg		96	73 - 139	10	30
8:2 FTS	9.60	11.0		ug/Kg		115	75 - 135	1	30
NEtFOSA	10.0	9.43		ug/Kg		94	47 - 161	17	30
NMeFOSA	10.0	9.77		ug/Kg		98	63 - 148	1	30
NMeFOSE	10.0	10.4		ug/Kg		104	43 - 153	5	30
NEtFOSE	10.0	11.3		ug/Kg		113	44 - 155	10	30
HFPO-DA (GenX)	10.0	10.9		ug/Kg		109	53 - 158	17	30
9Cl-PF3ONS	9.34	9.37		ug/Kg		100	74 - 134	1	30
11Cl-PF3OUdS	9.44	9.22		ug/Kg		98	66 - 136	6	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.46	10.2		ug/Kg		108	79 - 139	2	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	LCSD Limits
13C4 PFBA	25		25 - 150
13C5 PFPeA	100		25 - 150
13C2 PFHxA	100		25 - 150
13C4 PFHpA	110		25 - 150
13C4 PFOA	99		25 - 150
13C5 PFNA	106		25 - 150
13C2 PFDA	94		25 - 150
13C2 PFUnA	110		25 - 150
13C2 PFDoA	81		25 - 150
13C2 PFTeDA	102		25 - 150
13C3 PFBS	107		25 - 150
18O2 PFHxS	114		25 - 150
13C4 PFOS	106		25 - 150
13C8 FOSA	129		25 - 150
M2-4:2 FTS	95		25 - 150
M2-6:2 FTS	102		25 - 150
M2-8:2 FTS	101		25 - 150
d3-NMeFOSAA	108		25 - 150
d5-NEtFOSAA	125		25 - 150
d-N-MeFOSA-M	108		25 - 150
d-N-EtFOSA-M	107		25 - 150
13C3 HFPO-DA	100		25 - 150
d7-N-MeFOSE-M	89		25 - 150
d9-N-EtFOSE-M	73		25 - 150

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-707546/1-A
Matrix: Water
Analysis Batch: 709674

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 707546

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		13	6.0	ng/L		09/19/23 23:06	09/28/23 20:43	1
Perfluoropentanoic acid (PFPA)	ND		5.0	1.2	ng/L		09/19/23 23:06	09/28/23 20:43	1
Perfluorohexanoic acid (PFHxA)	ND		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 20:43	1
Perfluoroheptanoic acid (PFHpA)	ND		5.0	0.63	ng/L		09/19/23 23:06	09/28/23 20:43	1
Perfluorooctanoic acid (PFOA)	ND		5.0	2.1	ng/L		09/19/23 23:06	09/28/23 20:43	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		09/19/23 23:06	09/28/23 20:43	1
Perfluorodecanoic acid (PFDA)	ND		5.0	0.78	ng/L		09/19/23 23:06	09/28/23 20:43	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		09/19/23 23:06	09/28/23 20:43	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 20:43	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		09/19/23 23:06	09/28/23 20:43	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		09/19/23 23:06	09/28/23 20:43	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0	0.50	ng/L		09/19/23 23:06	09/28/23 20:43	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		09/19/23 23:06	09/28/23 20:43	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0	0.43	ng/L		09/19/23 23:06	09/28/23 20:43	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		09/19/23 23:06	09/28/23 20:43	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.0	0.80	ng/L		09/19/23 23:06	09/28/23 20:43	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		09/19/23 23:06	09/28/23 20:43	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 20:43	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		09/19/23 23:06	09/28/23 20:43	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		09/19/23 23:06	09/28/23 20:43	1
NMeFOSAA	ND		13	3.0	ng/L		09/19/23 23:06	09/28/23 20:43	1
NEtFOSAA	ND		13	3.3	ng/L		09/19/23 23:06	09/28/23 20:43	1
4:2 FTS	ND		5.0	0.60	ng/L		09/19/23 23:06	09/28/23 20:43	1
6:2 FTS	ND		13	6.3	ng/L		09/19/23 23:06	09/28/23 20:43	1
8:2 FTS	ND		5.0	1.2	ng/L		09/19/23 23:06	09/28/23 20:43	1
NEtFOSA	ND		5.0	2.2	ng/L		09/19/23 23:06	09/28/23 20:43	1
NMeFOSA	ND		5.0	1.1	ng/L		09/19/23 23:06	09/28/23 20:43	1
NMeFOSE	ND		10	3.5	ng/L		09/19/23 23:06	09/28/23 20:43	1
NEtFOSE	ND		5.0	2.2	ng/L		09/19/23 23:06	09/28/23 20:43	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		09/19/23 23:06	09/28/23 20:43	1
9CI-PF3ONS	ND		5.0	0.60	ng/L		09/19/23 23:06	09/28/23 20:43	1
11CI-PF3OUdS	ND		5.0	0.80	ng/L		09/19/23 23:06	09/28/23 20:43	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		09/19/23 23:06	09/28/23 20:43	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	88		25 - 150	09/19/23 23:06	09/28/23 20:43	1
13C5 PFPeA	96		25 - 150	09/19/23 23:06	09/28/23 20:43	1
13C2 PFHxA	94		25 - 150	09/19/23 23:06	09/28/23 20:43	1
13C4 PFHpA	108		25 - 150	09/19/23 23:06	09/28/23 20:43	1
13C4 PFOA	98		25 - 150	09/19/23 23:06	09/28/23 20:43	1
13C5 PFNA	106		25 - 150	09/19/23 23:06	09/28/23 20:43	1
13C2 PFDA	107		25 - 150	09/19/23 23:06	09/28/23 20:43	1
13C2 PFUnA	112		25 - 150	09/19/23 23:06	09/28/23 20:43	1
13C2 PFDoA	100		25 - 150	09/19/23 23:06	09/28/23 20:43	1
13C2 PFTeDA	93		25 - 150	09/19/23 23:06	09/28/23 20:43	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-707546/1-A
Matrix: Water
Analysis Batch: 709674

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 707546

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 PFBS	99		25 - 150	09/19/23 23:06	09/28/23 20:43	1
18O2 PFHxS	98		25 - 150	09/19/23 23:06	09/28/23 20:43	1
13C4 PFOS	99		25 - 150	09/19/23 23:06	09/28/23 20:43	1
13C8 FOSA	113		25 - 150	09/19/23 23:06	09/28/23 20:43	1
M2-4:2 FTS	116		25 - 150	09/19/23 23:06	09/28/23 20:43	1
M2-6:2 FTS	111		25 - 150	09/19/23 23:06	09/28/23 20:43	1
M2-8:2 FTS	135		25 - 150	09/19/23 23:06	09/28/23 20:43	1
d3-NMeFOSAA	110		25 - 150	09/19/23 23:06	09/28/23 20:43	1
d5-NEtFOSAA	121		25 - 150	09/19/23 23:06	09/28/23 20:43	1
d-N-MeFOSA-M	90		25 - 150	09/19/23 23:06	09/28/23 20:43	1
d-N-EtFOSA-M	82		25 - 150	09/19/23 23:06	09/28/23 20:43	1
13C3 HFPO-DA	89		25 - 150	09/19/23 23:06	09/28/23 20:43	1
d7-N-MeFOSE-M	85		25 - 150	09/19/23 23:06	09/28/23 20:43	1
d9-N-EtFOSE-M	70		25 - 150	09/19/23 23:06	09/28/23 20:43	1

Lab Sample ID: LCS 320-707546/2-A
Matrix: Water
Analysis Batch: 709964

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 707546

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	100	113		ng/L		113	76 - 136
Perfluoropentanoic acid (PFPA)	100	123		ng/L		123	71 - 131
Perfluorohexanoic acid (PFHxA)	100	113		ng/L		113	73 - 133
Perfluoroheptanoic acid (PFHpA)	100	115		ng/L		115	72 - 132
Perfluorooctanoic acid (PFOA)	100	118		ng/L		118	70 - 130
Perfluorononanoic acid (PFNA)	100	114		ng/L		114	75 - 135
Perfluorodecanoic acid (PFDA)	100	122		ng/L		122	76 - 136
Perfluoroundecanoic acid (PFUnA)	100	123		ng/L		123	68 - 128
Perfluorododecanoic acid (PFDoA)	100	118		ng/L		118	71 - 131
Perfluorotridecanoic acid (PFTrDA)	100	114		ng/L		114	71 - 131
Perfluorotetradecanoic acid (PFTeA)	100	103		ng/L		103	70 - 130
Perfluorobutanesulfonic acid (PFBS)	88.8	88.0		ng/L		99	67 - 127
Perfluoropentanesulfonic acid (PFPeS)	94.0	103		ng/L		110	66 - 126
Perfluorohexanesulfonic acid (PFHxS)	91.2	102		ng/L		112	59 - 119
Perfluoroheptanesulfonic acid (PFHpS)	95.4	106		ng/L		111	76 - 136
Perfluorooctanesulfonic acid (PFOS)	93.0	105		ng/L		113	70 - 130
Perfluorononanesulfonic acid (PFNS)	96.2	114		ng/L		118	75 - 135
Perfluorodecanesulfonic acid (PFDS)	96.4	106		ng/L		110	71 - 131
Perfluorododecanesulfonic acid (PFDoS)	97.0	84.9		ng/L		87	67 - 127

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-707546/2-A
Matrix: Water
Analysis Batch: 709964

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 707546

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	100	108		ng/L		108	73 - 133
NMeFOSAA	100	112		ng/L		112	76 - 136
NEtFOSAA	100	112		ng/L		112	76 - 136
4:2 FTS	93.8	122		ng/L		131	79 - 139
6:2 FTS	95.2	99.0		ng/L		104	59 - 175
8:2 FTS	96.0	104		ng/L		108	75 - 135
NEtFOSA	100	81.9		ng/L		82	78 - 138
NMeFOSA	100	91.5		ng/L		91	67 - 154
NMeFOSE	100	112		ng/L		112	70 - 130
NEtFOSE	100	90.4		ng/L		90	71 - 131
HFPO-DA (GenX)	100	122		ng/L		122	51 - 173
9Cl-PF3ONS	93.4	102		ng/L		110	75 - 135
11Cl-PF3OUdS	94.4	97.7		ng/L		103	54 - 114
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	94.6	105		ng/L		111	79 - 139

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	90		25 - 150
13C5 PFPeA	94		25 - 150
13C2 PFHxA	100		25 - 150
13C4 PFHpA	105		25 - 150
13C4 PFOA	96		25 - 150
13C5 PFNA	115		25 - 150
13C2 PFDA	103		25 - 150
13C2 PFUnA	106		25 - 150
13C2 PFDoA	107		25 - 150
13C2 PFTeDA	114		25 - 150
13C3 PFBS	100		25 - 150
18O2 PFHxS	102		25 - 150
13C4 PFOS	105		25 - 150
13C8 FOSA	114		25 - 150
M2-4:2 FTS	118		25 - 150
M2-6:2 FTS	118		25 - 150
M2-8:2 FTS	140		25 - 150
d3-NMeFOSAA	106		25 - 150
d5-NEtFOSAA	117		25 - 150
d-N-MeFOSA-M	96		25 - 150
d-N-EtFOSA-M	81		25 - 150
13C3 HFPO-DA	89		25 - 150
d7-N-MeFOSE-M	87		25 - 150
d9-N-EtFOSE-M	88		25 - 150

Lab Sample ID: LCSD 320-707546/3-A
Matrix: Water
Analysis Batch: 709964

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 707546

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	
								RPD	Limit
Perfluorobutanoic acid (PFBA)	100	99.9		ng/L		100	76 - 136	12	30

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-707546/3-A
Matrix: Water
Analysis Batch: 709964

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 707546

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoropentanoic acid (PFPA)	100	104		ng/L		104	71 - 131	16	30
Perfluorohexanoic acid (PFHxA)	100	116		ng/L		116	73 - 133	3	30
Perfluoroheptanoic acid (PFHpA)	100	111		ng/L		111	72 - 132	3	30
Perfluorooctanoic acid (PFOA)	100	111		ng/L		111	70 - 130	6	30
Perfluorononanoic acid (PFNA)	100	103		ng/L		103	75 - 135	10	30
Perfluorodecanoic acid (PFDA)	100	109		ng/L		109	76 - 136	11	30
Perfluoroundecanoic acid (PFUnA)	100	117		ng/L		117	68 - 128	5	30
Perfluorododecanoic acid (PFDoA)	100	112		ng/L		112	71 - 131	6	30
Perfluorotridecanoic acid (PFTrDA)	100	117		ng/L		117	71 - 131	2	30
Perfluorotetradecanoic acid (PFTeA)	100	121		ng/L		121	70 - 130	16	30
Perfluorobutanesulfonic acid (PFBS)	88.8	83.4		ng/L		94	67 - 127	5	30
Perfluoropentanesulfonic acid (PFPeS)	94.0	97.3		ng/L		103	66 - 126	6	30
Perfluorohexanesulfonic acid (PFHxS)	91.2	98.9		ng/L		108	59 - 119	3	30
Perfluoroheptanesulfonic acid (PFHpS)	95.4	104		ng/L		109	76 - 136	1	30
Perfluorooctanesulfonic acid (PFOS)	93.0	102		ng/L		109	70 - 130	4	30
Perfluorononanesulfonic acid (PFNS)	96.2	107		ng/L		111	75 - 135	6	30
Perfluorodecanesulfonic acid (PFDS)	96.4	96.1		ng/L		100	71 - 131	10	30
Perfluorododecanesulfonic acid (PFDoS)	97.0	93.9		ng/L		97	67 - 127	10	30
Perfluorooctanesulfonamide (FOSA)	100	97.0		ng/L		97	73 - 133	11	30
NMeFOSAA	100	111		ng/L		111	76 - 136	2	30
NEtFOSAA	100	109		ng/L		109	76 - 136	3	30
4:2 FTS	93.8	98.6		ng/L		105	79 - 139	22	30
6:2 FTS	95.2	95.5		ng/L		100	59 - 175	4	30
8:2 FTS	96.0	110		ng/L		114	75 - 135	6	30
NEtFOSA	100	97.6		ng/L		98	78 - 138	17	30
NMeFOSA	100	86.8		ng/L		87	67 - 154	5	30
NMeFOSE	100	102		ng/L		102	70 - 130	9	30
NEtFOSE	100	104		ng/L		104	71 - 131	14	30
HFPO-DA (GenX)	100	115		ng/L		115	51 - 173	6	30
9CI-PF3ONS	93.4	101		ng/L		108	75 - 135	2	30
11CI-PF3OUdS	94.4	101		ng/L		107	54 - 114	4	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	94.6	109		ng/L		115	79 - 139	3	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	LCSD Limits
¹³ C4 PFBA	95		25 - 150
¹³ C5 PFPeA	101		25 - 150
¹³ C2 PFHxA	95		25 - 150
¹³ C4 PFHpA	104		25 - 150

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-707546/3-A
Matrix: Water
Analysis Batch: 709964

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 707546

Isotope Dilution	LCSD LCSD		Limits
	%Recovery	Qualifier	
13C4 PFOA	101		25 - 150
13C5 PFNA	110		25 - 150
13C2 PFDA	113		25 - 150
13C2 PFUnA	103		25 - 150
13C2 PFDoA	98		25 - 150
13C2 PFTeDA	99		25 - 150
13C3 PFBS	101		25 - 150
18O2 PFHxS	97		25 - 150
13C4 PFOS	101		25 - 150
13C8 FOSA	113		25 - 150
M2-4:2 FTS	113		25 - 150
M2-6:2 FTS	121		25 - 150
M2-8:2 FTS	135		25 - 150
d3-NMeFOSAA	108		25 - 150
d5-NEtFOSAA	109		25 - 150
d-N-MeFOSA-M	84		25 - 150
d-N-EtFOSA-M	73		25 - 150
13C3 HFPO-DA	97		25 - 150
d7-N-MeFOSE-M	86		25 - 150
d9-N-EtFOSE-M	77		25 - 150

Lab Sample ID: MB 320-707538/1-A
Matrix: Water
Analysis Batch: 709672

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 707538

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	6.25	J	13	6.0	ng/L		09/19/23 20:05	09/28/23 15:28	1
Perfluoropentanoic acid (PFPA)	ND		5.0	1.2	ng/L		09/19/23 20:05	09/28/23 15:28	1
Perfluorohexanoic acid (PFHxA)	ND		5.0	1.4	ng/L		09/19/23 20:05	09/28/23 15:28	1
Perfluoroheptanoic acid (PFHpA)	ND		5.0	0.63	ng/L		09/19/23 20:05	09/28/23 15:28	1
Perfluorooctanoic acid (PFOA)	ND		5.0	2.1	ng/L		09/19/23 20:05	09/28/23 15:28	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		09/19/23 20:05	09/28/23 15:28	1
Perfluorodecanoic acid (PFDA)	ND		5.0	0.78	ng/L		09/19/23 20:05	09/28/23 15:28	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		09/19/23 20:05	09/28/23 15:28	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		09/19/23 20:05	09/28/23 15:28	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		09/19/23 20:05	09/28/23 15:28	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		09/19/23 20:05	09/28/23 15:28	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0	0.50	ng/L		09/19/23 20:05	09/28/23 15:28	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		09/19/23 20:05	09/28/23 15:28	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0	0.43	ng/L		09/19/23 20:05	09/28/23 15:28	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		09/19/23 20:05	09/28/23 15:28	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.0	0.80	ng/L		09/19/23 20:05	09/28/23 15:28	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		09/19/23 20:05	09/28/23 15:28	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		09/19/23 20:05	09/28/23 15:28	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		09/19/23 20:05	09/28/23 15:28	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		09/19/23 20:05	09/28/23 15:28	1
NMeFOSAA	ND		13	3.0	ng/L		09/19/23 20:05	09/28/23 15:28	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-707538/1-A
Matrix: Water
Analysis Batch: 709672

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 707538

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	ND		13	3.3	ng/L		09/19/23 20:05	09/28/23 15:28	1
4:2 FTS	ND		5.0	0.60	ng/L		09/19/23 20:05	09/28/23 15:28	1
6:2 FTS	ND		13	6.3	ng/L		09/19/23 20:05	09/28/23 15:28	1
8:2 FTS	ND		5.0	1.2	ng/L		09/19/23 20:05	09/28/23 15:28	1
NEtFOSA	ND		5.0	2.2	ng/L		09/19/23 20:05	09/28/23 15:28	1
NMeFOSA	ND		5.0	1.1	ng/L		09/19/23 20:05	09/28/23 15:28	1
NMeFOSE	ND		10	3.5	ng/L		09/19/23 20:05	09/28/23 15:28	1
NEtFOSE	ND		5.0	2.2	ng/L		09/19/23 20:05	09/28/23 15:28	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		09/19/23 20:05	09/28/23 15:28	1
9CI-PF3ONS	ND		5.0	0.60	ng/L		09/19/23 20:05	09/28/23 15:28	1
11CI-PF3OUdS	ND		5.0	0.80	ng/L		09/19/23 20:05	09/28/23 15:28	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		09/19/23 20:05	09/28/23 15:28	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	35		25 - 150	09/19/23 20:05	09/28/23 15:28	1
13C5 PFPeA	103		25 - 150	09/19/23 20:05	09/28/23 15:28	1
13C2 PFHxA	102		25 - 150	09/19/23 20:05	09/28/23 15:28	1
13C4 PFHpA	102		25 - 150	09/19/23 20:05	09/28/23 15:28	1
13C4 PFOA	97		25 - 150	09/19/23 20:05	09/28/23 15:28	1
13C5 PFNA	105		25 - 150	09/19/23 20:05	09/28/23 15:28	1
13C2 PFDA	102		25 - 150	09/19/23 20:05	09/28/23 15:28	1
13C2 PFUnA	109		25 - 150	09/19/23 20:05	09/28/23 15:28	1
13C2 PFDoA	87		25 - 150	09/19/23 20:05	09/28/23 15:28	1
13C2 PFTeDA	96		25 - 150	09/19/23 20:05	09/28/23 15:28	1
13C3 PFBS	105		25 - 150	09/19/23 20:05	09/28/23 15:28	1
18O2 PFHxS	103		25 - 150	09/19/23 20:05	09/28/23 15:28	1
13C4 PFOS	102		25 - 150	09/19/23 20:05	09/28/23 15:28	1
13C8 FOSA	124		25 - 150	09/19/23 20:05	09/28/23 15:28	1
M2-4:2 FTS	0		0 - 10	09/19/23 20:05	09/28/23 15:28	1
M2-6:2 FTS	80		25 - 150	09/19/23 20:05	09/28/23 15:28	1
M2-8:2 FTS	98		25 - 150	09/19/23 20:05	09/28/23 15:28	1
d3-NMeFOSAA	101		25 - 150	09/19/23 20:05	09/28/23 15:28	1
d5-NEtFOSAA	116		25 - 150	09/19/23 20:05	09/28/23 15:28	1
d-N-MeFOSA-M	104		25 - 150	09/19/23 20:05	09/28/23 15:28	1
d-N-EtFOSA-M	82		25 - 150	09/19/23 20:05	09/28/23 15:28	1
13C3 HFPO-DA	104		25 - 150	09/19/23 20:05	09/28/23 15:28	1
d7-N-MeFOSE-M	91		25 - 150	09/19/23 20:05	09/28/23 15:28	1
d9-N-EtFOSE-M	76		25 - 150	09/19/23 20:05	09/28/23 15:28	1

Lab Sample ID: LCS 320-707538/2-A
Matrix: Water
Analysis Batch: 709672

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 707538

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	100	202	*+	ng/L		202	93 - 153
Perfluoropentanoic acid (PFPA)	100	223	*+	ng/L		223	85 - 145
Perfluorohexanoic acid (PFHxA)	100	234	*+	ng/L		234	81 - 141
Perfluoroheptanoic acid (PFHpA)	100	231	*+	ng/L		231	104 - 171

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-707538/2-A
Matrix: Water
Analysis Batch: 709672

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 707538

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanoic acid (PFOA)	100	363		ng/L		363	158 - 454
Perfluorononanoic acid (PFNA)	100	172	*+	ng/L		172	66 - 126
Perfluorodecanoic acid (PFDA)	100	150	*+	ng/L		150	65 - 125
Perfluoroundecanoic acid (PFUnA)	100	112		ng/L		112	57 - 117
Perfluorododecanoic acid (PFDoA)	100	146	*+	ng/L		146	66 - 126
Perfluorotridecanoic acid (PFTrDA)	100	151	*+	ng/L		151	65 - 136
Perfluorotetradecanoic acid (PFTeA)	100	106		ng/L		106	63 - 123
Perfluorobutanesulfonic acid (PFBS)	88.8	83.3		ng/L		94	75 - 135
Perfluoropentanesulfonic acid (PFPeS)	94.0	95.9		ng/L		102	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	91.2	94.5		ng/L		104	64 - 124
Perfluoroheptanesulfonic acid (PFHpS)	95.4	97.9		ng/L		103	70 - 131
Perfluorooctanesulfonic acid (PFOS)	93.0	96.8		ng/L		104	68 - 128
Perfluorononanesulfonic acid (PFNS)	96.2	102		ng/L		106	70 - 130
Perfluorodecanesulfonic acid (PFDS)	96.4	89.9		ng/L		93	66 - 126
Perfluorododecanesulfonic acid (PFDoS)	97.0	94.3		ng/L		97	67 - 127
Perfluorooctanesulfonamide (FOSA)	100	ND		ng/L		0	0 - 10
NMeFOSAA	100	ND		ng/L		0	0 - 10
NEtFOSAA	100	ND		ng/L		0	0 - 10
4:2 FTS	93.8	ND		ng/L		0	0 - 10
6:2 FTS	95.2	ND		ng/L		0	0 - 10
8:2 FTS	96.0	ND		ng/L		0	0 - 10
NEtFOSA	100	ND		ng/L		0	0 - 10
NMeFOSA	100	ND		ng/L		0	0 - 10
NMeFOSE	100	ND		ng/L		0	0 - 10
NEtFOSE	100	ND		ng/L		0	0 - 10
HFPO-DA (GenX)	100	86.3		ng/L		86	51 - 173
9Cl-PF3ONS	93.4	91.2		ng/L		98	75 - 135
11Cl-PF3OUdS	94.4	61.1		ng/L		65	54 - 114
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	94.6	ND		ng/L		0	0 - 10

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFBA	91		25 - 150
13C5 PFPeA	101		25 - 150
13C2 PFHxA	100		25 - 150
13C4 PFHpA	108		25 - 150
13C4 PFOA	100		25 - 150
13C5 PFNA	106		25 - 150
13C2 PFDA	109		25 - 150

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-707538/2-A
Matrix: Water
Analysis Batch: 709672

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 707538

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>LCS Qualifier</i>	<i>Limits</i>
13C2 PFUnA	114		25 - 150
13C2 PFDoA	71		25 - 150
13C2 PFTeDA	97		25 - 150
13C3 PFBS	107		25 - 150
18O2 PFHxS	103		25 - 150
13C4 PFOS	100		25 - 150
13C8 FOSA	112		25 - 150
M2-4:2 FTS	0		0 - 10
M2-6:2 FTS	75		25 - 150
M2-8:2 FTS	92		25 - 150
d3-NMeFOSAA	107		25 - 150
d5-NEtFOSAA	115		25 - 150
d-N-MeFOSA-M	93		25 - 150
d-N-EtFOSA-M	78		25 - 150
13C3 HFPO-DA	106		25 - 150
d7-N-MeFOSE-M	92		25 - 150
d9-N-EtFOSE-M	72		25 - 150

Lab Sample ID: LCSD 320-707538/3-A
Matrix: Water
Analysis Batch: 709672

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 707538

<i>Analyte</i>	<i>Spike Added</i>	<i>LCSD Result</i>	<i>LCSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
Perfluorobutanoic acid (PFBA)	100	271	*+	ng/L		271	93 - 153	29	30
Perfluoropentanoic acid (PFPA)	100	226	*+	ng/L		226	85 - 145	2	30
Perfluorohexanoic acid (PFHxA)	100	241	*+	ng/L		241	81 - 141	3	30
Perfluoroheptanoic acid (PFHpA)	100	239	*+	ng/L		239	104 - 171	3	30
Perfluorooctanoic acid (PFOA)	100	363		ng/L		363	158 - 454	0	30
Perfluorononanoic acid (PFNA)	100	163	*+	ng/L		163	66 - 126	5	30
Perfluorodecanoic acid (PFDA)	100	158	*+	ng/L		158	65 - 125	5	30
Perfluoroundecanoic acid (PFUnA)	100	116		ng/L		116	57 - 117	3	30
Perfluorododecanoic acid (PFDoA)	100	113		ng/L		113	66 - 126	25	30
Perfluorotridecanoic acid (PFTTrDA)	100	147	*+	ng/L		147	65 - 136	3	30
Perfluorotetradecanoic acid (PFTeA)	100	102		ng/L		102	63 - 123	4	30
Perfluorobutanesulfonic acid (PFBS)	88.8	85.1		ng/L		96	75 - 135	2	30
Perfluoropentanesulfonic acid (PFPeS)	94.0	97.5		ng/L		104	70 - 130	2	30
Perfluorohexanesulfonic acid (PFHxS)	91.2	93.4		ng/L		102	64 - 124	1	30
Perfluoroheptanesulfonic acid (PFHpS)	95.4	100		ng/L		105	70 - 131	3	30
Perfluorooctanesulfonic acid (PFOS)	93.0	99.9		ng/L		107	68 - 128	3	30
Perfluorononanesulfonic acid (PFNS)	96.2	109		ng/L		113	70 - 130	7	30
Perfluorodecanesulfonic acid (PFDS)	96.4	96.1		ng/L		100	66 - 126	7	30

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-707538/3-A
Matrix: Water
Analysis Batch: 709672

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 707538

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorododecanesulfonic acid (PFDoS)	97.0	101		ng/L		104	67 - 127	6	30
Perfluorooctanesulfonamide (FOSA)	100	ND		ng/L		0	0 - 10	NC	30
NMeFOSAA	100	ND		ng/L		0	0 - 10	NC	30
NEtFOSAA	100	ND		ng/L		0	0 - 10	NC	30
4:2 FTS	93.8	ND		ng/L		0	0 - 10	NC	30
6:2 FTS	95.2	ND		ng/L		0	0 - 10	NC	30
8:2 FTS	96.0	ND		ng/L		0	0 - 10	NC	30
NEtFOSA	100	ND		ng/L		0	0 - 10	NC	30
NMeFOSA	100	ND		ng/L		0	0 - 10	NC	30
NMeFOSE	100	ND		ng/L		0	0 - 10	NC	30
NEtFOSE	100	ND		ng/L		0	0 - 10	NC	30
HFPO-DA (GenX)	100	89.4		ng/L		89	51 - 173	4	30
9Cl-PF3ONS	93.4	93.8		ng/L		100	75 - 135	3	30
11Cl-PF3OUdS	94.4	67.4		ng/L		71	54 - 114	10	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	94.6	ND		ng/L		0	0 - 10	NC	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C4 PFBA	23	*5-	25 - 150
13C5 PFPeA	94		25 - 150
13C2 PFHxA	91		25 - 150
13C4 PFHpA	100		25 - 150
13C4 PFOA	95		25 - 150
13C5 PFNA	100		25 - 150
13C2 PFDA	100		25 - 150
13C2 PFUnA	101		25 - 150
13C2 PFDoA	72		25 - 150
13C2 PFTeDA	96		25 - 150
13C3 PFBS	97		25 - 150
18O2 PFHxS	95		25 - 150
13C4 PFOS	92		25 - 150
13C8 FOSA	114		25 - 150
M2-4:2 FTS	0		0 - 10
M2-6:2 FTS	71		25 - 150
M2-8:2 FTS	90		25 - 150
d3-NMeFOSAA	101		25 - 150
d5-NEtFOSAA	111		25 - 150
d-N-MeFOSA-M	95		25 - 150
d-N-EtFOSA-M	74		25 - 150
13C3 HFPO-DA	99		25 - 150
d7-N-MeFOSE-M	88		25 - 150
d9-N-EtFOSE-M	63		25 - 150

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-707540/1-A
Matrix: Solid
Analysis Batch: 709623

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 707540

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	ND		1.0	0.23	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
Perfluoropentanoic acid (PFPA)	0.213	J	1.0	0.21	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
Perfluorohexanoic acid (PFHxA)	ND		1.0	0.16	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
Perfluoroheptanoic acid (PFHpA)	ND		1.0	0.19	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
Perfluorooctanoic acid (PFOA)	ND		1.0	0.27	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
Perfluorononanoic acid (PFNA)	ND		1.0	0.11	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
Perfluorodecanoic acid (PFDA)	ND		1.0	0.24	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
Perfluoroundecanoic acid (PFUnA)	ND		1.0	0.21	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
Perfluorododecanoic acid (PFDoA)	ND		1.0	0.15	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.0	0.11	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.0	0.19	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.0	0.19	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.0	0.19	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.0	0.15	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.0	0.25	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.0	0.22	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
Perfluorononanesulfonic acid (PFNS)	ND		1.0	0.15	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.0	0.26	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.0	0.24	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
Perfluorooctanesulfonamide (FOSA)	ND		1.0	0.17	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
NMeFOSAA	ND		1.0	0.12	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
NEtFOSAA	ND		1.0	0.24	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
4:2 FTS	ND		1.0	0.26	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
6:2 FTS	ND		1.0	0.14	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
8:2 FTS	ND		1.0	0.18	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
NEtFOSA	ND		1.0	0.24	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
NMeFOSA	ND		1.0	0.25	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
NMeFOSE	ND		1.0	0.24	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
NEtFOSE	ND		1.0	0.14	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
HFPO-DA (GenX)	ND		1.0	0.21	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
9Cl-PF3ONS	ND		1.0	0.18	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
11Cl-PF3OUdS	ND		1.0	0.16	ug/Kg		09/19/23 21:36	09/28/23 11:33	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.0	0.20	ug/Kg		09/19/23 21:36	09/28/23 11:33	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C4 PFBA	97		25 - 150	09/19/23 21:36	09/28/23 11:33	1
13C5 PFPeA	99		25 - 150	09/19/23 21:36	09/28/23 11:33	1
13C2 PFHxA	98		25 - 150	09/19/23 21:36	09/28/23 11:33	1
13C4 PFHpA	107		25 - 150	09/19/23 21:36	09/28/23 11:33	1
13C4 PFOA	100		25 - 150	09/19/23 21:36	09/28/23 11:33	1
13C5 PFNA	105		25 - 150	09/19/23 21:36	09/28/23 11:33	1
13C2 PFDA	105		25 - 150	09/19/23 21:36	09/28/23 11:33	1
13C2 PFUnA	101		25 - 150	09/19/23 21:36	09/28/23 11:33	1
13C2 PFDoA	106		25 - 150	09/19/23 21:36	09/28/23 11:33	1
13C2 PFTeDA	113		25 - 150	09/19/23 21:36	09/28/23 11:33	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-707540/1-A
Matrix: Solid
Analysis Batch: 709623

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 707540

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 PFBS	105		25 - 150	09/19/23 21:36	09/28/23 11:33	1
18O2 PFHxS	105		25 - 150	09/19/23 21:36	09/28/23 11:33	1
13C4 PFOS	102		25 - 150	09/19/23 21:36	09/28/23 11:33	1
13C8 FOSA	120		25 - 150	09/19/23 21:36	09/28/23 11:33	1
M2-4:2 FTS	0		0 - 10	09/19/23 21:36	09/28/23 11:33	1
M2-6:2 FTS	91		25 - 150	09/19/23 21:36	09/28/23 11:33	1
M2-8:2 FTS	100		25 - 150	09/19/23 21:36	09/28/23 11:33	1
d3-NMeFOSAA	110		25 - 150	09/19/23 21:36	09/28/23 11:33	1
d5-NEtFOSAA	134		25 - 150	09/19/23 21:36	09/28/23 11:33	1
d-N-MeFOSA-M	89		25 - 150	09/19/23 21:36	09/28/23 11:33	1
d-N-EtFOSA-M	105		25 - 150	09/19/23 21:36	09/28/23 11:33	1
13C3 HFPO-DA	95		25 - 150	09/19/23 21:36	09/28/23 11:33	1
d7-N-MeFOSE-M	98		25 - 150	09/19/23 21:36	09/28/23 11:33	1
d9-N-EtFOSE-M	94		25 - 150	09/19/23 21:36	09/28/23 11:33	1

Lab Sample ID: LCS 320-707540/2-A
Matrix: Solid
Analysis Batch: 709623

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 707540

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	10.0	18.1		ug/Kg		181	96 - 183
Perfluoropentanoic acid (PFPA)	10.0	17.8	*+	ug/Kg		178	81 - 141
Perfluorohexanoic acid (PFHxA)	10.0	20.1	*+	ug/Kg		201	92 - 152
Perfluoroheptanoic acid (PFHpA)	10.0	20.8	*+	ug/Kg		208	100 - 160
Perfluorooctanoic acid (PFOA)	10.0	35.1		ug/Kg		351	169 - 414
Perfluorononanoic acid (PFNA)	10.0	16.8	*+	ug/Kg		168	82 - 142
Perfluorodecanoic acid (PFDA)	10.0	16.4	*+	ug/Kg		164	81 - 141
Perfluoroundecanoic acid (PFUnA)	10.0	11.3		ug/Kg		113	70 - 130
Perfluorododecanoic acid (PFDoA)	10.0	12.2		ug/Kg		122	63 - 123
Perfluorotridecanoic acid (PFTrDA)	10.0	11.5		ug/Kg		115	63 - 123
Perfluorotetradecanoic acid (PFTeA)	10.0	9.27		ug/Kg		93	55 - 115
Perfluorobutanesulfonic acid (PFBS)	8.88	8.95		ug/Kg		101	74 - 134
Perfluoropentanesulfonic acid (PFPeS)	9.40	9.80		ug/Kg		104	68 - 134
Perfluorohexanesulfonic acid (PFHxS)	9.12	10.4		ug/Kg		114	61 - 121
Perfluoroheptanesulfonic acid (PFHpS)	9.54	11.0		ug/Kg		116	68 - 128
Perfluorooctanesulfonic acid (PFOS)	9.30	11.0		ug/Kg		118	70 - 138
Perfluorononanesulfonic acid (PFNS)	9.62	11.3		ug/Kg		117	66 - 126
Perfluorodecanesulfonic acid (PFDS)	9.64	11.6		ug/Kg		121	66 - 126
Perfluorododecanesulfonic acid (PFDoS)	9.70	11.9		ug/Kg		123	70 - 130

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-707540/2-A
Matrix: Solid
Analysis Batch: 709623

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 707540

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	10.0	ND		ug/Kg		0	0 - 10
NMeFOSAA	10.0	ND		ug/Kg		0	0 - 10
NEtFOSAA	10.0	ND		ug/Kg		0	0 - 10
4:2 FTS	9.38	ND		ug/Kg		0	0 - 10
6:2 FTS	9.52	ND		ug/Kg		0	0 - 10
8:2 FTS	9.60	ND		ug/Kg		0	0 - 10
NEtFOSA	10.0	ND		ug/Kg		0	0 - 10
NMeFOSA	10.0	ND		ug/Kg		0	0 - 10
NMeFOSE	10.0	ND		ug/Kg		0	0 - 10
NEtFOSE	10.0	ND		ug/Kg		0	0 - 10
HFPO-DA (GenX)	10.0	8.92		ug/Kg		89	53 - 158
9Cl-PF3ONS	9.34	9.85		ug/Kg		105	74 - 134
11Cl-PF3OUdS	9.44	7.79		ug/Kg		83	66 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.46	ND		ug/Kg		0	0 - 10

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFBA	64		25 - 150
13C5 PFPeA	107		25 - 150
13C2 PFHxA	104		25 - 150
13C4 PFHpA	106		25 - 150
13C4 PFOA	101		25 - 150
13C5 PFNA	105		25 - 150
13C2 PFDA	108		25 - 150
13C2 PFUnA	123		25 - 150
13C2 PFDoA	115		25 - 150
13C2 PFTeDA	111		25 - 150
13C3 PFBS	110		25 - 150
18O2 PFHxS	107		25 - 150
13C4 PFOS	100		25 - 150
13C8 FOSA	131		25 - 150
M2-4:2 FTS	0		0 - 10
M2-6:2 FTS	91		25 - 150
M2-8:2 FTS	100		25 - 150
d3-NMeFOSAA	125		25 - 150
d5-NEtFOSAA	128		25 - 150
d-N-MeFOSA-M	109		25 - 150
d-N-EtFOSA-M	109		25 - 150
13C3 HFPO-DA	90		25 - 150
d7-N-MeFOSE-M	103		25 - 150
d9-N-EtFOSE-M	100		25 - 150

Lab Sample ID: LCSD 320-707540/3-A
Matrix: Solid
Analysis Batch: 709623

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 707540

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	10.0	16.1		ug/Kg		161	96 - 183	12	30

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-707540/3-A
Matrix: Solid
Analysis Batch: 709623

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 707540

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
Perfluoropentanoic acid (PFPA)	10.0	17.1	*+	ug/Kg		171	81 - 141	4	30	
Perfluorohexanoic acid (PFHxA)	10.0	20.3	*+	ug/Kg		203	92 - 152	1	30	
Perfluoroheptanoic acid (PFHpA)	10.0	18.7	*+	ug/Kg		187	100 - 160	11	30	
Perfluorooctanoic acid (PFOA)	10.0	33.9		ug/Kg		339	169 - 414	3	30	
Perfluorononanoic acid (PFNA)	10.0	15.6	*+	ug/Kg		156	82 - 142	7	30	
Perfluorodecanoic acid (PFDA)	10.0	16.3	*+	ug/Kg		163	81 - 141	0	30	
Perfluoroundecanoic acid (PFUnA)	10.0	11.7		ug/Kg		117	70 - 130	3	30	
Perfluorododecanoic acid (PFDoA)	10.0	11.0		ug/Kg		110	63 - 123	11	30	
Perfluorotridecanoic acid (PFTrDA)	10.0	11.3		ug/Kg		113	63 - 123	2	30	
Perfluorotetradecanoic acid (PFTeA)	10.0	8.85		ug/Kg		89	55 - 115	5	30	
Perfluorobutanesulfonic acid (PFBS)	8.88	8.46		ug/Kg		95	74 - 134	6	30	
Perfluoropentanesulfonic acid (PFPeS)	9.40	9.16		ug/Kg		97	68 - 134	7	30	
Perfluorohexanesulfonic acid (PFHxS)	9.12	9.35		ug/Kg		103	61 - 121	10	30	
Perfluoroheptanesulfonic acid (PFHpS)	9.54	10.3		ug/Kg		108	68 - 128	7	30	
Perfluorooctanesulfonic acid (PFOS)	9.30	10.2		ug/Kg		109	70 - 138	8	30	
Perfluorononanesulfonic acid (PFNS)	9.62	10.6		ug/Kg		110	66 - 126	7	30	
Perfluorodecanesulfonic acid (PFDS)	9.64	10.6		ug/Kg		110	66 - 126	10	30	
Perfluorododecanesulfonic acid (PFDoS)	9.70	10.9		ug/Kg		113	70 - 130	8	30	
Perfluorooctanesulfonamide (FOSA)	10.0	ND		ug/Kg		0	0 - 10	NC	30	
NMeFOSAA	10.0	ND		ug/Kg		0	0 - 10	NC	30	
NEtFOSAA	10.0	ND		ug/Kg		0	0 - 10	NC	30	
4:2 FTS	9.38	ND		ug/Kg		0	0 - 10	NC	30	
6:2 FTS	9.52	ND		ug/Kg		0	0 - 10	NC	30	
8:2 FTS	9.60	ND		ug/Kg		0	0 - 10	NC	30	
NEtFOSA	10.0	ND		ug/Kg		0	0 - 10	NC	30	
NMeFOSA	10.0	ND		ug/Kg		0	0 - 10	NC	30	
NMeFOSE	10.0	ND		ug/Kg		0	0 - 10	NC	30	
NEtFOSE	10.0	ND		ug/Kg		0	0 - 10	NC	30	
HFPO-DA (GenX)	10.0	8.74		ug/Kg		87	53 - 158	2	30	
9CI-PF3ONS	9.34	8.91		ug/Kg		95	74 - 134	10	30	
11CI-PF3OUdS	9.44	6.77		ug/Kg		72	66 - 136	14	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.46	ND		ug/Kg		0	0 - 10	NC	30	

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C4 PFBA	97		25 - 150
13C5 PFPeA	103		25 - 150
13C2 PFHxA	97		25 - 150
13C4 PFHpA	105		25 - 150

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-707540/3-A
Matrix: Solid
Analysis Batch: 709623

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 707540

Isotope Dilution	LCSD LCSD		Limits
	%Recovery	Qualifier	
13C4 PFOA	100		25 - 150
13C5 PFNA	106		25 - 150
13C2 PFDA	110		25 - 150
13C2 PFUnA	115		25 - 150
13C2 PFDoA	113		25 - 150
13C2 PFTeDA	109		25 - 150
13C3 PFBS	111		25 - 150
18O2 PFHxS	107		25 - 150
13C4 PFOS	104		25 - 150
13C8 FOSA	120		25 - 150
M2-4:2 FTS	0		0 - 10
M2-6:2 FTS	95		25 - 150
M2-8:2 FTS	99		25 - 150
d3-NMeFOSAA	114		25 - 150
d5-NEtFOSAA	131		25 - 150
d-N-MeFOSA-M	102		25 - 150
d-N-EtFOSA-M	104		25 - 150
13C3 HFPO-DA	88		25 - 150
d7-N-MeFOSE-M	95		25 - 150
d9-N-EtFOSE-M	97		25 - 150

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 500-732625/1
Matrix: Water
Analysis Batch: 732625

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Suspended Solids	ND		5.0	1.9	mg/L			09/17/23 21:04	1

Lab Sample ID: LCS 500-732625/2
Matrix: Water
Analysis Batch: 732625

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits

Lab Sample ID: MB 500-733025/1
Matrix: Water
Analysis Batch: 733025

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Suspended Solids	ND		5.0	1.9	mg/L			09/19/23 15:15	1

Lab Sample ID: LCS 500-733025/2
Matrix: Water
Analysis Batch: 733025

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits

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QC Association Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

LCMS

Prep Batch: 707212

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-104868-2	Bio B 20230912	Total/NA	Solid	SHAKE	
MB 320-707212/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-707212/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Analysis Batch: 707393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-104868-2	Bio B 20230912	Total/NA	Solid	537 (modified)	707212
MB 320-707212/1-A	Method Blank	Total/NA	Solid	537 (modified)	707212
LCS 320-707212/2-A	Lab Control Sample	Total/NA	Solid	537 (modified)	707212

Prep Batch: 707538

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-104868-5	Eff 20230912	Post-Treatment	Water	TOP Post Prep	
320-104869-1	Inf02 20230911	Post-Treatment	Water	TOP Post Prep	
320-104869-2	Inf07 20230911	Post-Treatment	Water	TOP Post Prep	
320-104869-3	Inf08 20230911	Post-Treatment	Water	TOP Post Prep	
320-104869-4	Inf11 20230911	Post-Treatment	Water	TOP Post Prep	
320-104869-5	Inf18 20230911	Post-Treatment	Water	TOP Post Prep	
MB 320-707538/1-A	Method Blank	Post-Treatment	Water	TOP Post Prep	
LCS 320-707538/2-A	Lab Control Sample	Post-Treatment	Water	TOP Post Prep	
LCSD 320-707538/3-A	Lab Control Sample Dup	Post-Treatment	Water	TOP Post Prep	

Prep Batch: 707540

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-104868-2	Bio B 20230912	Post-Treatment	Solid	TOP Post-Prep	
320-104868-4	Bio A-22-20230912	Post-Treatment	Solid	TOP Post-Prep	
MB 320-707540/1-A	Method Blank	Post-Treatment	Solid	TOP Post-Prep	
LCS 320-707540/2-A	Lab Control Sample	Post-Treatment	Solid	TOP Post-Prep	
LCSD 320-707540/3-A	Lab Control Sample Dup	Post-Treatment	Solid	TOP Post-Prep	

Prep Batch: 707541

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-104868-2	Bio B 20230912	Pre-Treatment	Solid	TOP Pre-Prep	
320-104868-4	Bio A-22-20230912	Pre-Treatment	Solid	TOP Pre-Prep	
MB 320-707541/1-A	Method Blank	Pre-Treatment	Solid	TOP Pre-Prep	
LCS 320-707541/2-A	Lab Control Sample	Pre-Treatment	Solid	TOP Pre-Prep	
LCSD 320-707541/3-A	Lab Control Sample Dup	Pre-Treatment	Solid	TOP Pre-Prep	

Prep Batch: 707546

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-104868-5	Eff 20230912	Pre-Treatment	Water	TOP Pre - Prep	
320-104869-1	Inf02 20230911	Pre-Treatment	Water	TOP Pre - Prep	
320-104869-2	Inf07 20230911	Pre-Treatment	Water	TOP Pre - Prep	
320-104869-3	Inf08 20230911	Pre-Treatment	Water	TOP Pre - Prep	
320-104869-4	Inf11 20230911	Pre-Treatment	Water	TOP Pre - Prep	
320-104869-5	Inf18 20230911	Pre-Treatment	Water	TOP Pre - Prep	
MB 320-707546/1-A	Method Blank	Pre-Treatment	Water	TOP Pre - Prep	
LCS 320-707546/2-A	Lab Control Sample	Pre-Treatment	Water	TOP Pre - Prep	
LCSD 320-707546/3-A	Lab Control Sample Dup	Pre-Treatment	Water	TOP Pre - Prep	

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QC Association Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

LCMS

Prep Batch: 708839

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-104868-1	Inf Comp 20230911	Total/NA	Water	3535	
320-104868-3	EB01 20230912	Total/NA	Water	3535	
320-104868-5	Eff 20230912	Total/NA	Water	3535	
320-104869-1	Inf02 20230911	Total/NA	Water	3535	
320-104869-2	Inf07 20230911	Total/NA	Water	3535	
320-104869-3	Inf08 20230911	Total/NA	Water	3535	
320-104869-4	Inf11 20230911	Total/NA	Water	3535	
320-104869-5	Inf18 20230911	Total/NA	Water	3535	
MB 320-708839/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-708839/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-708839/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 708946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-104868-3	EB01 20230912	Total/NA	Water	537 (modified)	708839
320-104868-5	Eff 20230912	Total/NA	Water	537 (modified)	708839
MB 320-708839/1-A	Method Blank	Total/NA	Water	537 (modified)	708839
LCS 320-708839/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	708839

Analysis Batch: 709324

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-104868-1	Inf Comp 20230911	Total/NA	Water	537 (modified)	708839
320-104869-2	Inf07 20230911	Total/NA	Water	537 (modified)	708839
320-104869-5	Inf18 20230911	Total/NA	Water	537 (modified)	708839
LCSD 320-708839/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	708839

Prep Batch: 709418

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-104868-4	Bio A-22-20230912	Total/NA	Solid	SHAKE	
MB 320-709418/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-709418/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
320-104868-4 MS	Bio A-22-20230912	Total/NA	Solid	SHAKE	
320-104868-4 MSD	Bio A-22-20230912	Total/NA	Solid	SHAKE	

Analysis Batch: 709577

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-104868-4	Bio A-22-20230912	Total/NA	Solid	537 (modified)	709418
MB 320-709418/1-A	Method Blank	Total/NA	Solid	537 (modified)	709418
LCS 320-709418/2-A	Lab Control Sample	Total/NA	Solid	537 (modified)	709418
320-104868-4 MS	Bio A-22-20230912	Total/NA	Solid	537 (modified)	709418
320-104868-4 MSD	Bio A-22-20230912	Total/NA	Solid	537 (modified)	709418

Analysis Batch: 709623

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-104868-2	Bio B 20230912	Post-Treatment	Solid	537 (modified)	707540
320-104868-2	Bio B 20230912	Pre-Treatment	Solid	537 (modified)	707541
320-104868-4	Bio A-22-20230912	Post-Treatment	Solid	537 (modified)	707540
320-104868-4	Bio A-22-20230912	Pre-Treatment	Solid	537 (modified)	707541
MB 320-707540/1-A	Method Blank	Post-Treatment	Solid	537 (modified)	707540
MB 320-707541/1-A	Method Blank	Pre-Treatment	Solid	537 (modified)	707541
LCS 320-707540/2-A	Lab Control Sample	Post-Treatment	Solid	537 (modified)	707540

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QC Association Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

LCMS (Continued)

Analysis Batch: 709623 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 320-707541/2-A	Lab Control Sample	Pre-Treatment	Solid	537 (modified)	707541
LCSD 320-707540/3-A	Lab Control Sample Dup	Post-Treatment	Solid	537 (modified)	707540
LCSD 320-707541/3-A	Lab Control Sample Dup	Pre-Treatment	Solid	537 (modified)	707541

Analysis Batch: 709672

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-104868-5	Eff 20230912	Post-Treatment	Water	537 (modified)	707538
320-104869-1	Inf02 20230911	Post-Treatment	Water	537 (modified)	707538
320-104869-2	Inf07 20230911	Post-Treatment	Water	537 (modified)	707538
320-104869-3	Inf08 20230911	Post-Treatment	Water	537 (modified)	707538
320-104869-4	Inf11 20230911	Post-Treatment	Water	537 (modified)	707538
320-104869-5	Inf18 20230911	Post-Treatment	Water	537 (modified)	707538
MB 320-707538/1-A	Method Blank	Post-Treatment	Water	537 (modified)	707538
LCS 320-707538/2-A	Lab Control Sample	Post-Treatment	Water	537 (modified)	707538
LCSD 320-707538/3-A	Lab Control Sample Dup	Post-Treatment	Water	537 (modified)	707538

Analysis Batch: 709674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-104868-5	Eff 20230912	Pre-Treatment	Water	537 (modified)	707546
320-104869-1	Inf02 20230911	Pre-Treatment	Water	537 (modified)	707546
320-104869-2	Inf07 20230911	Pre-Treatment	Water	537 (modified)	707546
320-104869-3	Inf08 20230911	Pre-Treatment	Water	537 (modified)	707546
320-104869-4	Inf11 20230911	Pre-Treatment	Water	537 (modified)	707546
320-104869-5	Inf18 20230911	Pre-Treatment	Water	537 (modified)	707546
MB 320-707546/1-A	Method Blank	Pre-Treatment	Water	537 (modified)	707546

Analysis Batch: 709712

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-104869-1	Inf02 20230911	Total/NA	Water	537 (modified)	708839
320-104869-3	Inf08 20230911	Total/NA	Water	537 (modified)	708839

Analysis Batch: 709964

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 320-707546/2-A	Lab Control Sample	Pre-Treatment	Water	537 (modified)	707546
LCSD 320-707546/3-A	Lab Control Sample Dup	Pre-Treatment	Water	537 (modified)	707546

Analysis Batch: 710369

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-104869-4	Inf11 20230911	Total/NA	Water	537 (modified)	708839

General Chemistry

Analysis Batch: 706175

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-104868-2	Bio B 20230912	Total/NA	Solid	D 2216	
320-104868-4	Bio A-22-20230912	Total/NA	Solid	D 2216	

Analysis Batch: 732625

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-104868-1	Inf Comp 20230911	Total/NA	Water	SM 2540D	
320-104869-1	Inf02 20230911	Total/NA	Water	SM 2540D	

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QC Association Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

General Chemistry (Continued)

Analysis Batch: 732625 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-104869-2	Inf07 20230911	Total/NA	Water	SM 2540D	
320-104869-3	Inf08 20230911	Total/NA	Water	SM 2540D	
320-104869-4	Inf11 20230911	Total/NA	Water	SM 2540D	
320-104869-5	Inf18 20230911	Total/NA	Water	SM 2540D	
MB 500-732625/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 500-732625/2	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 733025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-104868-5	Eff 20230912	Total/NA	Water	SM 2540D	
MB 500-733025/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 500-733025/2	Lab Control Sample	Total/NA	Water	SM 2540D	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Lab Chronicle

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf Comp 20230911

Lab Sample ID: 320-104868-1

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			283.9 mL	10.0 mL	708839	09/25/23 20:23	JER	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	709324	09/27/23 15:13	D1R	EET SAC
Total/NA	Analysis	SM 2540D		1	70 mL	500 mL	732625	09/17/23 21:32	CLB	EET CHI

Completed: 09/17/23 21:35¹

Client Sample ID: Bio B 20230912

Lab Sample ID: 320-104868-2

Date Collected: 09/12/23 07:45

Matrix: Solid

Date Received: 09/14/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			706175	09/14/23 15:00	CFR	EET SAC

Client Sample ID: Bio B 20230912

Lab Sample ID: 320-104868-2

Date Collected: 09/12/23 07:45

Matrix: Solid

Date Received: 09/14/23 09:30

Percent Solids: 6.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOP Post-Prep			1.00 g	10.0 mL	707540	09/19/23 21:36	FX	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	709623	09/28/23 12:29	RS1	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep			1.07 g	10.0 mL	707541	09/19/23 21:36	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	709623	09/28/23 14:21	RS1	EET SAC
Total/NA	Prep	SHAKE			5.09 g	10.0 mL	707212	09/18/23 20:20	FX	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	707393	09/19/23 14:57	K1S	EET SAC

Client Sample ID: EB01 20230912

Lab Sample ID: 320-104868-3

Date Collected: 09/12/23 08:05

Matrix: Water

Date Received: 09/14/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			269.9 mL	10.0 mL	708839	09/25/23 20:23	JER	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	708946	09/26/23 12:41	S1C	EET SAC

Client Sample ID: Bio A-22-20230912

Lab Sample ID: 320-104868-4

Date Collected: 09/12/23 08:23

Matrix: Solid

Date Received: 09/14/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			706175	09/14/23 15:00	CFR	EET SAC

Client Sample ID: Bio A-22-20230912

Lab Sample ID: 320-104868-4

Date Collected: 09/12/23 08:23

Matrix: Solid

Date Received: 09/14/23 09:30

Percent Solids: 27.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOP Post-Prep			1.01 g	10.0 mL	707540	09/19/23 21:36	FX	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	709623	09/28/23 12:40	RS1	EET SAC

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Lab Chronicle

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Bio A-22-20230912

Lab Sample ID: 320-104868-4

Date Collected: 09/12/23 08:23

Matrix: Solid

Date Received: 09/14/23 09:30

Percent Solids: 27.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre-Prep			1.04 g	10.0 mL	707541	09/19/23 21:36	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	709623	09/28/23 14:32	RS1	EET SAC
Total/NA	Prep	SHAKE			1.22 g	10.0 mL	709418	09/27/23 20:00	FX	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	709577	09/29/23 02:45	S1C	EET SAC

Client Sample ID: Eff 20230912

Lab Sample ID: 320-104868-5

Date Collected: 09/12/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOP Post Prep			100.0 mL	10.0 mL	707538	09/19/23 20:05	FX	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	709672	09/28/23 16:24	RS1	EET SAC
Pre-Treatment	Prep	TOP Pre - Prep			100.0 mL	10.0 mL	707546	09/19/23 23:06	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	709674	09/28/23 21:50	RS1	EET SAC
Total/NA	Prep	3535			257.9 mL	10.0 mL	708839	09/25/23 20:23	JER	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	708946	09/26/23 12:51	S1C	EET SAC
Total/NA	Analysis	SM 2540D		1	500 mL	500 mL	733025	09/19/23 15:53	SO	EET CHI
								Completed: 09/19/23 15:55		

Client Sample ID: Inf02 20230911

Lab Sample ID: 320-104869-1

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOP Post Prep			100.0 mL	10.0 mL	707538	09/19/23 20:05	FX	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	709672	09/28/23 16:35	RS1	EET SAC
Pre-Treatment	Prep	TOP Pre - Prep			100.0 mL	10.0 mL	707546	09/19/23 23:06	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	709674	09/28/23 22:01	RS1	EET SAC
Total/NA	Prep	3535			255.7 mL	10.0 mL	708839	09/25/23 20:23	JER	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	709712	09/28/23 21:00	K1S	EET SAC
Total/NA	Analysis	SM 2540D		1	75 mL	500 mL	732625	09/17/23 21:35	CLB	EET CHI
								Completed: 09/17/23 21:39		

Client Sample ID: Inf07 20230911

Lab Sample ID: 320-104869-2

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOP Post Prep			100.0 mL	10.0 mL	707538	09/19/23 20:05	FX	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	709672	09/28/23 16:46	RS1	EET SAC
Pre-Treatment	Prep	TOP Pre - Prep			100.0 mL	10.0 mL	707546	09/19/23 23:06	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	709674	09/28/23 22:12	RS1	EET SAC
Total/NA	Prep	3535			256.1 mL	10.0 mL	708839	09/25/23 20:23	JER	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	709324	09/27/23 15:23	D1R	EET SAC

Eurofins Sacramento

Lab Chronicle

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf07 20230911

Lab Sample ID: 320-104869-2

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	70 mL	500 mL	732625	09/17/23 21:39	CLB	EET CHI

Client Sample ID: Inf08 20230911

Lab Sample ID: 320-104869-3

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOP Post Prep			100.0 mL	10.0 mL	707538	09/19/23 20:05	FX	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	709672	09/28/23 16:58	RS1	EET SAC
Pre-Treatment	Prep	TOP Pre - Prep			100.0 mL	10.0 mL	707546	09/19/23 23:06	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	709674	09/28/23 22:24	RS1	EET SAC
Total/NA	Prep	3535			258.1 mL	10.0 mL	708839	09/25/23 20:23	JER	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	709712	09/28/23 21:10	K1S	EET SAC
Total/NA	Analysis	SM 2540D		1	90 mL	500 mL	732625	09/17/23 21:42	CLB	EET CHI

Completed: 09/17/23 21:46 ¹

Client Sample ID: Inf11 20230911

Lab Sample ID: 320-104869-4

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOP Post Prep			100.0 mL	10.0 mL	707538	09/19/23 20:05	FX	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	709672	09/28/23 17:09	RS1	EET SAC
Pre-Treatment	Prep	TOP Pre - Prep			100.0 mL	10.0 mL	707546	09/19/23 23:06	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	709674	09/28/23 22:46	RS1	EET SAC
Total/NA	Prep	3535			253.3 mL	10.0 mL	708839	09/25/23 20:23	JER	EET SAC
Total/NA	Analysis	537 (modified)		10	1 mL	1 mL	710369	10/02/23 23:43	K1S	EET SAC
Total/NA	Analysis	SM 2540D		1	75 mL	500 mL	732625	09/17/23 21:46	CLB	EET CHI

Completed: 09/17/23 21:49 ¹

Client Sample ID: Inf18 20230911

Lab Sample ID: 320-104869-5

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOP Post Prep			100.0 mL	10.0 mL	707538	09/19/23 20:05	FX	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	709672	09/28/23 17:31	RS1	EET SAC
Pre-Treatment	Prep	TOP Pre - Prep			100.0 mL	10.0 mL	707546	09/19/23 23:06	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	709674	09/28/23 22:57	RS1	EET SAC
Total/NA	Prep	3535			257.7 mL	10.0 mL	708839	09/25/23 20:23	JER	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	709324	09/27/23 15:44	D1R	EET SAC
Total/NA	Analysis	SM 2540D		1	80 mL	500 mL	732625	09/17/23 21:49	CLB	EET CHI

Completed: 09/17/23 21:53 ¹

¹ This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Lab Chronicle

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Laboratory References:

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

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Accreditation/Certification Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Laboratory: Eurofins Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4040	01-29-24

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
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids

Wisconsin	State	998204680	08-31-24
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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
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids

Laboratory: Eurofins Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999580010	08-31-24

Method Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	EET SAC
D 2216	Percent Moisture	ASTM	EET SAC
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CHI
3535	Solid-Phase Extraction (SPE)	SW846	EET SAC
SHAKE	Shake Extraction with Ultrasonic Bath Extraction	SW846	EET SAC
TOP Post Prep	Solid-Phase Extraction (SPE)	SW846	EET SAC
TOP Post-Prep	Shake Extraction with Ultrasonic Bath Extraction	SW846	EET SAC
TOP Pre - Prep	Solid-Phase Extraction (SPE)	SW846	EET SAC
TOP Pre-Prep	Shake Extraction with Ultrasonic Bath Extraction	SW846	EET SAC

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

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 CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-104868-1	Inf Comp 20230911	Water	09/11/23 23:59	09/14/23 09:30
320-104868-2	Bio B 20230912	Solid	09/12/23 07:45	09/14/23 09:30
320-104868-3	EB01 20230912	Water	09/12/23 08:05	09/14/23 09:30
320-104868-4	Bio A-22-20230912	Solid	09/12/23 08:23	09/14/23 09:30
320-104868-5	Eff 20230912	Water	09/12/23 23:59	09/14/23 09:30
320-104869-1	Inf02 20230911	Water	09/11/23 23:59	09/14/23 09:30
320-104869-2	Inf07 20230911	Water	09/11/23 23:59	09/14/23 09:30
320-104869-3	Inf08 20230911	Water	09/11/23 23:59	09/14/23 09:30
320-104869-4	Inf11 20230911	Water	09/11/23 23:59	09/14/23 09:30
320-104869-5	Inf18 20230911	Water	09/11/23 23:59	09/14/23 09:30

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Reports to Mike Ursin mursin@trccompanies.com

Address: TRC
999 Fourier Dr Suite 101
Madison, WI 53717

Chain of Custody Record


704871



Environment Testing
America

TAL-8210

Regulatory Program: DW NPDES RCRA Other

Client Contact		Project Manager: Julie Maas		Site Contact: Mary Powers		Date: 9-13-22		COC No: 704870471	
Company Name: <u>Madison Mt Saverage Dist</u>		Tel/Email:		Lab Contact: <u>Jenny Faust</u>		Carrier: <u>Fed Ex</u> <td colspan="2">Sampler: <u>2</u> of <u>2</u> COCs</td>		Sampler: <u>2</u> of <u>2</u> COCs	
Address: <u>1810 Morland Dr</u>		Analysis Turnaround Time		Perform MS / MSD (Y / N)		Filtered Sample (Y / N)		For Lab Use Only:	
City/State/Zip: <u>Madison, WI 53713</u>		<input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS		Sample Date		Sample Type (C=Comp, G=Grab)		Walk-in Client:	
Phone: <u>608 223-1201</u>		TAT if different from Below		Sample Time		Matrix		Lab Sampling:	
Fax:		<input checked="" type="checkbox"/> 2 weeks		Sample Date		# of Cont.		Job / SDG No.:	
Project Name: <u>Phase 3 PEAS Testing</u>		<input type="checkbox"/> 1 week		Sample Date		Matrix		Sample Specific Notes:	
Site: <u>MMSD</u>		<input type="checkbox"/> 2 days		Sample Date		Matrix			
PO# <u>220422</u>		<input type="checkbox"/> 1 day		Sample Date		Matrix			
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.			
<u>Inf Comp 20230911</u>		<u>9/12/22</u>	<u>23:59</u>	<u>C</u>	<u>WW</u>	<u>3</u>			
<u>Bio B 20230912</u>		<u>9/12/22</u>	<u>07:45</u>	<u>G</u>	<u>S</u>	<u>6</u>			
<u>Equipment EB91 20230912</u>		<u>9/12/22</u>	<u>08:05</u>	<u>G</u>	<u>WT</u>	<u>2</u>			
<u>Bio A-22-20230912</u>		<u>9/12/22</u>	<u>08:33</u>	<u>G</u>	<u>S</u>	<u>6</u>			
<u>Eff Comp 20230912</u>		<u>9/12/22</u>	<u>23:59</u>	<u>C</u>	<u>WW</u>	<u>7</u>			
<u>35 9/12/22</u>									
 320-104868 Chain of Custody									
Used: <input type="checkbox"/> 2= <input type="checkbox"/> 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.									
Special Instructions/QC Requirements & Comments: <u>Inf Comp follow EPA-19-01 (WI PEAS method expectations) See V13 procedure for particulates in aqueous samples. Centrifuge as needed</u>									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: <u>2.6</u> Corr'd: <u>2.6</u>		Therm ID No.: <u>210</u>			
Relinquished by: <u>[Signature]</u>		Company: <u>MMSD</u>		Received by: <u>[Signature]</u>		Company: <u>[Signature]</u>		Date/Time: <u>9/13/22</u>	
Relinquished by:		Company:		Received by:		Company:		Date/Time: <u>9/13/22</u>	
Relinquished by:		Company:		Received in Laboratory by:		Company:		Date/Time:	





Environment Testing

Sacramento Sample Receiving Notes

Loc: 320
104868

Tracking #: 6570 6542 6552

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: L10 Corr. Factor: (+ / -) _____ °C

Ice — Wet _____ Gel _____ Other _____

Cooler Custody Seal: 2099920

Cooler ID: _____

Temp Observed: 2.6 °C Corrected: 2.6 °C
From: Temp Blank Sample

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cooler Temperature is acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Frozen samples show signs of thaw?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Initials: JF Date: 9/14/23

Unpacking/Labeling The Samples	Yes	No	NA
Containers are not broken or leaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
COC is complete w/o discrepancies	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample custody seal?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample containers have legible labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample date/times are provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate containers are used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample bottles are completely filled?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample preservatives verified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is the Field Sampler's name on COC?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Samples w/o discrepancies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Zero headspace?*	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Alkalinity has no headspace?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Perchlorate has headspace? (Methods 314, 331, 6850)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Multiphasic samples are not present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials: SO Date: 9/14/23

Notes: _____

Sample #1, 1L filled 1L from

Sample #2, 1L pending - 20230914

Sample #3 ID: Equip Blank

no time; date

Sample #5, all except 1L

hold 10 as

BFP Comp 20230912

Trizma Lot #(s): _____

Ammonium

Acetate Lot #(s): _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NCM Filed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within hold time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Log Release checked in TALS?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Initials: SO Date: 9/14/23

Reports to Mike Ursin mursin@trecompanies.com
 Address: TRC
 999 Fourier Dr Suite 101
 Madison, WI 53717

Chain of Custody Record

704870



Environment Testing
America

Regulatory Program: DW NPDES RCRA Other:
 Project Manager: Julie Maas
 Lab Contact: Mary Powers
 Date: 9-13-23
 Carrier: Fed Ex
 COC No: 704870-271
 1 of 2 COCs

Client Contact
 Company Name: Madison Metropolitan Sewerage
 Address: 1610 Moorland Rd
 City/State/Zip: Madison, WI 53713
 Phone: 608-222-1201
 Fax:
 Project Name: Phase 3 PFAS Testing
 Site: MMSD
 PO #: 220422

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PFAAS W I B3	TOP ASSAY	TSS	Sample Specific Notes:
Inf 02 20230911	9/11/23	23:59	C	WW	7	M	X	X	X	X	
Inf 07 20230911	9/11/23	23:59	C	WW	7	M	X	X	X	X	
Inf 08 20230911	9/11/23	23:59	C	WW	7	M	X	X	X	X	
Inf 11 20230911	9/11/23	23:59	C	WW	7	M	X	X	X	X	
Inf 18 20230911	9/11/23	23:59	C	WW	7	M	X	X	X	X	



Preservation Used: 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other
 Possible Hazard Identification: 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
 Special Instructions/QC Requirements & Comments:
 Follow EPA-19-01 (W/I PFAS method expectations) See V13 procedure for particulates in aqueous samples. Centrifuge as needed

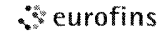
Custody Seal No.:
 Relinquished by: Jennifer Faust
 Relinquished by: Jennifer Faust
 Relinquished by:
 Date/Time: 9/13/23
 Date/Time:
 Date/Time:
 Company: MMSD
 Company:
 Company:
 Cooler Temp. (°C): Obs'd: 15
 Corr'd: 15
 Therm ID No.: 640
 Received by:
 Received by:
 Received in Laboratory by:
 Date/Time:
 Date/Time:
 Date/Time:
 Company:
 Company:
 Company:
 Return to Client Disposal by Lab Archive for _____ Months



Eurofins Sacramento

880 Riverside Parkway
West Sacramento CA 95605
Phone 916-373-5600 Fax 916-372 1059

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler		Lab PM Smith Micah		Carrier Tracking No(s)		COC No 320-319585 1	
Client Contact		Phone		E-Mail Micah Smith@et eurofins.com		State of Origin Wisconsin		Page Page 1 of 1	
Shipping/Receiving		Company Eurofins Environment Testing North Centr		Accreditations Required (See note) NELAP Oregon State Wisconsin		Job # 320 104868-1			
Address 2417 Bond Street		Due Date Requested 10/4/2023		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 Z other (specify)	
City University Park		TAT Requested (days)							
State Zip IL, 60484		PO #							
Phone 708-534-5200(Tel) 708-534-5211(Fax)		WO #							
Email		Project # 32021779		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of Containers	
Project Name PFAS Sampling		SSOW#		2640D					
Site 320-104868 COC									
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)	
								Special Instructions/Note	
Inf Comp 20230911 (320 104868 1)		9/11/23		23 59 Central		Water		X	
Eff 20230912 (320 104868-5)		9/12/23		23 59 Central		Water		X	
Note: Since laboratory accreditations are subject to change Eurofins Environment Testing Northern California, 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 Northern California, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northern California, 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 Northern California, LLC.									
Possible Hazard Identification					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
Unconfirmed					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months				
Deliverable Requested I II III IV Other (specify)					Primary Deliverable Rank 1				
					Special Instructions/QC Requirements				
Empty Kit Relinquished by			Date		Time		Method of Shipment.		
Relinquished by <i>[Signature]</i>			Date/Time 09/14/23 1630		Company PETSOL		Received by <i>[Signature]</i> Date/Time 9/15/23 1005		
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 → 0.5				

Eurofins Sacramento

880 Riverside Parkway
 West Sacramento CA 95605
 Phone 916-373-5600 Fax 916-372 1059

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler	Lab PM Smith Micah		Carrier Tracking No(s)	COC No 320-319585 1																																																									
Client Contact		Phone	E-Mail Micah Smith@et eurofins.com		State of Origin Wisconsin	Page Page 1 of 1																																																									
Shipping/Receiving		Company Eurofins Environment Testing North Centr				Accreditations Required (See note) NELAP Oregon, State - Wisconsin																																																									
Job # 320 104869 1		Address 2417 Bond Street		Analysis Requested		Preservation Codes																																																									
City University Park		Due Date Requested 10/4/2023		<table border="1"> <tr><td>Field Filtered Sample (Yes or No)</td><td></td></tr> <tr><td>Perform MS/MSD (Yes or No)</td><td>2440D</td></tr> </table>		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)	2440D	<table border="1"> <tr><td>A</td><td>HCL</td><td>M</td><td>Hexane</td></tr> <tr><td>B</td><td>NaOH</td><td>N</td><td>None</td></tr> <tr><td>C</td><td>Zn Acetate</td><td>O</td><td>AsNaO2</td></tr> <tr><td>D</td><td>Nitric Acid</td><td>P</td><td>Na2O4S</td></tr> <tr><td>E</td><td>NaHSO4</td><td>Q</td><td>Na2SO3</td></tr> <tr><td>F</td><td>MeOH</td><td>R</td><td>Na2S2O3</td></tr> <tr><td>G</td><td>Amchlor</td><td>S</td><td>H2SO4</td></tr> <tr><td>H</td><td>Ascorbic Acid</td><td>T</td><td>TSP Dodecahydrate</td></tr> <tr><td>I</td><td>Ice</td><td>U</td><td>Acetone</td></tr> <tr><td>J</td><td>DI Water</td><td>V</td><td>MCAA</td></tr> <tr><td>K</td><td>EDTA</td><td>W</td><td>pH 4-5</td></tr> <tr><td>L</td><td>EDA</td><td>Y</td><td>Trizma</td></tr> <tr><td colspan="2">Z</td><td colspan="2">other (specify)</td></tr> </table>		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	Z		other (specify)	
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320-104869 COC				BT=Tissue, A=Air																																																											
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Inf11 20230911 (320-104869-4)		9/11/23	23 59 Central		Water	X																																																									
Inf18 20230911 (320 104869-5)		9/11/23	23 59 Central		Water	X																																																									
<p>Note: Since laboratory accreditations are subject to change Eurofins Environment Testing Northern California 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 Northern California LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northern California 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 Northern California, LLC</p>																																																															
Possible Hazard Identification				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)																																																											
Unconfirmed				<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months																																																											
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Custody Seals Intact: Δ Yes Δ No		Custody Seal No		Cooler Temperature(s) °C and Other Remarks 0.8 → 0.5																																																											

Login Sample Receipt Checklist

Client: Madison Metropolitan Sewerage District

Job Number: 320-104868-1

Login Number: 104868

List Source: Eurofins Sacramento

List Number: 1

Creator: Smith, Micah

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	REFER TO SSRN
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.	N/A	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	N/A	
Cooler Temperature is recorded.	N/A	
COC is present.	N/A	
COC is filled out in ink and legible.	N/A	
COC is filled out with all pertinent information.	N/A	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	N/A	
Samples are received within Holding Time (excluding tests with immediate HTs)	N/A	
Sample containers have legible labels.	N/A	
Containers are not broken or leaking.	N/A	
Sample collection date/times are provided.	N/A	
Appropriate sample containers are used.	N/A	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	N/A	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Madison Metropolitan Sewerage District

Job Number: 320-104868-1

Login Number: 104868

List Number: 2

Creator: Scott, Sherri L

List Source: Eurofins Chicago

List Creation: 09/15/23 04:36 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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	0.5
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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

Login Sample Receipt Checklist

Client: Madison Metropolitan Sewerage District

Job Number: 320-104869-1

Login Number: 104869

List Source: Eurofins Sacramento

List Number: 1

Creator: Smith, Micah

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	REFER TO SSRN
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.	N/A	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	N/A	
Cooler Temperature is recorded.	N/A	
COC is present.	N/A	
COC is filled out in ink and legible.	N/A	
COC is filled out with all pertinent information.	N/A	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	N/A	
Samples are received within Holding Time (excluding tests with immediate HTs)	N/A	
Sample containers have legible labels.	N/A	
Containers are not broken or leaking.	N/A	
Sample collection date/times are provided.	N/A	
Appropriate sample containers are used.	N/A	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	N/A	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Madison Metropolitan Sewerage District

Job Number: 320-104869-1

Login Number: 104869

List Number: 2

Creator: Scott, Sherri L

List Source: Eurofins Chicago

List Creation: 09/15/23 04:36 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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	0.5
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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	



October 2023

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ANALYTICAL REPORT

PREPARED FOR

Attn: Julie Maas
Madison Metropolitan Sewerage District
1610 Moorland Road
Madison, Wisconsin 53713-3398

Generated 12/11/2023 10:18:01 AM Revision 1

JOB DESCRIPTION

PFAS Sampling

JOB NUMBER

320-105928-1

Eurofins Sacramento

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 Northern California, LLC Project Manager.

Authorization



Generated
12/11/2023 10:18:01 AM
Revision 1

Authorized for release by
Micah Smith, Project Manager II
Micah.Smith@et.eurofinsus.com
(916)374-4302



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Definitions/Glossary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

Qualifiers

LCMS

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.
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
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.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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

Case Narrative

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

Job ID: 320-105928-1

Laboratory: Eurofins Sacramento

Narrative

Job Narrative 320-105928-1

Revision

The report being provided is a revision of the original report sent on 11/21/2023. The report (revision 1) is being revised to remove the H flag which was originally included in error.

Receipt

The samples were received on 10/12/2023 9:20 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 3.7° C and 5.9° C.

Receipt Exceptions

The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): Eff 20231011 (320-105928-2), Bio A 23-D-2 20231011 (320-105928-9) and Bio A 23-D-4 20231011 (320-105928-10).

Sample Eff 20231011 (320-105928-2), The sample container lists an ID of Eff 20231010. The COC lists an ID of Eff 20231011.

Sample Bio A 23-D-2 20231011 (320-105928-9), The sample container lists an ID of Bio A 23-D-2 20231010. The COC lists an ID of Bio A 23-D-2 20231011. And the sample container has a date of 10/10, where the COC has a date of 10/11.

Sample 23-D-4 20231011 (320-105928-10), The sample container lists an ID of Bio A 23-D-4 20231010. The COC lists an ID of Bio A 23-D-4 20231011. And the sample container has a date of 10/10, where the COC has a date of 10/11.

Sampels were logged in based on the IDs listed on the COC.

LCMS

Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit: Bio A 23-S-1 20231010 (320-105928-3), Bio A 23-S-2 20231010 (320-105928-4), Bio A 23-S-3 20231010 (320-105928-5), Bio A 23-S-4 20231010 (320-105928-6), Bio A 23-S-C 20231010 (320-105928-7), Bio A 23-D-2 20231011 (320-105928-9), Bio A 23-D-4 20231011 (320-105928-10), (320-105928-A-10-B MS) and (320-105928-A-10-C MSD). Re-analysis confirms the low IDA recoveries, therefore the original analysis is reported. Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the samples.

Method 537 (modified): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following sample: Bio A 23-S-2 20231010 (320-105928-4). Re-analysis confirms the high IDA recoveries, therefore the original analysis is reported. Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method 537 (modified): The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 320-714305 and analytical batch 320-714781 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 537 (modified): 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 following sample is associated with this narration: (320-105928-A-10-C MSD).

Method 537 (modified): The method blank for preparation batch 320-715446 contained NMeFOSE and NEtFOSE above a half of the reporting limit (1/2RRL). None of the samples associated with this method blank contained the target compound; therefore, re-extraction and/or re-analysis of samples were not performed. The following samples are associated with this narration: InfComp 20231009 (320-105928-1) and (MB 320-715446/1-A)

Method 537 (modified): Zero percent recovery of precursor analytes (such as 4:2 FTS, 6:2 FTS, 8:2 FTS, FOSA, NMeFOSAA, NEtFOSAA, etc.) and enhanced recoveries of PFCA is observed in the Post-Treatment Laboratory Control Sample (LCS) and Post-Treatment Laboratory Control Sample Duplicate (LCSD) associated with these samples, consistent with the expected oxidation of precursor analytes. The existing LCS control limits are based upon our historical performance for a set of 24-36 analytes in the LCS solution. We have recently expanded to 70+ analytes. As the LCS solution now contains new/additional precursor analytes we are seeing enhanced

Case Narrative

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

Job ID: 320-105928-1 (Continued)

Laboratory: Eurofins Sacramento (Continued)

recoveries for some PFCA vs. the historical limits as a result. The LCS results are flagged as being high and outside of the established limits for some analytes; however, this is a function of the new analytes in the LCS solution and not indicative of an "out of control" process. The following samples are associated with this narration: Bio A 23-S-C 20231010 (320-105928-7), (LCS 320-713655/2-A) and (LCSD 320-713655/3-A).

Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: (MB 320-713655/1-A). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s).

Method 537 (modified): The labeled analyte M2-4:2FTS is employed in this analysis as a "Reverse Surrogate". It is used to monitor the oxidation efficiency of the TOP assay. This analyte is fortified into all sample fractions prior to any processing. The recovery of this analyte should be 0% in Post-Treatment fractions, indicating complete oxidation of the sample. The following samples are associated with this narration: Bio A 23-S-C 20231010 (320-105928-7), (LCS 320-713655/2-A), (LCSD 320-713655/3-A) and (MB 320-713655/1-A).

Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: Bio A 23-S-C 20231010 (320-105928-7). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s).

Method 537 (modified): The labeled analyte M2-4:2FTS is employed in this analysis as a "Reverse Surrogate". It is used to monitor the oxidation efficiency of the TOP assay. This analyte is fortified into all sample fractions prior to any processing. The recovery of this analyte should be 0% in Post-Treatment fractions, indicating complete oxidation of the sample. The following samples are associated with this narration: Bio A 23-S-C 20231010 (320-105928-7), (LCS 320-713658/2-A), (LCSD 320-713658/3-A) and (MB 320-713658/1-A).

Method 537 (modified): 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 following sample is associated with this narration: Bio A 23-S-C 20231010 (320-105928-7).

Method 537 (modified): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following sample: InfComp 20231009 (320-105928-1). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries. The sample was re-analyzed with concurring results, therefore, the best set of data was reported.

Method 537 (modified): 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 following sample is associated with this narration: Eff 20231010 (320-105928-2).

Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit: Bio A 23-S-C 20231010 (320-105928-7). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the samples.

Method 537 (modified): The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 320-713655 and analytical batch 320-716641 recovered outside control limits for the following analytes: Perfluorohexanoic acid (PFHxA) and Perfluoroheptanoic acid (PFHpA). These analytes were biased high in the LCS and was detected in the associated sample. There is no remaining sample volume; therefore the data are reported.

Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit: Bio A 23-S-C 20231010 (320-105928-7) and (LCSD 320-717648/3-A). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the samples.

Method 537 (modified): The labeled analyte M2-4:2FTS is employed in this analysis as a "Reverse Surrogate". It is used to monitor the oxidation efficiency of the TOP assay. This analyte is fortified into all sample fractions prior to any processing. The recovery of this analyte should be 0% in Post-Treatment fractions, indicating complete oxidation of the sample. The following samples are associated with this narration: Bio A 23-S-C 20231010 (320-105928-7), (LCS 320-717648/2-A), (LCSD 320-717648/3-A) and (MB 320-717648/1-A).

Method 537 (modified): The labeled analyte M2-4:2FTS is converted to PFBA during the oxidation step of the TOP assay. The PFBA result in the Post-Treatment Method Blank (MB) indicates how much of a field sample's Post-Treatment PFBA result is contributed by the

Case Narrative

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

Job ID: 320-105928-1 (Continued)

Laboratory: Eurofins Sacramento (Continued)

Reverse Surrogate, when adjusted for dilution factors. The following sample is associated with this narration: (MB 320-713655/1-A).

Method 537 (modified): The labeled analyte M2-4:2FTS is employed in this analysis as a "Reverse Surrogate". It is used to monitor the oxidation efficiency of the TOP assay. This analyte is fortified into all sample fractions prior to any processing. The recovery of this analyte should be 0% in Post-Treatment fractions, indicating complete oxidation of the sample. The following samples are associated with this narration: Bio A 23-S-C 20231010 (320-105928-7), (LCS 320-717647/2-A), (LCSD 320-717647/3-A) and (MB 320-717647/1-A).

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

General Chemistry

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

Organic Prep

Method 3535: The following sample in preparation batch 320-715446 was observed to be yellow and contain floating particulates present in the sample bottle: InfComp 20231009 (320-105928-1)

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-715446.

Method 3535: The following sample in preparation batch 320-715446 was yellow in color following concentration: InfComp 20231009 (320-105928-1)

Method 3535: The following samples in preparation batch 320-715763 were light brown in color and observed to have floating particulates present in the sample bottle: Eff 20231010 (320-105928-2).

Method 3535: The following sample in preparation batch 320-715763 was light green in color following extraction: Eff 20231010 (320-105928-2).

Method TOP Pre-Prep: The following sample in preparation batch 320-717648 was yellow in color following extraction: Bio A 23-S-C 20231010 (320-105928-7).

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

Detection Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: InfComp 20231009

Lab Sample ID: 320-105928-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	4.3		4.3	2.1	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	4.3		1.7	0.43	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	6.0		1.7	0.50	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.2	J	1.7	0.22	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	3.7		1.7	0.74	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.51	J	1.7	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.44	J	1.7	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.8		1.7	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.3		1.7	0.50	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.6		1.7	0.47	ng/L	1		537 (modified)	Total/NA
Total Suspended Solids	280		50	19	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Eff 20231010

Lab Sample ID: 320-105928-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	7.2		4.5	2.1	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	30		1.8	0.44	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	17		1.8	0.52	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.0		1.8	0.22	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	7.2		1.8	0.76	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.60	J	1.8	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	1.0	J	1.8	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	6.4	I	1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.49	J	1.8	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	6.3		1.8	0.51	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.2		1.8	0.48	ng/L	1		537 (modified)	Total/NA
NMeFOSAA	1.4	J	4.5	1.1	ng/L	1		537 (modified)	Total/NA
Total Suspended Solids	6.0		5.0	1.9	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Bio A 23-S-1 20231010

Lab Sample ID: 320-105928-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.6	J	2.7	0.62	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	8.4		2.7	0.56	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	13		2.7	0.42	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.63	J	2.7	0.52	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	6.0		2.7	0.72	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.94	J	2.7	0.30	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	8.5		2.7	0.65	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.5	J	2.7	0.57	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	4.0		2.7	0.41	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotridecanoic acid (PFTrDA)	0.37	J	2.7	0.28	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	1.1	J	2.7	0.50	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.71	J	2.7	0.52	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	13		2.7	0.58	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.5	J	2.7	0.45	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSAA	26		2.7	0.31	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSAA	9.8		2.7	0.65	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSE	14		2.7	0.64	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSE	4.3		2.7	0.38	ug/Kg	1	✳	537 (modified)	Total/NA
6:2 FTS	0.89	J	2.7	0.37	ug/Kg	1	✳	537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-1 20231010 (Continued)

Lab Sample ID: 320-105928-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
8:2 FTS	1.3	J	2.7	0.47	ug/Kg	1	✳	537 (modified)	Total/NA

Client Sample ID: Bio A 23-S-2 20231010

Lab Sample ID: 320-105928-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.4	J	2.9	0.67	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	4.7		2.9	0.59	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	7.0		2.9	0.45	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	3.2		2.9	0.77	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.95	J	2.9	0.32	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	8.2		2.9	0.69	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.3	J	2.9	0.61	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	4.3		2.9	0.43	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotridecanoic acid (PFTrDA)	0.39	J	2.9	0.30	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	0.79	J	2.9	0.54	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	14		2.9	0.62	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.6	J	2.9	0.48	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSAA	26		2.9	0.33	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSAA	9.6		2.9	0.69	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSE	15		2.9	0.68	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSE	5.5		2.9	0.41	ug/Kg	1	✳	537 (modified)	Total/NA
6:2 FTS	0.60	J	2.9	0.39	ug/Kg	1	✳	537 (modified)	Total/NA
8:2 FTS	1.6	J	2.9	0.51	ug/Kg	1	✳	537 (modified)	Total/NA
11CI-PF3OUdS	0.63	J	2.9	0.45	ug/Kg	1	✳	537 (modified)	Total/NA

Client Sample ID: Bio A 23-S-3 20231010

Lab Sample ID: 320-105928-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.69	J	2.7	0.63	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	1.3	J	2.7	0.56	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	3.5		2.7	0.42	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	2.3	J	2.7	0.73	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.77	J	2.7	0.30	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	6.6		2.7	0.66	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.1	J	2.7	0.57	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	3.5		2.7	0.41	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotridecanoic acid (PFTrDA)	0.33	J	2.7	0.29	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	1.1	J	2.7	0.51	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	12		2.7	0.59	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.3	J	2.7	0.45	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSAA	21		2.7	0.31	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSAA	8.0		2.7	0.66	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSE	13		2.7	0.64	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSE	4.4		2.7	0.38	ug/Kg	1	✳	537 (modified)	Total/NA
6:2 FTS	0.40	J	2.7	0.37	ug/Kg	1	✳	537 (modified)	Total/NA
8:2 FTS	1.1	J	2.7	0.48	ug/Kg	1	✳	537 (modified)	Total/NA
11CI-PF3OUdS	0.51	J	2.7	0.42	ug/Kg	1	✳	537 (modified)	Total/NA

Client Sample ID: Bio A 23-S-4 20231010

Lab Sample ID: 320-105928-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPeA)	1.1	J	3.1	0.64	ug/Kg	1	✳	537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-4 20231010 (Continued)

Lab Sample ID: 320-105928-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	3.2		3.1	0.48	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	3.0	J	3.1	0.82	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.81	J	3.1	0.34	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	8.5		3.1	0.74	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.5	J	3.1	0.65	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	4.3		3.1	0.47	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotridecanoic acid (PFTrDA)	0.33	J	3.1	0.33	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	1.1	J	3.1	0.57	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	13		3.1	0.67	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.5	J	3.1	0.51	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSAA	26		3.1	0.36	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSAA	10		3.1	0.74	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSE	14		3.1	0.73	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSE	5.5		3.1	0.43	ug/Kg	1	✳	537 (modified)	Total/NA
6:2 FTS	0.55	J	3.1	0.42	ug/Kg	1	✳	537 (modified)	Total/NA
8:2 FTS	1.3	J	3.1	0.54	ug/Kg	1	✳	537 (modified)	Total/NA
11CI-PF3OUdS	0.52	J	3.1	0.48	ug/Kg	1	✳	537 (modified)	Total/NA

Client Sample ID: Bio A 23-S-C 20231010

Lab Sample ID: 320-105928-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.7	J	2.7	0.62	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	6.0		2.7	0.55	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	11		2.7	0.42	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	5.6		2.7	0.71	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	1.0	J	2.7	0.30	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	8.9		2.7	0.65	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.4	J	2.7	0.57	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	4.5		2.7	0.40	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotridecanoic acid (PFTrDA)	0.38	J	2.7	0.28	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	1.3	J	2.7	0.50	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	13		2.7	0.58	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.5	J	2.7	0.44	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSAA	27		2.7	0.31	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSAA	9.8		2.7	0.65	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSE	14		2.7	0.63	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSE	4.7		2.7	0.38	ug/Kg	1	✳	537 (modified)	Total/NA
6:2 FTS	0.84	J	2.7	0.36	ug/Kg	1	✳	537 (modified)	Total/NA
8:2 FTS	1.4	J	2.7	0.47	ug/Kg	1	✳	537 (modified)	Total/NA
11CI-PF3OUdS	0.49	J	2.7	0.42	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	8.0		3.6	0.57	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorooctanoic acid (PFOA)	4.1		3.6	0.97	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorononanoic acid (PFNA)	0.76	J	3.6	0.40	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorodecanoic acid (PFDA)	8.4		3.6	0.88	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluoroundecanoic acid (PFUnA)	1.4	J	3.6	0.77	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorododecanoic acid (PFDoA)	3.7		3.6	0.55	ug/Kg	1	✳	537 (modified)	Pre-Treatment

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-C 20231010 (Continued)

Lab Sample ID: 320-105928-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorotridecanoic acid (PFTrDA)	0.45	J	3.6	0.38	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorotetradecanoic acid (PFTeA)	0.96	J	3.6	0.67	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorooctanesulfonic acid (PFOS)	14	I	3.6	0.79	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorodecanesulfonic acid (PFDS)	1.6	J	3.6	0.95	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorooctanesulfonamide (FOSA)	1.5	J	3.6	0.60	ug/Kg	1	✳	537 (modified)	Pre-Treatment
NMeFOSAA	21		3.6	0.42	ug/Kg	1	✳	537 (modified)	Pre-Treatment
NEtFOSAA	8.3		3.6	0.88	ug/Kg	1	✳	537 (modified)	Pre-Treatment
NMeFOSE	18		3.6	0.86	ug/Kg	1	✳	537 (modified)	Pre-Treatment
NEtFOSE	4.2		3.6	0.51	ug/Kg	1	✳	537 (modified)	Pre-Treatment
6:2 FTS	0.72	J	3.6	0.49	ug/Kg	1	✳	537 (modified)	Pre-Treatment
8:2 FTS	1.4	J	3.6	0.64	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA) - RE	1.7	J	3.8	0.87	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluoropentanoic acid (PFPeA) - RE	5.0		3.8	0.78	ug/Kg	1	✳	537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	190	B	3.8	0.87	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluoropentanoic acid (PFPeA)	77		3.8	0.78	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorohexanoic acid (PFHxA)	74	*+	3.8	0.59	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluoroheptanoic acid (PFHpA)	33	*+	3.8	0.72	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorooctanoic acid (PFOA)	44		3.8	1.0	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorononanoic acid (PFNA)	14		3.8	0.42	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorodecanoic acid (PFDA)	17		3.8	0.91	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluoroundecanoic acid (PFUnA)	4.2		3.8	0.79	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorododecanoic acid (PFDoA)	4.9		3.8	0.57	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorotridecanoic acid (PFTrDA)	1.4	J	3.8	0.40	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorotetradecanoic acid (PFTeA)	1.6	J	3.8	0.70	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorobutanesulfonic acid (PFBS)	18		3.8	0.72	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorohexanesulfonic acid (PFHxS)	1.9	J	3.8	0.55	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorooctanesulfonic acid (PFOS)	14		3.8	0.82	ug/Kg	1	✳	537 (modified)	Post-Treatment
Perfluorodecanesulfonic acid (PFDS)	0.99	J	3.8	0.98	ug/Kg	1	✳	537 (modified)	Post-Treatment

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: EB01 20231010

Lab Sample ID: 320-105928-8

No Detections.

Client Sample ID: Bio A 23-D-2 20231011

Lab Sample ID: 320-105928-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPeA)	1.0	J	3.3	0.67	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	2.9	J	3.3	0.51	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	3.0	J	3.3	0.87	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.85	J	3.3	0.36	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	8.2		3.3	0.79	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.3	J	3.3	0.69	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	4.7		3.3	0.49	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotridecanoic acid (PFTTrDA)	0.38	J	3.3	0.34	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTTeA)	1.4	J	3.3	0.61	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	15		3.3	0.70	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.5	J	3.3	0.54	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSAA	26		3.3	0.38	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSAA	10		3.3	0.79	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSE	17		3.3	0.77	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSE	5.3		3.3	0.46	ug/Kg	1	✳	537 (modified)	Total/NA
8:2 FTS	1.2	J	3.3	0.57	ug/Kg	1	✳	537 (modified)	Total/NA
11Cl-PF3OUdS	0.73	J	3.3	0.51	ug/Kg	1	✳	537 (modified)	Total/NA

Client Sample ID: Bio A 23-D-4 20231011

Lab Sample ID: 320-105928-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPeA)	1.4	J	3.3	0.68	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	4.1		3.3	0.52	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	3.2	J	3.3	0.88	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.83	J	3.3	0.37	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	8.5		3.3	0.80	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.5	J	3.3	0.70	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	3.9		3.3	0.50	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotridecanoic acid (PFTTrDA)	0.35	J F1	3.3	0.35	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTTeA)	1.3	J	3.3	0.62	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	15		3.3	0.72	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.4	J	3.3	0.55	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSAA	27		3.3	0.38	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSAA	10		3.3	0.80	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSE	15		3.3	0.78	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSE	5.4		3.3	0.47	ug/Kg	1	✳	537 (modified)	Total/NA
6:2 FTS	0.45	J	3.3	0.45	ug/Kg	1	✳	537 (modified)	Total/NA
8:2 FTS	1.4	J	3.3	0.58	ug/Kg	1	✳	537 (modified)	Total/NA
11Cl-PF3OUdS	0.58	J	3.3	0.52	ug/Kg	1	✳	537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: InfComp 20231009

Lab Sample ID: 320-105928-1

Date Collected: 10/09/23 23:59

Matrix: Water

Date Received: 10/12/23 09:20

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	4.3		4.3	2.1	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluoropentanoic acid (PFPeA)	4.3		1.7	0.43	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorohexanoic acid (PFHxA)	6.0		1.7	0.50	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluoroheptanoic acid (PFHpA)	1.2	J	1.7	0.22	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorooctanoic acid (PFOA)	3.7		1.7	0.74	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorononanoic acid (PFNA)	0.51	J	1.7	0.23	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorodecanoic acid (PFDA)	0.44	J	1.7	0.27	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.96	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.48	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.7	1.1	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.64	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorobutanesulfonic acid (PFBS)	1.8		1.7	0.17	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.7	0.26	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorohexanesulfonic acid (PFHxS)	5.3		1.7	0.50	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.7	0.17	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorooctanesulfonic acid (PFOS)	2.6		1.7	0.47	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.32	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.28	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.84	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorooctanesulfonamide (FOSA)	ND		1.7	0.85	ng/L		10/24/23 19:17	10/26/23 10:08	1
NEtFOSA	ND		1.7	0.76	ng/L		10/24/23 19:17	10/26/23 10:08	1
NMeFOSA	ND		1.7	0.37	ng/L		10/24/23 19:17	10/26/23 10:08	1
NMeFOSAA	ND		4.3	1.0	ng/L		10/24/23 19:17	10/26/23 10:08	1
NMeFOSE	ND		3.5	1.2	ng/L		10/24/23 19:17	10/26/23 10:08	1
NEtFOSE	ND		1.7	0.74	ng/L		10/24/23 19:17	10/26/23 10:08	1
4:2 FTS	ND		1.7	0.21	ng/L		10/24/23 19:17	10/26/23 10:08	1
8:2 FTS	ND		1.7	0.40	ng/L		10/24/23 19:17	10/26/23 10:08	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.35	ng/L		10/24/23 19:17	10/26/23 10:08	1
HFPO-DA (GenX)	ND		3.5	1.3	ng/L		10/24/23 19:17	10/26/23 10:08	1
9CI-PF3ONS	ND		1.7	0.21	ng/L		10/24/23 19:17	10/26/23 10:08	1
11CI-PF3OUdS	ND		1.7	0.28	ng/L		10/24/23 19:17	10/26/23 10:08	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	53		25 - 150				10/24/23 19:17	10/26/23 10:08	1
13C5 PFPeA	54		25 - 150				10/24/23 19:17	10/26/23 10:08	1
13C2 PFHxA	64		25 - 150				10/24/23 19:17	10/26/23 10:08	1
13C4 PFHpA	84		25 - 150				10/24/23 19:17	10/26/23 10:08	1
13C4 PFOA	83		25 - 150				10/24/23 19:17	10/26/23 10:08	1
13C5 PFNA	80		25 - 150				10/24/23 19:17	10/26/23 10:08	1
13C2 PFDA	75		25 - 150				10/24/23 19:17	10/26/23 10:08	1
13C2 PFUnA	62		25 - 150				10/24/23 19:17	10/26/23 10:08	1
13C2 PFDoA	43		25 - 150				10/24/23 19:17	10/26/23 10:08	1
13C2 PFTeDA	36		25 - 150				10/24/23 19:17	10/26/23 10:08	1
13C3 PFBS	60		25 - 150				10/24/23 19:17	10/26/23 10:08	1
18O2 PFHxS	83		25 - 150				10/24/23 19:17	10/26/23 10:08	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: InfComp 20231009

Lab Sample ID: 320-105928-1

Date Collected: 10/09/23 23:59

Matrix: Water

Date Received: 10/12/23 09:20

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	75		25 - 150	10/24/23 19:17	10/26/23 10:08	1
13C8 FOSA	48		10 - 150	10/24/23 19:17	10/26/23 10:08	1
d3-NMeFOSAA	42		25 - 150	10/24/23 19:17	10/26/23 10:08	1
d-N-MeFOSA-M	37		10 - 150	10/24/23 19:17	10/26/23 10:08	1
d-N-EtFOSA-M	32		10 - 150	10/24/23 19:17	10/26/23 10:08	1
d7-N-MeFOSE-M	41		10 - 150	10/24/23 19:17	10/26/23 10:08	1
d9-N-EtFOSE-M	49		10 - 150	10/24/23 19:17	10/26/23 10:08	1
M2-4:2 FTS	92		25 - 150	10/24/23 19:17	10/26/23 10:08	1
M2-8:2 FTS	140		25 - 150	10/24/23 19:17	10/26/23 10:08	1
13C3 HFPO-DA	77		25 - 150	10/24/23 19:17	10/26/23 10:08	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	ND		4.3	1.1	ng/L		10/24/23 19:17	10/31/23 16:59	1
6:2 FTS	ND		4.3	2.2	ng/L		10/24/23 19:17	10/31/23 16:59	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
d5-NEtFOSAA	40		25 - 150	10/24/23 19:17	10/31/23 16:59	1			
M2-6:2 FTS	157	*5+	25 - 150	10/24/23 19:17	10/31/23 16:59	1			

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	280		50	19	mg/L			10/13/23 15:39	1

Client Sample ID: Eff 20231010

Lab Sample ID: 320-105928-2

Date Collected: 10/10/23 23:59

Matrix: Water

Date Received: 10/12/23 09:20

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	7.2		4.5	2.1	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluoropentanoic acid (PFPeA)	30		1.8	0.44	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluorohexanoic acid (PFHxA)	17		1.8	0.52	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluoroheptanoic acid (PFHpA)	2.0		1.8	0.22	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluorooctanoic acid (PFOA)	7.2		1.8	0.76	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluorononanoic acid (PFNA)	0.60	J	1.8	0.24	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluorodecanoic acid (PFDA)	1.0	J	1.8	0.28	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.99	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.8	1.2	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluorobutanesulfonic acid (PFBS)	6.4	I	1.8	0.18	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluoropentanesulfonic acid (PFPeS)	0.49	J	1.8	0.27	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluorohexanesulfonic acid (PFHxS)	6.3		1.8	0.51	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluorooctanesulfonic acid (PFOS)	3.2		1.8	0.48	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluoronanesulfonic acid (PFNS)	ND		1.8	0.33	ng/L		10/26/23 05:30	10/31/23 05:49	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Eff 20231010

Lab Sample ID: 320-105928-2

Date Collected: 10/10/23 23:59

Matrix: Water

Date Received: 10/12/23 09:20

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.87	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.88	ng/L		10/26/23 05:30	10/31/23 05:49	1
NEtFOSA	ND		1.8	0.78	ng/L		10/26/23 05:30	10/31/23 05:49	1
NMeFOSA	ND		1.8	0.39	ng/L		10/26/23 05:30	10/31/23 05:49	1
NMeFOSAA	1.4	J	4.5	1.1	ng/L		10/26/23 05:30	10/31/23 05:49	1
NEtFOSAA	ND		4.5	1.2	ng/L		10/26/23 05:30	10/31/23 05:49	1
NMeFOSE	ND		3.6	1.3	ng/L		10/26/23 05:30	10/31/23 05:49	1
NEtFOSE	ND		1.8	0.76	ng/L		10/26/23 05:30	10/31/23 05:49	1
4:2 FTS	ND		1.8	0.21	ng/L		10/26/23 05:30	10/31/23 05:49	1
6:2 FTS	ND		4.5	2.2	ng/L		10/26/23 05:30	10/31/23 05:49	1
8:2 FTS	ND		1.8	0.41	ng/L		10/26/23 05:30	10/31/23 05:49	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		10/26/23 05:30	10/31/23 05:49	1
HFPO-DA (GenX)	ND		3.6	1.3	ng/L		10/26/23 05:30	10/31/23 05:49	1
9CI-PF3ONS	ND		1.8	0.21	ng/L		10/26/23 05:30	10/31/23 05:49	1
11CI-PF3OUdS	ND		1.8	0.29	ng/L		10/26/23 05:30	10/31/23 05:49	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	89		25 - 150				10/26/23 05:30	10/31/23 05:49	1
13C5 PFPeA	95		25 - 150				10/26/23 05:30	10/31/23 05:49	1
13C2 PFHxA	96		25 - 150				10/26/23 05:30	10/31/23 05:49	1
13C4 PFHpA	112		25 - 150				10/26/23 05:30	10/31/23 05:49	1
13C4 PFOA	102		25 - 150				10/26/23 05:30	10/31/23 05:49	1
13C5 PFNA	101		25 - 150				10/26/23 05:30	10/31/23 05:49	1
13C2 PFDA	100		25 - 150				10/26/23 05:30	10/31/23 05:49	1
13C2 PFUnA	94		25 - 150				10/26/23 05:30	10/31/23 05:49	1
13C2 PFDoA	91		25 - 150				10/26/23 05:30	10/31/23 05:49	1
13C2 PFTeDA	57		25 - 150				10/26/23 05:30	10/31/23 05:49	1
13C3 PFBS	97		25 - 150				10/26/23 05:30	10/31/23 05:49	1
18O2 PFHxS	89		25 - 150				10/26/23 05:30	10/31/23 05:49	1
13C4 PFOS	99		25 - 150				10/26/23 05:30	10/31/23 05:49	1
13C8 FOSA	92		10 - 150				10/26/23 05:30	10/31/23 05:49	1
d3-NMeFOSAA	89		25 - 150				10/26/23 05:30	10/31/23 05:49	1
d5-NEtFOSAA	104		25 - 150				10/26/23 05:30	10/31/23 05:49	1
d-N-MeFOSA-M	82		10 - 150				10/26/23 05:30	10/31/23 05:49	1
d-N-EtFOSA-M	81		10 - 150				10/26/23 05:30	10/31/23 05:49	1
d7-N-MeFOSE-M	81		10 - 150				10/26/23 05:30	10/31/23 05:49	1
d9-N-EtFOSE-M	78		10 - 150				10/26/23 05:30	10/31/23 05:49	1
M2-4:2 FTS	132		25 - 150				10/26/23 05:30	10/31/23 05:49	1
M2-6:2 FTS	123		25 - 150				10/26/23 05:30	10/31/23 05:49	1
M2-8:2 FTS	112		25 - 150				10/26/23 05:30	10/31/23 05:49	1
13C3 HFPO-DA	98		25 - 150				10/26/23 05:30	10/31/23 05:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	6.0		5.0	1.9	mg/L			10/17/23 13:03	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-1 20231010

Lab Sample ID: 320-105928-3

Date Collected: 10/10/23 13:27

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 25.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	2.6	J	2.7	0.62	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluoropentanoic acid (PFPeA)	8.4		2.7	0.56	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorohexanoic acid (PFHxA)	13		2.7	0.42	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluoroheptanoic acid (PFHpA)	0.63	J	2.7	0.52	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorooctanoic acid (PFOA)	6.0		2.7	0.72	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorononanoic acid (PFNA)	0.94	J	2.7	0.30	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorodecanoic acid (PFDA)	8.5		2.7	0.65	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluoroundecanoic acid (PFUnA)	1.5	J	2.7	0.57	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorododecanoic acid (PFDoA)	4.0		2.7	0.41	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorotridecanoic acid (PFTrDA)	0.37	J	2.7	0.28	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorotetradecanoic acid (PFTeA)	1.1	J	2.7	0.50	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorobutanesulfonic acid (PFBS)	0.71	J	2.7	0.52	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.7	0.50	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.7	0.39	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.7	0.66	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorooctanesulfonic acid (PFOS)	13		2.7	0.58	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorononanesulfonic acid (PFNS)	ND		2.7	0.39	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.7	0.70	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.7	0.64	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorooctanesulfonamide (FOSA)	1.5	J	2.7	0.45	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
NEtFOSA	ND		2.7	0.64	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
NMeFOSA	ND		2.7	0.66	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
NMeFOSAA	26		2.7	0.31	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
NEtFOSAA	9.8		2.7	0.65	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
NMeFOSE	14		2.7	0.64	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
NEtFOSE	4.3		2.7	0.38	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
4:2 FTS	ND		2.7	0.69	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
6:2 FTS	0.89	J	2.7	0.37	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
8:2 FTS	1.3	J	2.7	0.47	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.7	0.53	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
HFPO-DA (GenX)	ND		2.7	0.56	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
9Cl-PF3ONS	ND		2.7	0.47	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
11Cl-PF3OUdS	ND		2.7	0.42	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	78		25 - 150				10/19/23 11:23	10/21/23 07:11	1
13C5 PFPeA	64		25 - 150				10/19/23 11:23	10/21/23 07:11	1
13C2 PFHxA	94		25 - 150				10/19/23 11:23	10/21/23 07:11	1
13C4 PFHpA	95		25 - 150				10/19/23 11:23	10/21/23 07:11	1
13C4 PFOA	93		25 - 150				10/19/23 11:23	10/21/23 07:11	1
13C5 PFNA	72		25 - 150				10/19/23 11:23	10/21/23 07:11	1
13C2 PFDA	75		25 - 150				10/19/23 11:23	10/21/23 07:11	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-1 20231010

Lab Sample ID: 320-105928-3

Date Collected: 10/10/23 13:27

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 25.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFUnA	70		25 - 150	10/19/23 11:23	10/21/23 07:11	1
13C2 PFDoA	43		25 - 150	10/19/23 11:23	10/21/23 07:11	1
13C2 PFTeDA	15	*5-	25 - 150	10/19/23 11:23	10/21/23 07:11	1
13C3 PFBS	80		25 - 150	10/19/23 11:23	10/21/23 07:11	1
18O2 PFHxS	91		25 - 150	10/19/23 11:23	10/21/23 07:11	1
13C4 PFOS	69		25 - 150	10/19/23 11:23	10/21/23 07:11	1
13C8 FOSA	70		10 - 150	10/19/23 11:23	10/21/23 07:11	1
d3-NMeFOSAA	44		25 - 150	10/19/23 11:23	10/21/23 07:11	1
d5-NEtFOSAA	63		25 - 150	10/19/23 11:23	10/21/23 07:11	1
d-N-MeFOSA-M	18		10 - 150	10/19/23 11:23	10/21/23 07:11	1
d-N-EtFOSA-M	45		10 - 150	10/19/23 11:23	10/21/23 07:11	1
d7-N-MeFOSE-M	27		10 - 150	10/19/23 11:23	10/21/23 07:11	1
d9-N-EtFOSE-M	46		10 - 150	10/19/23 11:23	10/21/23 07:11	1
M2-4:2 FTS	149		25 - 150	10/19/23 11:23	10/21/23 07:11	1
M2-6:2 FTS	145		25 - 150	10/19/23 11:23	10/21/23 07:11	1
M2-8:2 FTS	73		25 - 150	10/19/23 11:23	10/21/23 07:11	1
13C3 HFPO-DA	81		25 - 150	10/19/23 11:23	10/21/23 07:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	74.4		0.1	0.1	%			10/13/23 15:20	1
Percent Solids (ASTM D 2216)	25.6		0.1	0.1	%			10/13/23 15:20	1

Client Sample ID: Bio A 23-S-2 20231010

Lab Sample ID: 320-105928-4

Date Collected: 10/10/23 13:33

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 23.5

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1.4	J	2.9	0.67	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluoropentanoic acid (PFPeA)	4.7		2.9	0.59	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluorohexanoic acid (PFHxA)	7.0		2.9	0.45	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluoroheptanoic acid (PFHpA)	ND		2.9	0.55	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluorooctanoic acid (PFOA)	3.2		2.9	0.77	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluorononanoic acid (PFNA)	0.95	J	2.9	0.32	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluorodecanoic acid (PFDA)	8.2		2.9	0.69	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluoroundecanoic acid (PFUnA)	1.3	J	2.9	0.61	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluorododecanoic acid (PFDoA)	4.3		2.9	0.43	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluorotridecanoic acid (PFTTrDA)	0.39	J	2.9	0.30	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluorotetradecanoic acid (PFTeA)	0.79	J	2.9	0.54	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.9	0.55	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.9	0.54	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.9	0.42	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.9	0.71	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluorooctanesulfonic acid (PFOS)	14		2.9	0.62	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-2 20231010

Lab Sample ID: 320-105928-4

Date Collected: 10/10/23 13:33

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 23.5

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanesulfonic acid (PFNS)	ND		2.9	0.42	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.9	0.75	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.9	0.68	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluorooctanesulfonamide (FOSA)	1.6	J	2.9	0.48	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
NEtFOSA	ND		2.9	0.68	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
NMeFOSA	ND		2.9	0.71	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
NMeFOSAA	26		2.9	0.33	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
NEtFOSAA	9.6		2.9	0.69	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
NMeFOSE	15		2.9	0.68	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
NEtFOSE	5.5		2.9	0.41	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
4:2 FTS	ND		2.9	0.74	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
6:2 FTS	0.60	J	2.9	0.39	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
8:2 FTS	1.6	J	2.9	0.51	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.9	0.56	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
HFPO-DA (GenX)	ND		2.9	0.59	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
9Cl-PF3ONS	ND		2.9	0.51	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
11Cl-PF3OUdS	0.63	J	2.9	0.45	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	74		25 - 150				10/19/23 11:23	10/21/23 07:22	1
13C5 PFPeA	64		25 - 150				10/19/23 11:23	10/21/23 07:22	1
13C2 PFHxA	90		25 - 150				10/19/23 11:23	10/21/23 07:22	1
13C4 PFHpA	93		25 - 150				10/19/23 11:23	10/21/23 07:22	1
13C4 PFOA	97		25 - 150				10/19/23 11:23	10/21/23 07:22	1
13C5 PFNA	79		25 - 150				10/19/23 11:23	10/21/23 07:22	1
13C2 PFDA	79		25 - 150				10/19/23 11:23	10/21/23 07:22	1
13C2 PFUnA	70		25 - 150				10/19/23 11:23	10/21/23 07:22	1
13C2 PFDoA	45		25 - 150				10/19/23 11:23	10/21/23 07:22	1
13C2 PFTeDA	14	*5-	25 - 150				10/19/23 11:23	10/21/23 07:22	1
13C3 PFBS	77		25 - 150				10/19/23 11:23	10/21/23 07:22	1
18O2 PFHxS	91		25 - 150				10/19/23 11:23	10/21/23 07:22	1
13C4 PFOS	70		25 - 150				10/19/23 11:23	10/21/23 07:22	1
13C8 FOSA	73		10 - 150				10/19/23 11:23	10/21/23 07:22	1
d3-NMeFOSAA	39		25 - 150				10/19/23 11:23	10/21/23 07:22	1
d5-NEtFOSAA	58		25 - 150				10/19/23 11:23	10/21/23 07:22	1
d-N-MeFOSA-M	18		10 - 150				10/19/23 11:23	10/21/23 07:22	1
d-N-EtFOSA-M	42		10 - 150				10/19/23 11:23	10/21/23 07:22	1
d7-N-MeFOSE-M	26		10 - 150				10/19/23 11:23	10/21/23 07:22	1
d9-N-EtFOSE-M	40		10 - 150				10/19/23 11:23	10/21/23 07:22	1
M2-4:2 FTS	159	*5+	25 - 150				10/19/23 11:23	10/21/23 07:22	1
M2-6:2 FTS	152	*5+	25 - 150				10/19/23 11:23	10/21/23 07:22	1
M2-8:2 FTS	76		25 - 150				10/19/23 11:23	10/21/23 07:22	1
13C3 HFPO-DA	81		25 - 150				10/19/23 11:23	10/21/23 07:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	76.5		0.1	0.1	%			10/13/23 15:20	1
Percent Solids (ASTM D 2216)	23.5		0.1	0.1	%			10/13/23 15:20	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-3 20231010

Lab Sample ID: 320-105928-5

Date Collected: 10/10/23 13:37

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 28.8

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.69	J	2.7	0.63	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluoropentanoic acid (PFPeA)	1.3	J	2.7	0.56	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorohexanoic acid (PFHxA)	3.5		2.7	0.42	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluoroheptanoic acid (PFHpA)	ND		2.7	0.52	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorooctanoic acid (PFOA)	2.3	J	2.7	0.73	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorononanoic acid (PFNA)	0.77	J	2.7	0.30	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorodecanoic acid (PFDA)	6.6		2.7	0.66	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluoroundecanoic acid (PFUnA)	1.1	J	2.7	0.57	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorododecanoic acid (PFDoA)	3.5		2.7	0.41	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorotridecanoic acid (PFTrDA)	0.33	J	2.7	0.29	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorotetradecanoic acid (PFTeA)	1.1	J	2.7	0.51	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.7	0.52	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.7	0.51	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.7	0.40	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.7	0.67	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorooctanesulfonic acid (PFOS)	12		2.7	0.59	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorononanesulfonic acid (PFNS)	ND		2.7	0.40	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.7	0.71	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.7	0.64	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorooctanesulfonamide (FOSA)	1.3	J	2.7	0.45	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
NEtFOSA	ND		2.7	0.64	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
NMeFOSA	ND		2.7	0.67	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
NMeFOSAA	21		2.7	0.31	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
NEtFOSAA	8.0		2.7	0.66	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
NMeFOSE	13		2.7	0.64	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
NEtFOSE	4.4		2.7	0.38	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
4:2 FTS	ND		2.7	0.70	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
6:2 FTS	0.40	J	2.7	0.37	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
8:2 FTS	1.1	J	2.7	0.48	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.7	0.53	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
HFPO-DA (GenX)	ND		2.7	0.56	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
9CI-PF3ONS	ND		2.7	0.48	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
11CI-PF3OUds	0.51	J	2.7	0.42	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	71		25 - 150				10/19/23 11:23	10/21/23 07:33	1
13C5 PFPeA	63		25 - 150				10/19/23 11:23	10/21/23 07:33	1
13C2 PFHxA	88		25 - 150				10/19/23 11:23	10/21/23 07:33	1
13C4 PFHpA	93		25 - 150				10/19/23 11:23	10/21/23 07:33	1
13C4 PFOA	96		25 - 150				10/19/23 11:23	10/21/23 07:33	1
13C5 PFNA	76		25 - 150				10/19/23 11:23	10/21/23 07:33	1
13C2 PFDA	81		25 - 150				10/19/23 11:23	10/21/23 07:33	1
13C2 PFUnA	75		25 - 150				10/19/23 11:23	10/21/23 07:33	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-3 20231010

Lab Sample ID: 320-105928-5

Date Collected: 10/10/23 13:37

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 28.8

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDoA	46		25 - 150	10/19/23 11:23	10/21/23 07:33	1
13C2 PFTeDA	18	*5-	25 - 150	10/19/23 11:23	10/21/23 07:33	1
13C3 PFBS	78		25 - 150	10/19/23 11:23	10/21/23 07:33	1
18O2 PFHxS	91		25 - 150	10/19/23 11:23	10/21/23 07:33	1
13C4 PFOS	67		25 - 150	10/19/23 11:23	10/21/23 07:33	1
13C8 FOSA	75		10 - 150	10/19/23 11:23	10/21/23 07:33	1
d3-NMeFOSAA	44		25 - 150	10/19/23 11:23	10/21/23 07:33	1
d5-NEtFOSAA	67		25 - 150	10/19/23 11:23	10/21/23 07:33	1
d-N-MeFOSA-M	20		10 - 150	10/19/23 11:23	10/21/23 07:33	1
d-N-EtFOSA-M	47		10 - 150	10/19/23 11:23	10/21/23 07:33	1
d7-N-MeFOSE-M	31		10 - 150	10/19/23 11:23	10/21/23 07:33	1
d9-N-EtFOSE-M	46		10 - 150	10/19/23 11:23	10/21/23 07:33	1
M2-4:2 FTS	135		25 - 150	10/19/23 11:23	10/21/23 07:33	1
M2-6:2 FTS	132		25 - 150	10/19/23 11:23	10/21/23 07:33	1
M2-8:2 FTS	79		25 - 150	10/19/23 11:23	10/21/23 07:33	1
13C3 HFPO-DA	83		25 - 150	10/19/23 11:23	10/21/23 07:33	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	71.2		0.1	0.1	%			10/13/23 15:20	1
Percent Solids (ASTM D 2216)	28.8		0.1	0.1	%			10/13/23 15:20	1

Client Sample ID: Bio A 23-S-4 20231010

Lab Sample ID: 320-105928-6

Date Collected: 10/10/23 13:42

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 24.4

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.1	0.71	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluoropentanoic acid (PFPeA)	1.1	J	3.1	0.64	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluorohexanoic acid (PFHxA)	3.2		3.1	0.48	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluoroheptanoic acid (PFHpA)	ND		3.1	0.59	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluorooctanoic acid (PFOA)	3.0	J	3.1	0.82	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluorononanoic acid (PFNA)	0.81	J	3.1	0.34	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluorodecanoic acid (PFDA)	8.5		3.1	0.74	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluoroundecanoic acid (PFUnA)	1.5	J	3.1	0.65	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluorododecanoic acid (PFDoA)	4.3		3.1	0.47	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluorotridecanoic acid (PFTTrDA)	0.33	J	3.1	0.33	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluorotetradecanoic acid (PFTTeA)	1.1	J	3.1	0.57	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluorobutanesulfonic acid (PFBS)	ND		3.1	0.59	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.1	0.57	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluorohexanesulfonic acid (PFHxS)	ND		3.1	0.45	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.1	0.76	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluorooctanesulfonic acid (PFOS)	13		3.1	0.67	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluorononanesulfonic acid (PFNS)	ND		3.1	0.45	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-4 20231010

Lab Sample ID: 320-105928-6

Date Collected: 10/10/23 13:42

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 24.4

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanesulfonic acid (PFDS)	ND		3.1	0.81	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.1	0.73	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluorooctanesulfonamide (FOSA)	1.5	J	3.1	0.51	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
NEtFOSA	ND		3.1	0.73	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
NMeFOSA	ND		3.1	0.76	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
NMeFOSAA	26		3.1	0.36	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
NEtFOSAA	10		3.1	0.74	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
NMeFOSE	14		3.1	0.73	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
NEtFOSE	5.5		3.1	0.43	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
4:2 FTS	ND		3.1	0.79	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
6:2 FTS	0.55	J	3.1	0.42	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
8:2 FTS	1.3	J	3.1	0.54	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.1	0.61	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
HFPO-DA (GenX)	ND		3.1	0.64	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
9CI-PF3ONS	ND		3.1	0.54	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
11CI-PF3OUdS	0.52	J	3.1	0.48	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	69		25 - 150				10/19/23 11:23	10/21/23 07:44	1
13C5 PFPeA	59		25 - 150				10/19/23 11:23	10/21/23 07:44	1
13C2 PFHxA	88		25 - 150				10/19/23 11:23	10/21/23 07:44	1
13C4 PFHpA	87		25 - 150				10/19/23 11:23	10/21/23 07:44	1
13C4 PFOA	90		25 - 150				10/19/23 11:23	10/21/23 07:44	1
13C5 PFNA	73		25 - 150				10/19/23 11:23	10/21/23 07:44	1
13C2 PFDA	73		25 - 150				10/19/23 11:23	10/21/23 07:44	1
13C2 PFUnA	68		25 - 150				10/19/23 11:23	10/21/23 07:44	1
13C2 PFDoA	45		25 - 150				10/19/23 11:23	10/21/23 07:44	1
13C2 PFTeDA	15	*5-	25 - 150				10/19/23 11:23	10/21/23 07:44	1
13C3 PFBS	71		25 - 150				10/19/23 11:23	10/21/23 07:44	1
18O2 PFHxS	88		25 - 150				10/19/23 11:23	10/21/23 07:44	1
13C4 PFOS	64		25 - 150				10/19/23 11:23	10/21/23 07:44	1
13C8 FOSA	71		10 - 150				10/19/23 11:23	10/21/23 07:44	1
d3-NMeFOSAA	42		25 - 150				10/19/23 11:23	10/21/23 07:44	1
d5-NEtFOSAA	58		25 - 150				10/19/23 11:23	10/21/23 07:44	1
d-N-MeFOSA-M	19		10 - 150				10/19/23 11:23	10/21/23 07:44	1
d-N-EtFOSA-M	46		10 - 150				10/19/23 11:23	10/21/23 07:44	1
d7-N-MeFOSE-M	30		10 - 150				10/19/23 11:23	10/21/23 07:44	1
d9-N-EtFOSE-M	44		10 - 150				10/19/23 11:23	10/21/23 07:44	1
M2-4:2 FTS	144		25 - 150				10/19/23 11:23	10/21/23 07:44	1
M2-6:2 FTS	133		25 - 150				10/19/23 11:23	10/21/23 07:44	1
M2-8:2 FTS	70		25 - 150				10/19/23 11:23	10/21/23 07:44	1
13C3 HFPO-DA	79		25 - 150				10/19/23 11:23	10/21/23 07:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	75.6		0.1	0.1	%			10/13/23 15:20	1
Percent Solids (ASTM D 2216)	24.4		0.1	0.1	%			10/13/23 15:20	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-C 20231010

Lab Sample ID: 320-105928-7

Date Collected: 10/10/23 13:44

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 24.9

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1.7	J	2.7	0.62	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluoropentanoic acid (PFPeA)	6.0		2.7	0.55	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorohexanoic acid (PFHxA)	11		2.7	0.42	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluoroheptanoic acid (PFHpA)	ND		2.7	0.51	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorooctanoic acid (PFOA)	5.6		2.7	0.71	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorononanoic acid (PFNA)	1.0	J	2.7	0.30	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorodecanoic acid (PFDA)	8.9		2.7	0.65	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluoroundecanoic acid (PFUnA)	1.4	J	2.7	0.57	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorododecanoic acid (PFDoA)	4.5		2.7	0.40	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorotridecanoic acid (PFTrDA)	0.38	J	2.7	0.28	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorotetradecanoic acid (PFTeA)	1.3	J	2.7	0.50	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.7	0.51	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.7	0.50	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.7	0.39	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.7	0.66	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorooctanesulfonic acid (PFOS)	13		2.7	0.58	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorononanesulfonic acid (PFNS)	ND		2.7	0.39	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.7	0.70	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.7	0.63	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorooctanesulfonamide (FOSA)	1.5	J	2.7	0.44	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
NEtFOSA	ND		2.7	0.63	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
NMeFOSA	ND		2.7	0.66	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
NMeFOSAA	27		2.7	0.31	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
NEtFOSAA	9.8		2.7	0.65	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
NMeFOSE	14		2.7	0.63	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
NEtFOSE	4.7		2.7	0.38	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
4:2 FTS	ND		2.7	0.69	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
6:2 FTS	0.84	J	2.7	0.36	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
8:2 FTS	1.4	J	2.7	0.47	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.7	0.53	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
HFPO-DA (GenX)	ND		2.7	0.55	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
9CI-PF3ONS	ND		2.7	0.47	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
11CI-PF3OUds	0.49	J	2.7	0.42	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	67		25 - 150				10/19/23 11:23	10/21/23 07:56	1
13C5 PFPeA	63		25 - 150				10/19/23 11:23	10/21/23 07:56	1
13C2 PFHxA	85		25 - 150				10/19/23 11:23	10/21/23 07:56	1
13C4 PFHpA	88		25 - 150				10/19/23 11:23	10/21/23 07:56	1
13C4 PFOA	92		25 - 150				10/19/23 11:23	10/21/23 07:56	1
13C5 PFNA	71		25 - 150				10/19/23 11:23	10/21/23 07:56	1
13C2 PFDA	72		25 - 150				10/19/23 11:23	10/21/23 07:56	1
13C2 PFUnA	71		25 - 150				10/19/23 11:23	10/21/23 07:56	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-C 20231010

Lab Sample ID: 320-105928-7

Date Collected: 10/10/23 13:44

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 24.9

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDoA	45		25 - 150	10/19/23 11:23	10/21/23 07:56	1
13C2 PFTeDA	16	*5-	25 - 150	10/19/23 11:23	10/21/23 07:56	1
13C3 PFBS	72		25 - 150	10/19/23 11:23	10/21/23 07:56	1
18O2 PFHxS	88		25 - 150	10/19/23 11:23	10/21/23 07:56	1
13C4 PFOS	65		25 - 150	10/19/23 11:23	10/21/23 07:56	1
13C8 FOSA	67		10 - 150	10/19/23 11:23	10/21/23 07:56	1
d3-NMeFOSAA	43		25 - 150	10/19/23 11:23	10/21/23 07:56	1
d5-NEtFOSAA	65		25 - 150	10/19/23 11:23	10/21/23 07:56	1
d-N-MeFOSA-M	19		10 - 150	10/19/23 11:23	10/21/23 07:56	1
d-N-EtFOSA-M	43		10 - 150	10/19/23 11:23	10/21/23 07:56	1
d7-N-MeFOSE-M	30		10 - 150	10/19/23 11:23	10/21/23 07:56	1
d9-N-EtFOSE-M	43		10 - 150	10/19/23 11:23	10/21/23 07:56	1
M2-4:2 FTS	129		25 - 150	10/19/23 11:23	10/21/23 07:56	1
M2-6:2 FTS	135		25 - 150	10/19/23 11:23	10/21/23 07:56	1
M2-8:2 FTS	67		25 - 150	10/19/23 11:23	10/21/23 07:56	1
13C3 HFPO-DA	79		25 - 150	10/19/23 11:23	10/21/23 07:56	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	8.0		3.6	0.57	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluoroheptanoic acid (PFHpA)	ND		3.6	0.69	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluorooctanoic acid (PFOA)	4.1		3.6	0.97	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluorononanoic acid (PFNA)	0.76	J	3.6	0.40	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluorodecanoic acid (PFDA)	8.4		3.6	0.88	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluoroundecanoic acid (PFUnA)	1.4	J	3.6	0.77	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluorododecanoic acid (PFDoA)	3.7		3.6	0.55	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluorotridecanoic acid (PFTrDA)	0.45	J	3.6	0.38	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluorotetradecanoic acid (PFTeA)	0.96	J	3.6	0.67	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluorobutanesulfonic acid (PFBS)	ND		3.6	0.69	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.6	0.67	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluorohexanesulfonic acid (PFHxS)	ND		3.6	0.53	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.6	0.90	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluorooctanesulfonic acid (PFOS)	14	I	3.6	0.79	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluorononanesulfonic acid (PFNS)	ND		3.6	0.53	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluorodecanesulfonic acid (PFDS)	1.6	J	3.6	0.95	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.6	0.86	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluorooctanesulfonamide (FOSA)	1.5	J	3.6	0.60	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
NMeFOSAA	21		3.6	0.42	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
NEtFOSAA	8.3		3.6	0.88	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
NMeFOSE	18		3.6	0.86	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
NEtFOSE	4.2		3.6	0.51	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
4:2 FTS	ND		3.6	0.93	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-C 20231010

Lab Sample ID: 320-105928-7

Date Collected: 10/10/23 13:44

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 24.9

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 FTS	0.72	J	3.6	0.49	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
8:2 FTS	1.4	J	3.6	0.64	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
HFPO-DA (GenX)	ND		3.6	0.75	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
9CI-PF3ONS	ND		3.6	0.64	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
11CI-PF3OUdS	ND		3.6	0.57	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.6	0.71	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	50		25 - 150	10/16/23 18:20	10/29/23 17:17	1
13C4 PFHpA	91		25 - 150	10/16/23 18:20	10/29/23 17:17	1
13C4 PFOA	92		25 - 150	10/16/23 18:20	10/29/23 17:17	1
13C5 PFNA	74		25 - 150	10/16/23 18:20	10/29/23 17:17	1
13C2 PFDA	50		25 - 150	10/16/23 18:20	10/29/23 17:17	1
13C2 PFUnA	75		25 - 150	10/16/23 18:20	10/29/23 17:17	1
13C2 PFDoA	51		25 - 150	10/16/23 18:20	10/29/23 17:17	1
13C2 PFTeDA	18	*5-	25 - 150	10/16/23 18:20	10/29/23 17:17	1
13C3 PFBS	70		25 - 150	10/16/23 18:20	10/29/23 17:17	1
18O2 PFHxS	82		25 - 150	10/16/23 18:20	10/29/23 17:17	1
13C4 PFOS	61		25 - 150	10/16/23 18:20	10/29/23 17:17	1
13C8 FOSA	59		25 - 150	10/16/23 18:20	10/29/23 17:17	1
M2-4:2 FTS	50		25 - 150	10/16/23 18:20	10/29/23 17:17	1
M2-6:2 FTS	119		25 - 150	10/16/23 18:20	10/29/23 17:17	1
M2-8:2 FTS	36		25 - 150	10/16/23 18:20	10/29/23 17:17	1
13C3 HFPO-DA	40		25 - 150	10/16/23 18:20	10/29/23 17:17	1
d3-NMeFOSAA	56		25 - 150	10/16/23 18:20	10/29/23 17:17	1
d5-NEtFOSAA	63		25 - 150	10/16/23 18:20	10/29/23 17:17	1
d-N-MeFOSA-M	27		25 - 150	10/16/23 18:20	10/29/23 17:17	1
d-N-EtFOSA-M	26		25 - 150	10/16/23 18:20	10/29/23 17:17	1
d7-N-MeFOSE-M	31		25 - 150	10/16/23 18:20	10/29/23 17:17	1
d9-N-EtFOSE-M	35		25 - 150	10/16/23 18:20	10/29/23 17:17	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1.7	J	3.8	0.87	ug/Kg	☼	11/02/23 21:25	11/18/23 04:52	1
Perfluoropentanoic acid (PFPeA)	5.0		3.8	0.78	ug/Kg	☼	11/02/23 21:25	11/18/23 04:52	1
NMeFOSA	ND		3.8	0.93	ug/Kg	☼	11/02/23 21:25	11/18/23 04:52	1
NEtFOSA	ND		3.8	0.89	ug/Kg	☼	11/02/23 21:25	11/18/23 04:52	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	96		25 - 150	11/02/23 21:25	11/18/23 04:52	1
13C5 PFPeA	97		25 - 150	11/02/23 21:25	11/18/23 04:52	1
d-N-MeFOSA-M	17	*5-	25 - 150	11/02/23 21:25	11/18/23 04:52	1
d-N-EtFOSA-M	13	*5-	25 - 150	11/02/23 21:25	11/18/23 04:52	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	190	B	3.8	0.87	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluoropentanoic acid (PFPeA)	77		3.8	0.78	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluorohexanoic acid (PFHxA)	74	+	3.8	0.59	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluoroheptanoic acid (PFHpA)	33	+	3.8	0.72	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluorooctanoic acid (PFOA)	44		3.8	1.0	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-C 20231010

Lab Sample ID: 320-105928-7

Date Collected: 10/10/23 13:44

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 24.9

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	14		3.8	0.42	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluorodecanoic acid (PFDA)	17		3.8	0.91	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluoroundecanoic acid (PFUnA)	4.2		3.8	0.79	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluorododecanoic acid (PFDoA)	4.9		3.8	0.57	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluorotridecanoic acid (PFTrDA)	1.4	J	3.8	0.40	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluorotetradecanoic acid (PFTeA)	1.6	J	3.8	0.70	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluorobutanesulfonic acid (PFBS)	18		3.8	0.72	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.8	0.70	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluorohexanesulfonic acid (PFHxS)	1.9	J	3.8	0.55	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.8	0.93	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluorooctanesulfonic acid (PFOS)	14		3.8	0.82	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluorononanesulfonic acid (PFNS)	ND		3.8	0.55	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluorodecanesulfonic acid (PFDS)	0.99	J	3.8	0.98	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.8	0.89	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluorooctanesulfonamide (FOSA)	ND		3.8	0.62	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
NMeFOSAA	ND		3.8	0.44	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
NEtFOSAA	ND		3.8	0.91	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
4:2 FTS	ND		3.8	0.97	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
6:2 FTS	ND		3.8	0.51	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
8:2 FTS	ND		3.8	0.66	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
NEtFOSA	ND		3.8	0.89	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
NMeFOSA	ND		3.8	0.93	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
NMeFOSE	ND		3.8	0.89	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
NEtFOSE	ND		3.8	0.53	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
9CI-PF3ONS	ND		3.8	0.66	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
11CI-PF3OUdS	ND		3.8	0.59	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.8	0.74	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	85		25 - 150	10/16/23 18:05	10/29/23 13:01	1
13C4 PFBA	47		25 - 150	10/16/23 18:05	10/29/23 13:01	1
13C5 PFPeA	94		25 - 150	10/16/23 18:05	10/29/23 13:01	1
13C2 PFHxA	91		25 - 150	10/16/23 18:05	10/29/23 13:01	1
13C4 PFHpA	100		25 - 150	10/16/23 18:05	10/29/23 13:01	1
13C4 PFOA	99		25 - 150	10/16/23 18:05	10/29/23 13:01	1
13C5 PFNA	93		25 - 150	10/16/23 18:05	10/29/23 13:01	1
13C2 PFDA	94		25 - 150	10/16/23 18:05	10/29/23 13:01	1
13C2 PFUnA	88		25 - 150	10/16/23 18:05	10/29/23 13:01	1
13C2 PFDoA	81		25 - 150	10/16/23 18:05	10/29/23 13:01	1
13C2 PFTeDA	93		25 - 150	10/16/23 18:05	10/29/23 13:01	1
13C3 PFBS	85		25 - 150	10/16/23 18:05	10/29/23 13:01	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-C 20231010

Lab Sample ID: 320-105928-7

Date Collected: 10/10/23 13:44

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 24.9

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	88		25 - 150	10/16/23 18:05	10/29/23 13:01	1
13C4 PFOS	78		25 - 150	10/16/23 18:05	10/29/23 13:01	1
d3-NMeFOSAA	84		25 - 150	10/16/23 18:05	10/29/23 13:01	1
d5-NEtFOSAA	90		25 - 150	10/16/23 18:05	10/29/23 13:01	1
M2-4:2 FTS	0		0 - 10	10/16/23 18:05	10/29/23 13:01	1
M2-6:2 FTS	100		25 - 150	10/16/23 18:05	10/29/23 13:01	1
M2-8:2 FTS	108		25 - 150	10/16/23 18:05	10/29/23 13:01	1
d-N-MeFOSA-M	79		25 - 150	10/16/23 18:05	10/29/23 13:01	1
d-N-EtFOSA-M	76		25 - 150	10/16/23 18:05	10/29/23 13:01	1
d7-N-MeFOSE-M	77		25 - 150	10/16/23 18:05	10/29/23 13:01	1
d9-N-EtFOSE-M	76		25 - 150	10/16/23 18:05	10/29/23 13:01	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA (GenX)	ND	*- *1	3.9	0.81	ug/Kg	☼	11/02/23 21:25	11/17/23 02:07	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C3 HFPO-DA	100		25 - 150	11/02/23 21:25	11/17/23 02:07	1			

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	75.1		0.1	0.1	%			10/13/23 15:20	1
Percent Solids (ASTM D 2216)	24.9		0.1	0.1	%			10/13/23 15:20	1

Client Sample ID: EB01 20231010

Lab Sample ID: 320-105928-8

Date Collected: 10/10/23 12:15

Matrix: Water

Date Received: 10/12/23 09:20

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.9	2.3	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.48	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.57	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.24	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.83	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.26	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.30	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.54	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.71	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.29	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.56	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.19	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.53	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.36	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.31	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.95	ng/L		10/26/23 05:30	10/31/23 06:00	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: EB01 20231010

Lab Sample ID: 320-105928-8

Date Collected: 10/10/23 12:15

Matrix: Water

Date Received: 10/12/23 09:20

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.96	ng/L		10/26/23 05:30	10/31/23 06:00	1
NEtFOSA	ND		2.0	0.85	ng/L		10/26/23 05:30	10/31/23 06:00	1
NMeFOSA	ND		2.0	0.42	ng/L		10/26/23 05:30	10/31/23 06:00	1
NMeFOSAA	ND		4.9	1.2	ng/L		10/26/23 05:30	10/31/23 06:00	1
NEtFOSAA	ND		4.9	1.3	ng/L		10/26/23 05:30	10/31/23 06:00	1
NMeFOSE	ND		3.9	1.4	ng/L		10/26/23 05:30	10/31/23 06:00	1
NEtFOSE	ND		2.0	0.83	ng/L		10/26/23 05:30	10/31/23 06:00	1
4:2 FTS	ND		2.0	0.23	ng/L		10/26/23 05:30	10/31/23 06:00	1
6:2 FTS	ND		4.9	2.4	ng/L		10/26/23 05:30	10/31/23 06:00	1
8:2 FTS	ND		2.0	0.45	ng/L		10/26/23 05:30	10/31/23 06:00	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.39	ng/L		10/26/23 05:30	10/31/23 06:00	1
HFPO-DA (GenX)	ND		3.9	1.5	ng/L		10/26/23 05:30	10/31/23 06:00	1
9Cl-PF3ONS	ND		2.0	0.23	ng/L		10/26/23 05:30	10/31/23 06:00	1
11Cl-PF3OUdS	ND		2.0	0.31	ng/L		10/26/23 05:30	10/31/23 06:00	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	92		25 - 150				10/26/23 05:30	10/31/23 06:00	1
13C5 PFPeA	92		25 - 150				10/26/23 05:30	10/31/23 06:00	1
13C2 PFHxA	91		25 - 150				10/26/23 05:30	10/31/23 06:00	1
13C4 PFHpA	98		25 - 150				10/26/23 05:30	10/31/23 06:00	1
13C4 PFOA	96		25 - 150				10/26/23 05:30	10/31/23 06:00	1
13C5 PFNA	96		25 - 150				10/26/23 05:30	10/31/23 06:00	1
13C2 PFDA	93		25 - 150				10/26/23 05:30	10/31/23 06:00	1
13C2 PFUnA	80		25 - 150				10/26/23 05:30	10/31/23 06:00	1
13C2 PFDaA	84		25 - 150				10/26/23 05:30	10/31/23 06:00	1
13C2 PFTeDA	88		25 - 150				10/26/23 05:30	10/31/23 06:00	1
13C3 PFBS	89		25 - 150				10/26/23 05:30	10/31/23 06:00	1
18O2 PFHxS	89		25 - 150				10/26/23 05:30	10/31/23 06:00	1
13C4 PFOS	94		25 - 150				10/26/23 05:30	10/31/23 06:00	1
13C8 FOSA	84		10 - 150				10/26/23 05:30	10/31/23 06:00	1
d3-NMeFOSAA	55		25 - 150				10/26/23 05:30	10/31/23 06:00	1
d5-NEtFOSAA	85		25 - 150				10/26/23 05:30	10/31/23 06:00	1
d-N-MeFOSA-M	58		10 - 150				10/26/23 05:30	10/31/23 06:00	1
d-N-EtFOSA-M	58		10 - 150				10/26/23 05:30	10/31/23 06:00	1
d7-N-MeFOSE-M	79		10 - 150				10/26/23 05:30	10/31/23 06:00	1
d9-N-EtFOSE-M	79		10 - 150				10/26/23 05:30	10/31/23 06:00	1
M2-4:2 FTS	86		25 - 150				10/26/23 05:30	10/31/23 06:00	1
M2-6:2 FTS	101		25 - 150				10/26/23 05:30	10/31/23 06:00	1
M2-8:2 FTS	85		25 - 150				10/26/23 05:30	10/31/23 06:00	1
13C3 HFPO-DA	88		25 - 150				10/26/23 05:30	10/31/23 06:00	1

Client Sample ID: Bio A 23-D-2 20231011

Lab Sample ID: 320-105928-9

Date Collected: 10/11/23 06:52

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 25.0

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.3	0.75	ug/Kg	☆	10/19/23 11:23	10/21/23 08:07	1
Perfluoropentanoic acid (PFPeA)	1.0	J	3.3	0.67	ug/Kg	☆	10/19/23 11:23	10/21/23 08:07	1
Perfluorohexanoic acid (PFHxA)	2.9	J	3.3	0.51	ug/Kg	☆	10/19/23 11:23	10/21/23 08:07	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-D-2 20231011

Lab Sample ID: 320-105928-9

Date Collected: 10/11/23 06:52

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 25.0

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	ND		3.3	0.62	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluorooctanoic acid (PFOA)	3.0	J	3.3	0.87	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluorononanoic acid (PFNA)	0.85	J	3.3	0.36	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluorodecanoic acid (PFDA)	8.2		3.3	0.79	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluoroundecanoic acid (PFUnA)	1.3	J	3.3	0.69	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluorododecanoic acid (PFDoA)	4.7		3.3	0.49	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluorotridecanoic acid (PFTrDA)	0.38	J	3.3	0.34	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluorotetradecanoic acid (PFTeA)	1.4	J	3.3	0.61	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluorobutanesulfonic acid (PFBS)	ND		3.3	0.62	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.3	0.61	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluorohexanesulfonic acid (PFHxS)	ND		3.3	0.47	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.3	0.80	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluorooctanesulfonic acid (PFOS)	15		3.3	0.70	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluorononanesulfonic acid (PFNS)	ND		3.3	0.47	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluorodecanesulfonic acid (PFDS)	ND		3.3	0.85	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.3	0.77	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluorooctanesulfonamide (FOSA)	1.5	J	3.3	0.54	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
NEtFOSA	ND		3.3	0.77	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
NMeFOSA	ND		3.3	0.80	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
NMeFOSAA	26		3.3	0.38	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
NEtFOSAA	10		3.3	0.79	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
NMeFOSE	17		3.3	0.77	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
NEtFOSE	5.3		3.3	0.46	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
4:2 FTS	ND		3.3	0.84	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
6:2 FTS	ND		3.3	0.44	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
8:2 FTS	1.2	J	3.3	0.57	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.3	0.64	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
HFPO-DA (GenX)	ND		3.3	0.67	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
9Cl-PF3ONS	ND		3.3	0.57	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
11Cl-PF3OUds	0.73	J	3.3	0.51	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	68		25 - 150				10/19/23 11:23	10/21/23 08:07	1
13C5 PFPeA	64		25 - 150				10/19/23 11:23	10/21/23 08:07	1
13C2 PFHxA	85		25 - 150				10/19/23 11:23	10/21/23 08:07	1
13C4 PFHpA	92		25 - 150				10/19/23 11:23	10/21/23 08:07	1
13C4 PFOA	92		25 - 150				10/19/23 11:23	10/21/23 08:07	1
13C5 PFNA	77		25 - 150				10/19/23 11:23	10/21/23 08:07	1
13C2 PFDA	86		25 - 150				10/19/23 11:23	10/21/23 08:07	1
13C2 PFUnA	76		25 - 150				10/19/23 11:23	10/21/23 08:07	1
13C2 PFDoA	46		25 - 150				10/19/23 11:23	10/21/23 08:07	1
13C2 PFTeDA	15	*5-	25 - 150				10/19/23 11:23	10/21/23 08:07	1
13C3 PFBS	74		25 - 150				10/19/23 11:23	10/21/23 08:07	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-D-2 20231011

Lab Sample ID: 320-105928-9

Date Collected: 10/11/23 06:52

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 25.0

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	88		25 - 150	10/19/23 11:23	10/21/23 08:07	1
13C4 PFOS	67		25 - 150	10/19/23 11:23	10/21/23 08:07	1
13C8 FOSA	77		10 - 150	10/19/23 11:23	10/21/23 08:07	1
d3-NMeFOSAA	42		25 - 150	10/19/23 11:23	10/21/23 08:07	1
d5-NEtFOSAA	63		25 - 150	10/19/23 11:23	10/21/23 08:07	1
d-N-MeFOSA-M	20		10 - 150	10/19/23 11:23	10/21/23 08:07	1
d-N-EtFOSA-M	48		10 - 150	10/19/23 11:23	10/21/23 08:07	1
d7-N-MeFOSE-M	28		10 - 150	10/19/23 11:23	10/21/23 08:07	1
d9-N-EtFOSE-M	44		10 - 150	10/19/23 11:23	10/21/23 08:07	1
M2-4:2 FTS	129		25 - 150	10/19/23 11:23	10/21/23 08:07	1
M2-6:2 FTS	143		25 - 150	10/19/23 11:23	10/21/23 08:07	1
M2-8:2 FTS	87		25 - 150	10/19/23 11:23	10/21/23 08:07	1
13C3 HFPO-DA	82		25 - 150	10/19/23 11:23	10/21/23 08:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	75.0		0.1	0.1	%			10/13/23 15:20	1
Percent Solids (ASTM D 2216)	25.0		0.1	0.1	%			10/13/23 15:20	1

Client Sample ID: Bio A 23-D-4 20231011

Lab Sample ID: 320-105928-10

Date Collected: 10/11/23 06:54

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 24.2

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.3	0.77	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluoropentanoic acid (PFPeA)	1.4	J	3.3	0.68	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluorohexanoic acid (PFHxA)	4.1		3.3	0.52	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluoroheptanoic acid (PFHpA)	ND		3.3	0.63	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluorooctanoic acid (PFOA)	3.2	J	3.3	0.88	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluorononanoic acid (PFNA)	0.83	J	3.3	0.37	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluorodecanoic acid (PFDA)	8.5		3.3	0.80	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluoroundecanoic acid (PFUnA)	1.5	J	3.3	0.70	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluorododecanoic acid (PFDoA)	3.9		3.3	0.50	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluorotridecanoic acid (PFTrDA)	0.35	J F1	3.3	0.35	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluorotetradecanoic acid (PFTeA)	1.3	J	3.3	0.62	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluorobutanesulfonic acid (PFBS)	ND		3.3	0.63	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.3	0.62	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluorohexanesulfonic acid (PFHxS)	ND		3.3	0.48	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	F1	3.3	0.82	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluorooctanesulfonic acid (PFOS)	15		3.3	0.72	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluorononanesulfonic acid (PFNS)	ND		3.3	0.48	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluorodecanesulfonic acid (PFDS)	ND	F1	3.3	0.87	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.3	0.78	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-D-4 20231011

Lab Sample ID: 320-105928-10

Date Collected: 10/11/23 06:54

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 24.2

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (FOSA)	1.4	J	3.3	0.55	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
NEtFOSA	ND		3.3	0.78	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
NMeFOSA	ND		3.3	0.82	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
NMeFOSAA	27		3.3	0.38	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
NEtFOSAA	10		3.3	0.80	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
NMeFOSE	15		3.3	0.78	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
NEtFOSE	5.4		3.3	0.47	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
4:2 FTS	ND		3.3	0.85	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
6:2 FTS	0.45	J	3.3	0.45	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
8:2 FTS	1.4	J	3.3	0.58	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.3	0.65	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
HFPO-DA (GenX)	ND		3.3	0.68	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
9Cl-PF3ONS	ND	F1	3.3	0.58	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
11Cl-PF3OUds	0.58	J	3.3	0.52	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	74		25 - 150				10/19/23 11:23	10/21/23 08:41	1
13C5 PFPeA	66		25 - 150				10/19/23 11:23	10/21/23 08:41	1
13C2 PFHxA	89		25 - 150				10/19/23 11:23	10/21/23 08:41	1
13C4 PFHpA	91		25 - 150				10/19/23 11:23	10/21/23 08:41	1
13C4 PFOA	92		25 - 150				10/19/23 11:23	10/21/23 08:41	1
13C5 PFNA	80		25 - 150				10/19/23 11:23	10/21/23 08:41	1
13C2 PFDA	83		25 - 150				10/19/23 11:23	10/21/23 08:41	1
13C2 PFUnA	70		25 - 150				10/19/23 11:23	10/21/23 08:41	1
13C2 PFDaA	48		25 - 150				10/19/23 11:23	10/21/23 08:41	1
13C2 PFTeDA	14	*5-	25 - 150				10/19/23 11:23	10/21/23 08:41	1
13C3 PFBS	79		25 - 150				10/19/23 11:23	10/21/23 08:41	1
18O2 PFHxS	92		25 - 150				10/19/23 11:23	10/21/23 08:41	1
13C4 PFOS	71		25 - 150				10/19/23 11:23	10/21/23 08:41	1
13C8 FOSA	76		10 - 150				10/19/23 11:23	10/21/23 08:41	1
d3-NMeFOSAA	44		25 - 150				10/19/23 11:23	10/21/23 08:41	1
d5-NEtFOSAA	63		25 - 150				10/19/23 11:23	10/21/23 08:41	1
d-N-MeFOSA-M	21		10 - 150				10/19/23 11:23	10/21/23 08:41	1
d-N-EtFOSA-M	44		10 - 150				10/19/23 11:23	10/21/23 08:41	1
d7-N-MeFOSE-M	31		10 - 150				10/19/23 11:23	10/21/23 08:41	1
d9-N-EtFOSE-M	44		10 - 150				10/19/23 11:23	10/21/23 08:41	1
M2-4:2 FTS	137		25 - 150				10/19/23 11:23	10/21/23 08:41	1
M2-6:2 FTS	141		25 - 150				10/19/23 11:23	10/21/23 08:41	1
M2-8:2 FTS	103		25 - 150				10/19/23 11:23	10/21/23 08:41	1
13C3 HFPO-DA	78		25 - 150				10/19/23 11:23	10/21/23 08:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	75.8		0.1	0.1	%			10/13/23 15:20	1
Percent Solids (ASTM D 2216)	24.2		0.1	0.1	%			10/13/23 15:20	1

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Total Oxidation Precursors

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

TestAmerica Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-C 20231010

Lab Sample ID: 320-105928-7
Matrix: Solid

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference ¹	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	1.7	J	ug/Kg	190		ug/Kg	190	ug/Kg
Perfluoropentanoic acid (PFPeA)	5.0		ug/Kg	77		ug/Kg	72	ug/Kg
Perfluorohexanoic acid (PFHxA)	8.0		ug/Kg	74		ug/Kg	66	ug/Kg
Perfluoroheptanoic acid (PFHpA)	ND		ug/Kg	33		ug/Kg	33	ug/Kg
Perfluorooctanoic acid (PFOA)	4.1		ug/Kg	44		ug/Kg	40	ug/Kg
Perfluorononanoic acid (PFNA)	0.76	J	ug/Kg	14		ug/Kg	14	ug/Kg
Total Perfluoroalkyl carboxylic acid	20		ug/Kg	430		ug/Kg	410	ug/Kg

¹ Difference = Post-Treatment - Pre-Treatment

Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-105928-3	Bio A 23-S-1 20231010	78	64	94	95	93	72	75	70
320-105928-4	Bio A 23-S-2 20231010	74	64	90	93	97	79	79	70
320-105928-5	Bio A 23-S-3 20231010	71	63	88	93	96	76	81	75
320-105928-6	Bio A 23-S-4 20231010	69	59	88	87	90	73	73	68
320-105928-7	Bio A 23-S-C 20231010	67	63	85	88	92	71	72	71
320-105928-9	Bio A 23-D-2 20231011	68	64	85	92	92	77	86	76
320-105928-10	Bio A 23-D-4 20231011	74	66	89	91	92	80	83	70
320-105928-10 MS	Bio A 23-D-4 20231011	78	70	95	93	97	79	89	77
320-105928-10 MSD	Bio A 23-D-4 20231011	69	65	89	94	96	83	85	80
LCS 320-714305/2-A	Lab Control Sample	79	70	96	95	96	88	89	88
MB 320-714305/1-A	Method Blank	83	73	96	94	92	89	91	88

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOFOS (25-150)	d5NEFOFOS (25-150)
320-105928-3	Bio A 23-S-1 20231010	43	15 *5-	80	91	69	70	44	63
320-105928-4	Bio A 23-S-2 20231010	45	14 *5-	77	91	70	73	39	58
320-105928-5	Bio A 23-S-3 20231010	46	18 *5-	78	91	67	75	44	67
320-105928-6	Bio A 23-S-4 20231010	45	15 *5-	71	88	64	71	42	58
320-105928-7	Bio A 23-S-C 20231010	45	16 *5-	72	88	65	67	43	65
320-105928-9	Bio A 23-D-2 20231011	46	15 *5-	74	88	67	77	42	63
320-105928-10	Bio A 23-D-4 20231011	48	14 *5-	79	92	71	76	44	63
320-105928-10 MS	Bio A 23-D-4 20231011	55	17 *5-	81	96	71	80	54	76
320-105928-10 MSD	Bio A 23-D-4 20231011	45	19 *5-	75	93	72	79	44	67
LCS 320-714305/2-A	Lab Control Sample	85	84	82	88	91	91	116	113
MB 320-714305/1-A	Method Blank	87	81	83	92	94	90	117	118

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	dMeFOFOSA (10-150)	dEtFOFOSA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	HFPODA (25-150)
320-105928-3	Bio A 23-S-1 20231010	18	45	27	46	149	145	73	81
320-105928-4	Bio A 23-S-2 20231010	18	42	26	40	159 *5+	152 *5+	76	81
320-105928-5	Bio A 23-S-3 20231010	20	47	31	46	135	132	79	83
320-105928-6	Bio A 23-S-4 20231010	19	46	30	44	144	133	70	79
320-105928-7	Bio A 23-S-C 20231010	19	43	30	43	129	135	67	79
320-105928-9	Bio A 23-D-2 20231011	20	48	28	44	129	143	87	82
320-105928-10	Bio A 23-D-4 20231011	21	44	31	44	137	141	103	78
320-105928-10 MS	Bio A 23-D-4 20231011	25	53	36	49	134	143	99	85
320-105928-10 MSD	Bio A 23-D-4 20231011	19	46	30	44	132	145	95	80
LCS 320-714305/2-A	Lab Control Sample	62	62	71	70	109	117	114	83
MB 320-714305/1-A	Method Blank	58	62	70	66	104	109	105	81

Surrogate Legend

- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- C4PFHA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA

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Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

PFD_oA = 13C₂ PFD_oA
 PFTDA = 13C₂ PFTeDA
 C₃PFBS = 13C₃ PFBS
 PFH_xS = 18O₂ PFH_xS
 PFOS = 13C₄ PFOS
 PFOSA = 13C₈ FOSA
 d₃NMFOS = d₃-NMeFOSAA
 d₅NEFOS = d₅-NEtFOSAA
 dMeFOSA = d-N-MeFOSA-M
 dEtFOSA = d-N-EtFOSA-M
 NMF_M = d₇-N-MeFOSE-M
 NEF_M = d₉-N-EtFOSE-M
 M₂₄₂F_TS = M₂-4:2 F_TS
 M₂₆₂F_TS = M₂-6:2 F_TS
 M₂₈₂F_TS = M₂-8:2 F_TS
 HFPODA = 13C₃ HFPO-DA

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Solid

Prep Type: Pre-Treatment

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFPeA (25-150)	PFHxA (25-150)	C ₄ PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)	PFD _o A (25-150)
320-105928-7	Bio A 23-S-C 20231010		50	91	92	74	50	75	51
LCS 320-713658/2-A	Lab Control Sample	42	92	94	92	91	98	91	90
LCSD 320-713658/3-A	Lab Control Sample Dup	52	93	96	95	90	96	102	97
MB 320-713658/1-A	Method Blank	25	90	91	98	90	99	95	93

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFTDA (25-150)	C ₃ PFBS (25-150)	PFH _x S (25-150)	PFOS (25-150)	PFOSA (25-150)	M ₂₄₂ F _T S (25-150)	M ₂₆₂ F _T S (25-150)	M ₂₈₂ F _T S (25-150)
320-105928-7	Bio A 23-S-C 20231010	18 *5-	70	82	61	59	50	119	36
LCS 320-713658/2-A	Lab Control Sample	81	81	84	79	83	92	98	100
LCSD 320-713658/3-A	Lab Control Sample Dup	91	83	86	83	90	89	94	103
MB 320-713658/1-A	Method Blank	85	81	88	79	84	83	103	103

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HFPODA (25-150)	d ₃ NMFOS (25-150)	d ₅ NEFOS (25-150)	dMeFOSA (25-150)	dEtFOSA (25-150)	NMF _M (25-150)	NEF _M (25-150)
320-105928-7	Bio A 23-S-C 20231010	40	56	63	27	26	31	35
LCS 320-713658/2-A	Lab Control Sample	97	86	92	78	82	77	76
LCSD 320-713658/3-A	Lab Control Sample Dup	101	91	96	83	84	81	82
MB 320-713658/1-A	Method Blank	90	82	94	80	73	77	75

Surrogate Legend

PFPeA = 13C₅ PFPeA
 PFHxA = 13C₂ PFHxA
 C₄PFHA = 13C₄ PFHpA
 PFOA = 13C₄ PFOA
 PFNA = 13C₅ PFNA
 PFDA = 13C₂ PFDA
 PFUnA = 13C₂ PFUnA
 PFD_oA = 13C₂ PFD_oA
 PFTDA = 13C₂ PFTeDA
 C₃PFBS = 13C₃ PFBS
 PFH_xS = 18O₂ PFH_xS
 PFOS = 13C₄ PFOS
 PFOSA = 13C₈ FOSA

Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District

Job ID: 320-105928-1

Project/Site: PFAS Sampling

M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
HFPODA = 13C3 HFPO-DA
d3NMFOFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
dMeFOSA = d-N-MeFOSA-M
dEtFOSA = d-N-EtFOSA-M
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Solid

Prep Type: Pre-Treatment

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)			
		PFBA (25-150)	PFPeA (25-150)	dMeFOSA (25-150)	dEtFOSA (25-150)
320-105928-7 - RE	Bio A 23-S-C 20231010	96	97	17 *5-	13 *5-
LCS 320-717648/2-A - RE	Lab Control Sample	56	96	81	94
LCSD 320-717648/3-A - RE	Lab Control Sample Dup	19 *5-	78	101	96
MB 320-717648/1-A - RE	Method Blank	90	95	76	92

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
dMeFOSA = d-N-MeFOSA-M
dEtFOSA = d-N-EtFOSA-M

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Solid

Prep Type: Post-Treatment

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFOSA (25-150)	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)
320-105928-7	Bio A 23-S-C 20231010	85	47	94	91	100	99	93	94
LCS 320-713655/2-A	Lab Control Sample	90	35	96	93	102	97	98	103
LCSD 320-713655/3-A	Lab Control Sample Dup	94	41	102	96	102	97	96	100
MB 320-713655/1-A	Method Blank	92	22 *5-	94	94	102	100	94	99

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFUnA (25-150)	PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	d3NMFOFOS (25-150)	d5NEFOS (25-150)
320-105928-7	Bio A 23-S-C 20231010	88	81	93	85	88	78	84	90
LCS 320-713655/2-A	Lab Control Sample	98	101	97	86	96	86	94	94
LCSD 320-713655/3-A	Lab Control Sample Dup	101	93	99	89	95	90	92	96
MB 320-713655/1-A	Method Blank	95	90	93	89	96	90	86	101

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)						
		M242FTS (0-10)	M262FTS (25-150)	M282FTS (25-150)	dMeFOSA (25-150)	dEtFOSA (25-150)	NMFM (25-150)	NEFM (25-150)
320-105928-7	Bio A 23-S-C 20231010	0	100	108	79	76	77	76
LCS 320-713655/2-A	Lab Control Sample	0	104	114	79	83	85	76
LCSD 320-713655/3-A	Lab Control Sample Dup	0	103	100	84	82	89	77
MB 320-713655/1-A	Method Blank	0	100	109	80	84	79	77

Surrogate Legend

PFOSA = 13C8 FOSA
PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA

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Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

- PFHxA = 13C2 PFHxA
- C4PFHA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDoA = 13C2 PFDoA
- PFTDA = 13C2 PFTeDA
- C3PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- d3NMFOS = d3-NMeFOSAA
- d5NEFOS = d5-NEtFOSAA
- M242FTS = M2-4:2 FTS
- M262FTS = M2-6:2 FTS
- M282FTS = M2-8:2 FTS
- dMeFOSA = d-N-MeFOSA-M
- dEtFOSA = d-N-EtFOSA-M
- NMFM = d7-N-MeFOSE-M
- NEFM = d9-N-EtFOSE-M

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Solid

Prep Type: Post-Treatment

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HFPODA (25-150)
320-105928-7 - RE	Bio A 23-S-C 20231010	100
LCS 320-717647/2-A	Lab Control Sample	89
LCS 320-717647/3-A	Lab Control Sample Dup	99
MB 320-717647/1-A	Method Blank	98

Surrogate Legend

HFPODA = 13C3 HFPO-DA

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-105928-1	InfComp 20231009	53	54	64	84	83	80	75	62
320-105928-1 - RA	InfComp 20231009								
320-105928-2	Eff 20231010	89	95	96	112	102	101	100	94
320-105928-8	EB01 20231010	92	92	91	98	96	96	93	80
LCS 320-715446/2-A	Lab Control Sample	87	95	79	90	90	86	83	90
LCS 320-715763/2-B	Lab Control Sample	112	109	106	114	103	114	104	103
LCS 320-715446/3-A	Lab Control Sample Dup	88	92	90	93	94	93	88	95
MB 320-715446/1-A	Method Blank	86	94	90	101	100	88	95	95
MB 320-715763/1-A	Method Blank	94	97	85	99	95	90	93	86

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
320-105928-1	InfComp 20231009	43	36	60	83	75	48	42	
320-105928-1 - RA	InfComp 20231009								40
320-105928-2	Eff 20231010	91	57	97	89	99	92	89	104
320-105928-8	EB01 20231010	84	88	89	89	94	84	55	85

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Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
LCS 320-715446/2-A	Lab Control Sample	90	82	88	88	89	81	104	114
LCS 320-715763/2-B	Lab Control Sample	95	94	110	107	105	94	100	98
LCSD 320-715446/3-A	Lab Control Sample Dup	93	92	97	93	91	84	115	132
MB 320-715446/1-A	Method Blank	91	95	100	97	101	89	123	131
MB 320-715763/1-A	Method Blank	84	92	93	93	83	80	90	88

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	dMeFOSA (10-150)	dEtFOSA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	HFPODA (25-150)
320-105928-1	InfComp 20231009	37	32	41	49	92		140	77
320-105928-1 - RA	InfComp 20231009						157 *5+		
320-105928-2	Eff 20231010	82	81	81	78	132	123	112	98
320-105928-8	EB01 20231010	58	58	79	79	86	101	85	88
LCS 320-715446/2-A	Lab Control Sample	78	79	92	92	99	86	85	73
LCS 320-715763/2-B	Lab Control Sample	68	67	100	97	97	92	95	108
LCSD 320-715446/3-A	Lab Control Sample Dup	84	86	98	95	111	86	122	76
MB 320-715446/1-A	Method Blank	81	81	107	106	115	103	139	85
MB 320-715763/1-A	Method Blank	58	61	83	81	83	96	88	90

Surrogate Legend

- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- C4PFHA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDoA = 13C2 PFDoA
- PFTDA = 13C2 PFTeDA
- C3PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- PFOSA = 13C8 FOSA
- d3NMFOS = d3-NMeFOSAA
- d5NEFOS = d5-NEtFOSAA
- dMeFOSA = d-N-MeFOSA-M
- dEtFOSA = d-N-EtFOSA-M
- NMFM = d7-N-MeFOSE-M
- NEFM = d9-N-EtFOSE-M
- M242FTS = M2-4:2 FTS
- M262FTS = M2-6:2 FTS
- M282FTS = M2-8:2 FTS
- HFPODA = 13C3 HFPO-DA

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-714305/1-A

Matrix: Solid

Analysis Batch: 714781

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 714305

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.20	0.046	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
Perfluoropentanoic acid (PFPeA)	ND		0.20	0.041	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.031	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.038	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.053	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.022	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.048	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.042	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.030	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.20	0.021	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.037	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.038	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.20	0.037	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.029	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.20	0.049	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.20	0.043	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
Perfluorononanesulfonic acid (PFNS)	ND		0.20	0.029	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.20	0.052	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.20	0.047	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
Perfluorooctanesulfonamide (FOSA)	ND		0.20	0.033	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
NEtFOSA	ND		0.20	0.047	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
NMeFOSA	ND		0.20	0.049	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
NMeFOSAA	ND		0.20	0.023	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
NEtFOSAA	ND		0.20	0.048	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
NMeFOSE	ND		0.20	0.047	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
NEtFOSE	ND		0.20	0.028	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
4:2 FTS	ND		0.20	0.051	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
6:2 FTS	ND		0.20	0.027	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
8:2 FTS	ND		0.20	0.035	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.039	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
HFPO-DA (GenX)	ND		0.20	0.041	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
9Cl-PF3ONS	ND		0.20	0.035	ug/Kg		10/19/23 11:23	10/21/23 06:48	1
11Cl-PF3OUdS	ND		0.20	0.031	ug/Kg		10/19/23 11:23	10/21/23 06:48	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	83		25 - 150	10/19/23 11:23	10/21/23 06:48	1
13C5 PFPeA	73		25 - 150	10/19/23 11:23	10/21/23 06:48	1
13C2 PFHxA	96		25 - 150	10/19/23 11:23	10/21/23 06:48	1
13C4 PFHpA	94		25 - 150	10/19/23 11:23	10/21/23 06:48	1
13C4 PFOA	92		25 - 150	10/19/23 11:23	10/21/23 06:48	1
13C5 PFNA	89		25 - 150	10/19/23 11:23	10/21/23 06:48	1
13C2 PFDA	91		25 - 150	10/19/23 11:23	10/21/23 06:48	1
13C2 PFUnA	88		25 - 150	10/19/23 11:23	10/21/23 06:48	1
13C2 PFDoA	87		25 - 150	10/19/23 11:23	10/21/23 06:48	1
13C2 PFTeDA	81		25 - 150	10/19/23 11:23	10/21/23 06:48	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-714305/1-A
Matrix: Solid
Analysis Batch: 714781

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 714305

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 PFBS	83		25 - 150	10/19/23 11:23	10/21/23 06:48	1
18O2 PFHxS	92		25 - 150	10/19/23 11:23	10/21/23 06:48	1
13C4 PFOS	94		25 - 150	10/19/23 11:23	10/21/23 06:48	1
13C8 FOSA	90		10 - 150	10/19/23 11:23	10/21/23 06:48	1
d3-NMeFOSAA	117		25 - 150	10/19/23 11:23	10/21/23 06:48	1
d5-NEtFOSAA	118		25 - 150	10/19/23 11:23	10/21/23 06:48	1
d-N-MeFOSA-M	58		10 - 150	10/19/23 11:23	10/21/23 06:48	1
d-N-EtFOSA-M	62		10 - 150	10/19/23 11:23	10/21/23 06:48	1
d7-N-MeFOSE-M	70		10 - 150	10/19/23 11:23	10/21/23 06:48	1
d9-N-EtFOSE-M	66		10 - 150	10/19/23 11:23	10/21/23 06:48	1
M2-4:2 FTS	104		25 - 150	10/19/23 11:23	10/21/23 06:48	1
M2-6:2 FTS	109		25 - 150	10/19/23 11:23	10/21/23 06:48	1
M2-8:2 FTS	105		25 - 150	10/19/23 11:23	10/21/23 06:48	1
13C3 HFPO-DA	81		25 - 150	10/19/23 11:23	10/21/23 06:48	1

Lab Sample ID: LCS 320-714305/2-A
Matrix: Solid
Analysis Batch: 714781

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 714305

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	2.00	1.86		ug/Kg		93	60 - 135
Perfluoropentanoic acid (PFPeA)	2.00	1.88		ug/Kg		94	60 - 135
Perfluorohexanoic acid (PFHxA)	2.00	2.05		ug/Kg		103	60 - 135
Perfluoroheptanoic acid (PFHpA)	2.00	2.01		ug/Kg		100	60 - 135
Perfluorooctanoic acid (PFOA)	2.00	2.02		ug/Kg		101	60 - 135
Perfluorononanoic acid (PFNA)	2.00	2.14		ug/Kg		107	60 - 135
Perfluorodecanoic acid (PFDA)	2.00	1.97		ug/Kg		99	60 - 135
Perfluoroundecanoic acid (PFUnA)	2.00	2.05		ug/Kg		103	60 - 135
Perfluorododecanoic acid (PFDoA)	2.00	2.21		ug/Kg		110	60 - 135
Perfluorotridecanoic acid (PFTrDA)	2.00	2.02		ug/Kg		101	60 - 135
Perfluorotetradecanoic acid (PFTeA)	2.00	2.07		ug/Kg		104	60 - 135
Perfluorobutanesulfonic acid (PFBS)	1.78	1.84		ug/Kg		103	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	1.88	2.03		ug/Kg		108	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.79		ug/Kg		98	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	1.91	1.94		ug/Kg		102	60 - 135
Perfluorooctanesulfonic acid (PFOS)	1.86	1.81		ug/Kg		97	60 - 135
Perfluorononanesulfonic acid (PFNS)	1.92	2.12		ug/Kg		110	60 - 135
Perfluorodecanesulfonic acid (PFDS)	1.93	2.03		ug/Kg		105	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	1.94	2.20		ug/Kg		113	60 - 135

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-714305/2-A
Matrix: Solid
Analysis Batch: 714781

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 714305

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	2.00	2.15		ug/Kg		108	60 - 135
NEtFOSA	2.00	1.98		ug/Kg		99	60 - 135
NMeFOSA	2.00	2.06		ug/Kg		103	60 - 135
NMeFOSAA	2.00	1.91		ug/Kg		95	60 - 135
NEtFOSAA	2.00	1.97		ug/Kg		98	60 - 135
NMeFOSE	2.00	1.90		ug/Kg		95	60 - 135
NEtFOSE	2.00	1.97		ug/Kg		99	60 - 135
4:2 FTS	1.88	1.87		ug/Kg		100	60 - 135
6:2 FTS	1.90	1.76		ug/Kg		92	60 - 135
8:2 FTS	1.92	1.88		ug/Kg		98	60 - 135
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.89	1.99		ug/Kg		105	60 - 135
HFPO-DA (GenX)	2.00	2.01		ug/Kg		101	60 - 135
9Cl-PF3ONS	1.87	1.92		ug/Kg		103	60 - 135
11Cl-PF3OUdS	1.89	1.91		ug/Kg		101	60 - 135

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	79		25 - 150
13C5 PFPeA	70		25 - 150
13C2 PFHxA	96		25 - 150
13C4 PFHpA	95		25 - 150
13C4 PFOA	96		25 - 150
13C5 PFNA	88		25 - 150
13C2 PFDA	89		25 - 150
13C2 PFUnA	88		25 - 150
13C2 PFDoA	85		25 - 150
13C2 PFTeDA	84		25 - 150
13C3 PFBS	82		25 - 150
18O2 PFHxS	88		25 - 150
13C4 PFOS	91		25 - 150
13C8 FOSA	91		10 - 150
d3-NMeFOSAA	116		25 - 150
d5-NEtFOSAA	113		25 - 150
d-N-MeFOSA-M	62		10 - 150
d-N-EtFOSA-M	62		10 - 150
d7-N-MeFOSE-M	71		10 - 150
d9-N-EtFOSE-M	70		10 - 150
M2-4:2 FTS	109		25 - 150
M2-6:2 FTS	117		25 - 150
M2-8:2 FTS	114		25 - 150
13C3 HFPO-DA	83		25 - 150

Lab Sample ID: 320-105928-10 MS
Matrix: Solid
Analysis Batch: 714781

Client Sample ID: Bio A 23-D-4 20231011
Prep Type: Total/NA
Prep Batch: 714305

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	ND		37.6	35.5		ug/Kg	✱	94	70 - 130

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 320-105928-10 MS

Client Sample ID: Bio A 23-D-4 20231011

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 714781

Prep Batch: 714305

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
Perfluoropentanoic acid (PFPeA)	1.4	J	37.6	36.6		ug/Kg	☼	93	70 - 130
Perfluorohexanoic acid (PFHxA)	4.1		37.6	41.4		ug/Kg	☼	99	70 - 130
Perfluoroheptanoic acid (PFHpA)	ND		37.6	37.4		ug/Kg	☼	99	70 - 130
Perfluorooctanoic acid (PFOA)	3.2	J	37.6	40.6		ug/Kg	☼	99	70 - 130
Perfluorononanoic acid (PFNA)	0.83	J	37.6	39.9		ug/Kg	☼	104	70 - 130
Perfluorodecanoic acid (PFDA)	8.5		37.6	47.4		ug/Kg	☼	104	70 - 130
Perfluoroundecanoic acid (PFUnA)	1.5	J	37.6	36.0		ug/Kg	☼	92	70 - 130
Perfluorododecanoic acid (PFDoA)	3.9		37.6	41.8		ug/Kg	☼	101	70 - 130
Perfluorotridecanoic acid (PFTrDA)	0.35	J F1	37.6	21.0	F1	ug/Kg	☼	56	70 - 130
Perfluorotetradecanoic acid (PFTeA)	1.3	J	37.6	43.1		ug/Kg	☼	111	70 - 130
Perfluorobutanesulfonic acid (PFBS)	ND		33.4	35.6		ug/Kg	☼	107	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	ND		35.4	38.5		ug/Kg	☼	109	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	ND		34.3	32.9		ug/Kg	☼	96	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	ND	F1	35.9	49.3	F1	ug/Kg	☼	137	70 - 130
Perfluorooctanesulfonic acid (PFOS)	15		35.0	51.6		ug/Kg	☼	104	70 - 130
Perfluorononanesulfonic acid (PFNS)	ND		36.2	42.6		ug/Kg	☼	118	70 - 130
Perfluorodecanesulfonic acid (PFDS)	ND	F1	36.3	47.5	F1	ug/Kg	☼	131	70 - 130
Perfluorododecanesulfonic acid (PFDoS)	ND		36.5	34.7		ug/Kg	☼	95	70 - 130
Perfluorooctanesulfonamide (FOSA)	1.4	J	37.6	43.0		ug/Kg	☼	111	70 - 130
NEtFOSA	ND		37.6	34.5		ug/Kg	☼	92	70 - 130
NMeFOSA	ND		37.6	34.4		ug/Kg	☼	91	70 - 130
NMeFOSAA	27		37.6	64.2		ug/Kg	☼	99	70 - 130
NEtFOSAA	10		37.6	45.0		ug/Kg	☼	93	70 - 130
NMeFOSE	15		37.6	50.6		ug/Kg	☼	96	70 - 130
NEtFOSE	5.4		37.6	40.0		ug/Kg	☼	92	70 - 130
4:2 FTS	ND		35.3	32.5		ug/Kg	☼	92	70 - 130
6:2 FTS	0.45	J	35.8	37.0		ug/Kg	☼	102	70 - 130
8:2 FTS	1.4	J	36.1	34.9		ug/Kg	☼	93	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		35.6	43.2		ug/Kg	☼	121	70 - 130
HFPO-DA (GenX)	ND		37.6	36.6		ug/Kg	☼	97	70 - 130
9Cl-PF3ONS	ND	F1	35.2	55.5	F1	ug/Kg	☼	158	70 - 130
11Cl-PF3OUdS	0.58	J	35.5	38.1		ug/Kg	☼	106	70 - 130
	MS MS								
Isotope Dilution	%Recovery	Qualifier	Limits						
13C4 PFBA	78		25 - 150						
13C5 PFPeA	70		25 - 150						
13C2 PFHxA	95		25 - 150						
13C4 PFHpA	93		25 - 150						

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 320-105928-10 MS
Matrix: Solid
Analysis Batch: 714781

Client Sample ID: Bio A 23-D-4 20231011
Prep Type: Total/NA
Prep Batch: 714305

<i>Isotope Dilution</i>	<i>MS</i>	<i>MS</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C4 PFOA	97		25 - 150
13C5 PFNA	79		25 - 150
13C2 PFDA	89		25 - 150
13C2 PFUnA	77		25 - 150
13C2 PFDoA	55		25 - 150
13C2 PFTeDA	17	*5-	25 - 150
13C3 PFBS	81		25 - 150
18O2 PFHxS	96		25 - 150
13C4 PFOS	71		25 - 150
13C8 FOSA	80		10 - 150
d3-NMeFOSAA	54		25 - 150
d5-NEtFOSAA	76		25 - 150
d-N-MeFOSA-M	25		10 - 150
d-N-EtFOSA-M	53		10 - 150
d7-N-MeFOSE-M	36		10 - 150
d9-N-EtFOSE-M	49		10 - 150
M2-4:2 FTS	134		25 - 150
M2-6:2 FTS	143		25 - 150
M2-8:2 FTS	99		25 - 150
13C3 HFPO-DA	85		25 - 150

Lab Sample ID: 320-105928-10 MSD
Matrix: Solid
Analysis Batch: 714781

Client Sample ID: Bio A 23-D-4 20231011
Prep Type: Total/NA
Prep Batch: 714305

<i>Analyte</i>	<i>Sample</i>	<i>Sample</i>	<i>Spike</i>	<i>MSD</i>	<i>MSD</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec</i>	<i>RPD</i>	<i>Limit</i>
	<i>Result</i>	<i>Qualifier</i>	<i>Added</i>	<i>Result</i>	<i>Qualifier</i>				<i>Limits</i>		
Perfluorobutanoic acid (PFBA)	ND		35.7	32.9		ug/Kg	☼	92	70 - 130	8	30
Perfluoropentanoic acid (PFPeA)	1.4	J	35.7	36.2		ug/Kg	☼	97	70 - 130	1	30
Perfluorohexanoic acid (PFHxA)	4.1		35.7	40.2		ug/Kg	☼	101	70 - 130	3	30
Perfluoroheptanoic acid (PFHpA)	ND		35.7	33.7		ug/Kg	☼	94	70 - 130	10	30
Perfluorooctanoic acid (PFOA)	3.2	J	35.7	38.8		ug/Kg	☼	100	70 - 130	4	30
Perfluorononanoic acid (PFNA)	0.83	J	35.7	37.9		ug/Kg	☼	104	70 - 130	5	30
Perfluorodecanoic acid (PFDA)	8.5		35.7	44.9		ug/Kg	☼	102	70 - 130	6	30
Perfluoroundecanoic acid (PFUnA)	1.5	J	35.7	33.9		ug/Kg	☼	91	70 - 130	6	30
Perfluorododecanoic acid (PFDoA)	3.9		35.7	39.7		ug/Kg	☼	100	70 - 130	5	30
Perfluorotridecanoic acid (PFTTrDA)	0.35	J F1	35.7	21.5	F1	ug/Kg	☼	60	70 - 130	3	30
Perfluorotetradecanoic acid (PFTeA)	1.3	J	35.7	40.3		ug/Kg	☼	109	70 - 130	7	30
Perfluorobutanesulfonic acid (PFBS)	ND		31.7	33.2		ug/Kg	☼	105	70 - 130	7	30
Perfluoropentanesulfonic acid (PFPeS)	ND		33.5	38.4		ug/Kg	☼	114	70 - 130	0	30
Perfluorohexanesulfonic acid (PFHxS)	ND		32.5	28.8	I	ug/Kg	☼	89	70 - 130	13	30
Perfluoroheptanesulfonic acid (PFHpS)	ND	F1	34.0	44.4		ug/Kg	☼	130	70 - 130	10	30
Perfluorooctanesulfonic acid (PFOS)	15		33.2	46.6		ug/Kg	☼	95	70 - 130	10	30

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 320-105928-10 MSD

Client Sample ID: Bio A 23-D-4 20231011

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 714781

Prep Batch: 714305

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorononanesulfonic acid (PFNS)	ND		34.3	38.4		ug/Kg	⊛	112	70 - 130	10	30
Perfluorodecanesulfonic acid (PFDS)	ND	F1	34.4	42.3		ug/Kg	⊛	123	70 - 130	12	30
Perfluorododecanesulfonic acid (PFDoS)	ND		34.6	36.7		ug/Kg	⊛	106	70 - 130	6	30
Perfluorooctanesulfonamide (FOSA)	1.4	J	35.7	41.2		ug/Kg	⊛	112	70 - 130	4	30
NEtFOSA	ND		35.7	33.4		ug/Kg	⊛	94	70 - 130	3	30
NMeFOSA	ND		35.7	30.2		ug/Kg	⊛	85	70 - 130	13	30
NMeFOSAA	27		35.7	63.9		ug/Kg	⊛	104	70 - 130	0	30
NEtFOSAA	10		35.7	43.8		ug/Kg	⊛	95	70 - 130	2	30
NMeFOSE	15		35.7	46.7		ug/Kg	⊛	90	70 - 130	8	30
NEtFOSE	5.4		35.7	39.2		ug/Kg	⊛	95	70 - 130	2	30
4:2 FTS	ND		33.5	34.7		ug/Kg	⊛	104	70 - 130	6	30
6:2 FTS	0.45	J	34.0	34.2		ug/Kg	⊛	99	70 - 130	8	30
8:2 FTS	1.4	J	34.3	34.4		ug/Kg	⊛	96	70 - 130	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		33.8	38.5		ug/Kg	⊛	114	70 - 130	12	30
HFPO-DA (GenX)	ND		35.7	37.8		ug/Kg	⊛	106	70 - 130	3	30
9CI-PF3ONS	ND	F1	33.3	48.3	F1	ug/Kg	⊛	145	70 - 130	14	30
11CI-PF3OUdS	0.58	J	33.7	34.3		ug/Kg	⊛	100	70 - 130	10	30
		MSD	MSD								
Isotope Dilution		%Recovery	Qualifier	Limits							
13C4 PFBA		69		25 - 150							
13C5 PFPeA		65		25 - 150							
13C2 PFHxA		89		25 - 150							
13C4 PFHpA		94		25 - 150							
13C4 PFOA		96		25 - 150							
13C5 PFNA		83		25 - 150							
13C2 PFDA		85		25 - 150							
13C2 PFUnA		80		25 - 150							
13C2 PFDoA		45		25 - 150							
13C2 PFTeDA		19	*5-	25 - 150							
13C3 PFBS		75		25 - 150							
18O2 PFHxS		93		25 - 150							
13C4 PFOS		72		25 - 150							
13C8 FOSA		79		10 - 150							
d3-NMeFOSAA		44		25 - 150							
d5-NEtFOSAA		67		25 - 150							
d-N-MeFOSA-M		19		10 - 150							
d-N-EtFOSA-M		46		10 - 150							
d7-N-MeFOSE-M		30		10 - 150							
d9-N-EtFOSE-M		44		10 - 150							
M2-4:2 FTS		132		25 - 150							
M2-6:2 FTS		145		25 - 150							
M2-8:2 FTS		95		25 - 150							
13C3 HFPO-DA		80		25 - 150							

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-715446/1-A
Matrix: Water
Analysis Batch: 715648

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 715446

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		10/24/23 19:17	10/26/23 07:44	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		10/24/23 19:17	10/26/23 07:44	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		10/24/23 19:17	10/26/23 07:44	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		10/24/23 19:17	10/26/23 07:44	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		10/24/23 19:17	10/26/23 07:44	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		10/24/23 19:17	10/26/23 07:44	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		10/24/23 19:17	10/26/23 07:44	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		10/24/23 19:17	10/26/23 07:44	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		10/24/23 19:17	10/26/23 07:44	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		10/24/23 19:17	10/26/23 07:44	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		10/24/23 19:17	10/26/23 07:44	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		10/24/23 19:17	10/26/23 07:44	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.30	ng/L		10/24/23 19:17	10/26/23 07:44	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		10/24/23 19:17	10/26/23 07:44	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.19	ng/L		10/24/23 19:17	10/26/23 07:44	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		10/24/23 19:17	10/26/23 07:44	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.37	ng/L		10/24/23 19:17	10/26/23 07:44	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		10/24/23 19:17	10/26/23 07:44	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.97	ng/L		10/24/23 19:17	10/26/23 07:44	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		10/24/23 19:17	10/26/23 07:44	1
NEtFOSA	ND		2.0	0.87	ng/L		10/24/23 19:17	10/26/23 07:44	1
NMeFOSA	ND		2.0	0.43	ng/L		10/24/23 19:17	10/26/23 07:44	1
NMeFOSAA	ND		5.0	1.2	ng/L		10/24/23 19:17	10/26/23 07:44	1
NEtFOSAA	ND		5.0	1.3	ng/L		10/24/23 19:17	10/26/23 07:44	1
NMeFOSE	3.35	J	4.0	1.4	ng/L		10/24/23 19:17	10/26/23 07:44	1
NEtFOSE	4.43		2.0	0.85	ng/L		10/24/23 19:17	10/26/23 07:44	1
4:2 FTS	ND		2.0	0.24	ng/L		10/24/23 19:17	10/26/23 07:44	1
6:2 FTS	ND		5.0	2.5	ng/L		10/24/23 19:17	10/26/23 07:44	1
8:2 FTS	ND		2.0	0.46	ng/L		10/24/23 19:17	10/26/23 07:44	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.40	ng/L		10/24/23 19:17	10/26/23 07:44	1
HFPO-DA (GenX)	ND		4.0	1.5	ng/L		10/24/23 19:17	10/26/23 07:44	1
9Cl-PF3ONS	ND		2.0	0.24	ng/L		10/24/23 19:17	10/26/23 07:44	1
11Cl-PF3OUdS	ND		2.0	0.32	ng/L		10/24/23 19:17	10/26/23 07:44	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C4 PFBA	86		25 - 150	10/24/23 19:17	10/26/23 07:44	1
13C5 PFPeA	94		25 - 150	10/24/23 19:17	10/26/23 07:44	1
13C2 PFHxA	90		25 - 150	10/24/23 19:17	10/26/23 07:44	1
13C4 PFHpA	101		25 - 150	10/24/23 19:17	10/26/23 07:44	1
13C4 PFOA	100		25 - 150	10/24/23 19:17	10/26/23 07:44	1
13C5 PFNA	88		25 - 150	10/24/23 19:17	10/26/23 07:44	1
13C2 PFDA	95		25 - 150	10/24/23 19:17	10/26/23 07:44	1
13C2 PFUnA	95		25 - 150	10/24/23 19:17	10/26/23 07:44	1
13C2 PFDoA	91		25 - 150	10/24/23 19:17	10/26/23 07:44	1
13C2 PFTeDA	95		25 - 150	10/24/23 19:17	10/26/23 07:44	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-715446/1-A
Matrix: Water
Analysis Batch: 715648

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 715446

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 PFBS	100		25 - 150	10/24/23 19:17	10/26/23 07:44	1
18O2 PFHxS	97		25 - 150	10/24/23 19:17	10/26/23 07:44	1
13C4 PFOS	101		25 - 150	10/24/23 19:17	10/26/23 07:44	1
13C8 FOSA	89		10 - 150	10/24/23 19:17	10/26/23 07:44	1
d3-NMeFOSAA	123		25 - 150	10/24/23 19:17	10/26/23 07:44	1
d5-NEtFOSAA	131		25 - 150	10/24/23 19:17	10/26/23 07:44	1
d-N-MeFOSA-M	81		10 - 150	10/24/23 19:17	10/26/23 07:44	1
d-N-EtFOSA-M	81		10 - 150	10/24/23 19:17	10/26/23 07:44	1
d7-N-MeFOSE-M	107		10 - 150	10/24/23 19:17	10/26/23 07:44	1
d9-N-EtFOSE-M	106		10 - 150	10/24/23 19:17	10/26/23 07:44	1
M2-4:2 FTS	115		25 - 150	10/24/23 19:17	10/26/23 07:44	1
M2-6:2 FTS	103		25 - 150	10/24/23 19:17	10/26/23 07:44	1
M2-8:2 FTS	139		25 - 150	10/24/23 19:17	10/26/23 07:44	1
13C3 HFPO-DA	85		25 - 150	10/24/23 19:17	10/26/23 07:44	1

Lab Sample ID: LCS 320-715446/2-A
Matrix: Water
Analysis Batch: 715648

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 715446

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	40.0	38.2		ng/L		96	60 - 135
Perfluoropentanoic acid (PFPeA)	40.0	38.1		ng/L		95	60 - 135
Perfluorohexanoic acid (PFHxA)	40.0	37.3		ng/L		93	60 - 135
Perfluoroheptanoic acid (PFHpA)	40.0	37.0		ng/L		92	60 - 135
Perfluorooctanoic acid (PFOA)	40.0	45.6		ng/L		114	60 - 135
Perfluorononanoic acid (PFNA)	40.0	41.4		ng/L		103	60 - 135
Perfluorodecanoic acid (PFDA)	40.0	41.8		ng/L		104	60 - 135
Perfluoroundecanoic acid (PFUnA)	40.0	36.3		ng/L		91	60 - 135
Perfluorododecanoic acid (PFDoA)	40.0	37.8		ng/L		94	60 - 135
Perfluorotridecanoic acid (PFTrDA)	40.0	36.5		ng/L		91	60 - 135
Perfluorotetradecanoic acid (PFTeA)	40.0	38.8		ng/L		97	60 - 135
Perfluorobutanesulfonic acid (PFBS)	35.5	35.1		ng/L		99	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	37.6	35.7		ng/L		95	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	36.5	35.4		ng/L		97	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	38.2	39.0		ng/L		102	60 - 135
Perfluorooctanesulfonic acid (PFOS)	37.2	34.9		ng/L		94	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.5	35.9		ng/L		93	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	38.2		ng/L		99	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.8	34.7		ng/L		89	60 - 135

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-715446/2-A
Matrix: Water
Analysis Batch: 715648

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 715446

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	40.0	39.6		ng/L		99	60 - 135
NEtFOSA	40.0	37.5		ng/L		94	60 - 135
NMeFOSA	40.0	36.7		ng/L		92	60 - 135
NMeFOSAA	40.0	36.6		ng/L		91	60 - 135
NEtFOSAA	40.0	36.5		ng/L		91	60 - 135
NMeFOSE	40.0	36.4		ng/L		91	60 - 135
NEtFOSE	40.0	33.3		ng/L		83	60 - 135
4:2 FTS	37.5	34.8		ng/L		93	60 - 135
6:2 FTS	38.1	38.6		ng/L		101	60 - 135
8:2 FTS	38.4	39.2		ng/L		102	60 - 135
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	37.1		ng/L		98	60 - 135
HFPO-DA (GenX)	40.0	37.9		ng/L		95	60 - 135
9Cl-PF3ONS	37.4	32.8		ng/L		88	60 - 135
11Cl-PF3OUdS	37.8	33.8		ng/L		89	60 - 135

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	87		25 - 150
13C5 PFPeA	95		25 - 150
13C2 PFHxA	79		25 - 150
13C4 PFHpA	90		25 - 150
13C4 PFOA	90		25 - 150
13C5 PFNA	86		25 - 150
13C2 PFDA	83		25 - 150
13C2 PFUnA	90		25 - 150
13C2 PFDoA	90		25 - 150
13C2 PFTeDA	82		25 - 150
13C3 PFBS	88		25 - 150
18O2 PFHxS	88		25 - 150
13C4 PFOS	89		25 - 150
13C8 FOSA	81		10 - 150
d3-NMeFOSAA	104		25 - 150
d5-NEtFOSAA	114		25 - 150
d-N-MeFOSA-M	78		10 - 150
d-N-EtFOSA-M	79		10 - 150
d7-N-MeFOSE-M	92		10 - 150
d9-N-EtFOSE-M	92		10 - 150
M2-4:2 FTS	99		25 - 150
M2-6:2 FTS	86		25 - 150
M2-8:2 FTS	85		25 - 150
13C3 HFPO-DA	73		25 - 150

Lab Sample ID: LCSD 320-715446/3-A
Matrix: Water
Analysis Batch: 715648

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 715446

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	
								RPD	Limit
Perfluorobutanoic acid (PFBA)	40.0	38.4		ng/L		96	60 - 135	0	30

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-715446/3-A
Matrix: Water
Analysis Batch: 715648

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 715446

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoropentanoic acid (PFPeA)	40.0	38.3		ng/L		96	60 - 135	1	30
Perfluorohexanoic acid (PFHxA)	40.0	35.4		ng/L		89	60 - 135	5	30
Perfluoroheptanoic acid (PFHpA)	40.0	34.5		ng/L		86	60 - 135	7	30
Perfluorooctanoic acid (PFOA)	40.0	42.3		ng/L		106	60 - 135	8	30
Perfluorononanoic acid (PFNA)	40.0	39.1		ng/L		98	60 - 135	6	30
Perfluorodecanoic acid (PFDA)	40.0	41.9		ng/L		105	60 - 135	0	30
Perfluoroundecanoic acid (PFUnA)	40.0	37.9		ng/L		95	60 - 135	4	30
Perfluorododecanoic acid (PFDoA)	40.0	37.9		ng/L		95	60 - 135	0	30
Perfluorotridecanoic acid (PFTrDA)	40.0	38.3		ng/L		96	60 - 135	5	30
Perfluorotetradecanoic acid (PFTeA)	40.0	35.8		ng/L		89	60 - 135	8	30
Perfluorobutanesulfonic acid (PFBS)	35.5	33.9		ng/L		95	60 - 135	4	30
Perfluoropentanesulfonic acid (PFPeS)	37.6	37.9		ng/L		101	60 - 135	6	30
Perfluorohexanesulfonic acid (PFHxS)	36.5	35.4		ng/L		97	60 - 135	0	30
Perfluoroheptanesulfonic acid (PFHpS)	38.2	39.7		ng/L		104	60 - 135	2	30
Perfluorooctanesulfonic acid (PFOS)	37.2	35.6		ng/L		96	60 - 135	2	30
Perfluorononanesulfonic acid (PFNS)	38.5	37.9		ng/L		99	60 - 135	5	30
Perfluorodecanesulfonic acid (PFDS)	38.6	37.9		ng/L		98	60 - 135	1	30
Perfluorododecanesulfonic acid (PFDoS)	38.8	35.5		ng/L		91	60 - 135	2	30
Perfluorooctanesulfonamide (FOSA)	40.0	39.4		ng/L		99	60 - 135	0	30
NEtFOSA	40.0	37.0		ng/L		93	60 - 135	1	30
NMeFOSA	40.0	34.8		ng/L		87	60 - 135	5	30
NMeFOSAA	40.0	37.5		ng/L		94	60 - 135	3	30
NEtFOSAA	40.0	35.4		ng/L		89	60 - 135	3	30
NMeFOSE	40.0	33.0		ng/L		83	60 - 135	10	30
NEtFOSE	40.0	37.2		ng/L		93	60 - 135	11	30
4:2 FTS	37.5	26.2		ng/L		70	60 - 135	28	30
6:2 FTS	38.1	35.9		ng/L		94	60 - 135	7	30
8:2 FTS	38.4	34.8		ng/L		91	60 - 135	12	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	40.0		ng/L		106	60 - 135	7	30
HFPO-DA (GenX)	40.0	39.1		ng/L		98	60 - 135	3	30
9Cl-PF3ONS	37.4	32.3		ng/L		87	60 - 135	2	30
11Cl-PF3OUdS	37.8	31.4		ng/L		83	60 - 135	7	30

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C4 PFBA	88		25 - 150
13C5 PFPeA	92		25 - 150
13C2 PFHxA	90		25 - 150
13C4 PFHpA	93		25 - 150

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-715446/3-A
Matrix: Water
Analysis Batch: 715648

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 715446

Isotope Dilution	LCSD LCSD		Limits
	%Recovery	Qualifier	
13C4 PFOA	94		25 - 150
13C5 PFNA	93		25 - 150
13C2 PFDA	88		25 - 150
13C2 PFUnA	95		25 - 150
13C2 PFDoA	93		25 - 150
13C2 PFTeDA	92		25 - 150
13C3 PFBS	97		25 - 150
18O2 PFHxS	93		25 - 150
13C4 PFOS	91		25 - 150
13C8 FOSA	84		10 - 150
d3-NMeFOSAA	115		25 - 150
d5-NEtFOSAA	132		25 - 150
d-N-MeFOSA-M	84		10 - 150
d-N-EtFOSA-M	86		10 - 150
d7-N-MeFOSE-M	98		10 - 150
d9-N-EtFOSE-M	95		10 - 150
M2-4:2 FTS	111		25 - 150
M2-6:2 FTS	86		25 - 150
M2-8:2 FTS	122		25 - 150
13C3 HFPO-DA	76		25 - 150

Lab Sample ID: MB 320-715763/1-A
Matrix: Water
Analysis Batch: 717044

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 715763

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		10/26/23 05:30	10/31/23 05:26	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		10/26/23 05:30	10/31/23 05:26	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		10/26/23 05:30	10/31/23 05:26	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		10/26/23 05:30	10/31/23 05:26	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		10/26/23 05:30	10/31/23 05:26	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		10/26/23 05:30	10/31/23 05:26	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		10/26/23 05:30	10/31/23 05:26	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		10/26/23 05:30	10/31/23 05:26	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		10/26/23 05:30	10/31/23 05:26	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		10/26/23 05:30	10/31/23 05:26	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		10/26/23 05:30	10/31/23 05:26	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		10/26/23 05:30	10/31/23 05:26	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.30	ng/L		10/26/23 05:30	10/31/23 05:26	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		10/26/23 05:30	10/31/23 05:26	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.19	ng/L		10/26/23 05:30	10/31/23 05:26	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		10/26/23 05:30	10/31/23 05:26	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.37	ng/L		10/26/23 05:30	10/31/23 05:26	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		10/26/23 05:30	10/31/23 05:26	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.97	ng/L		10/26/23 05:30	10/31/23 05:26	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		10/26/23 05:30	10/31/23 05:26	1
NEtFOSA	ND		2.0	0.87	ng/L		10/26/23 05:30	10/31/23 05:26	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-715763/1-A
Matrix: Water
Analysis Batch: 717044

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 715763

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NMeFOSA	ND		2.0	0.43	ng/L		10/26/23 05:30	10/31/23 05:26	1
NMeFOSAA	ND		5.0	1.2	ng/L		10/26/23 05:30	10/31/23 05:26	1
NEtFOSAA	ND		5.0	1.3	ng/L		10/26/23 05:30	10/31/23 05:26	1
NMeFOSE	ND		4.0	1.4	ng/L		10/26/23 05:30	10/31/23 05:26	1
NEtFOSE	ND		2.0	0.85	ng/L		10/26/23 05:30	10/31/23 05:26	1
4:2 FTS	ND		2.0	0.24	ng/L		10/26/23 05:30	10/31/23 05:26	1
6:2 FTS	ND		5.0	2.5	ng/L		10/26/23 05:30	10/31/23 05:26	1
8:2 FTS	ND		2.0	0.46	ng/L		10/26/23 05:30	10/31/23 05:26	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.40	ng/L		10/26/23 05:30	10/31/23 05:26	1
HFPO-DA (GenX)	ND		4.0	1.5	ng/L		10/26/23 05:30	10/31/23 05:26	1
9Cl-PF3ONS	ND		2.0	0.24	ng/L		10/26/23 05:30	10/31/23 05:26	1
11Cl-PF3OUdS	ND		2.0	0.32	ng/L		10/26/23 05:30	10/31/23 05:26	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	94		25 - 150	10/26/23 05:30	10/31/23 05:26	1
13C5 PFPeA	97		25 - 150	10/26/23 05:30	10/31/23 05:26	1
13C2 PFHxA	85		25 - 150	10/26/23 05:30	10/31/23 05:26	1
13C4 PFHpA	99		25 - 150	10/26/23 05:30	10/31/23 05:26	1
13C4 PFOA	95		25 - 150	10/26/23 05:30	10/31/23 05:26	1
13C5 PFNA	90		25 - 150	10/26/23 05:30	10/31/23 05:26	1
13C2 PFDA	93		25 - 150	10/26/23 05:30	10/31/23 05:26	1
13C2 PFUnA	86		25 - 150	10/26/23 05:30	10/31/23 05:26	1
13C2 PFDoA	84		25 - 150	10/26/23 05:30	10/31/23 05:26	1
13C2 PFTeDA	92		25 - 150	10/26/23 05:30	10/31/23 05:26	1
13C3 PFBS	93		25 - 150	10/26/23 05:30	10/31/23 05:26	1
18O2 PFHxS	93		25 - 150	10/26/23 05:30	10/31/23 05:26	1
13C4 PFOS	83		25 - 150	10/26/23 05:30	10/31/23 05:26	1
13C8 FOSA	80		10 - 150	10/26/23 05:30	10/31/23 05:26	1
d3-NMeFOSAA	90		25 - 150	10/26/23 05:30	10/31/23 05:26	1
d5-NEtFOSAA	88		25 - 150	10/26/23 05:30	10/31/23 05:26	1
d-N-MeFOSA-M	58		10 - 150	10/26/23 05:30	10/31/23 05:26	1
d-N-EtFOSA-M	61		10 - 150	10/26/23 05:30	10/31/23 05:26	1
d7-N-MeFOSE-M	83		10 - 150	10/26/23 05:30	10/31/23 05:26	1
d9-N-EtFOSE-M	81		10 - 150	10/26/23 05:30	10/31/23 05:26	1
M2-4:2 FTS	83		25 - 150	10/26/23 05:30	10/31/23 05:26	1
M2-6:2 FTS	96		25 - 150	10/26/23 05:30	10/31/23 05:26	1
M2-8:2 FTS	88		25 - 150	10/26/23 05:30	10/31/23 05:26	1
13C3 HFPO-DA	90		25 - 150	10/26/23 05:30	10/31/23 05:26	1

Lab Sample ID: LCS 320-715763/2-B
Matrix: Water
Analysis Batch: 717044

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 715763

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	160	157		ng/L		98	60 - 135
Perfluoropentanoic acid (PFPeA)	160	154		ng/L		97	60 - 135
Perfluorohexanoic acid (PFHxA)	160	162		ng/L		101	60 - 135
Perfluoroheptanoic acid (PFHpA)	160	147		ng/L		92	60 - 135

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-715763/2-B
Matrix: Water
Analysis Batch: 717044

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 715763

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanoic acid (PFOA)	160	159		ng/L		99	60 - 135
Perfluorononanoic acid (PFNA)	160	150		ng/L		94	60 - 135
Perfluorodecanoic acid (PFDA)	160	157		ng/L		98	60 - 135
Perfluoroundecanoic acid (PFUnA)	160	154		ng/L		96	60 - 135
Perfluorododecanoic acid (PFDoA)	160	152		ng/L		95	60 - 135
Perfluorotridecanoic acid (PFTrDA)	160	165		ng/L		103	60 - 135
Perfluorotetradecanoic acid (PFTeA)	160	162		ng/L		102	60 - 135
Perfluorobutanesulfonic acid (PFBS)	142	142		ng/L		100	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	150	145		ng/L		96	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	146	145		ng/L		99	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	153	159		ng/L		104	60 - 135
Perfluorooctanesulfonic acid (PFOS)	149	145		ng/L		98	60 - 135
Perfluorononanesulfonic acid (PFNS)	154	160		ng/L		104	60 - 135
Perfluorodecanesulfonic acid (PFDS)	154	140		ng/L		91	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	155	155		ng/L		100	60 - 135
Perfluorooctanesulfonamide (FOSA)	160	176		ng/L		110	60 - 135
NEtFOSA	160	198		ng/L		124	60 - 135
NMeFOSA	160	194		ng/L		122	60 - 135
NMeFOSAA	160	158		ng/L		99	60 - 135
NEtFOSAA	160	154		ng/L		96	60 - 135
NMeFOSE	160	154		ng/L		96	60 - 135
NEtFOSE	160	163		ng/L		102	60 - 135
4:2 FTS	150	143		ng/L		95	60 - 135
6:2 FTS	152	157		ng/L		103	60 - 135
8:2 FTS	154	150		ng/L		98	60 - 135
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	151	148		ng/L		98	60 - 135
HFPO-DA (GenX)	160	155		ng/L		97	60 - 135
9Cl-PF3ONS	149	144		ng/L		97	60 - 135
11Cl-PF3OUdS	151	139		ng/L		92	60 - 135

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	112		25 - 150
13C5 PFPeA	109		25 - 150
13C2 PFHxA	106		25 - 150
13C4 PFHpA	114		25 - 150
13C4 PFOA	103		25 - 150
13C5 PFNA	114		25 - 150
13C2 PFDA	104		25 - 150

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-715763/2-B
Matrix: Water
Analysis Batch: 717044

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 715763

<i>Isotope Dilution</i>	<i>LCS</i>	<i>LCS</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C2 PFUnA	103		25 - 150
13C2 PFDoA	95		25 - 150
13C2 PFTeDA	94		25 - 150
13C3 PFBS	110		25 - 150
18O2 PFHxS	107		25 - 150
13C4 PFOS	105		25 - 150
13C8 FOSA	94		10 - 150
d3-NMeFOSAA	100		25 - 150
d5-NEtFOSAA	98		25 - 150
d-N-MeFOSA-M	68		10 - 150
d-N-EtFOSA-M	67		10 - 150
d7-N-MeFOSE-M	100		10 - 150
d9-N-EtFOSE-M	97		10 - 150
M2-4:2 FTS	97		25 - 150
M2-6:2 FTS	92		25 - 150
M2-8:2 FTS	95		25 - 150
13C3 HFPO-DA	108		25 - 150

Lab Sample ID: MB 320-713658/1-A
Matrix: Solid
Analysis Batch: 716642

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 713658

<i>Analyte</i>	<i>MB</i>	<i>MB</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
	<i>Result</i>	<i>Qualifier</i>							
Perfluoropentanoic acid (PFPeA)	ND		1.0	0.21	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
Perfluorohexanoic acid (PFHxA)	ND		1.0	0.16	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
Perfluoroheptanoic acid (PFHpA)	ND		1.0	0.19	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
Perfluorooctanoic acid (PFOA)	ND		1.0	0.27	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
Perfluorononanoic acid (PFNA)	ND		1.0	0.11	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
Perfluorodecanoic acid (PFDA)	ND		1.0	0.24	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
Perfluoroundecanoic acid (PFUnA)	ND		1.0	0.21	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
Perfluorododecanoic acid (PFDoA)	ND		1.0	0.15	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.0	0.11	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.0	0.19	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.0	0.19	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.0	0.19	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.0	0.15	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.0	0.25	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.0	0.22	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
Perfluorononanesulfonic acid (PFNS)	ND		1.0	0.15	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.0	0.26	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.0	0.24	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
Perfluorooctanesulfonamide (FOSA)	ND		1.0	0.17	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
NMeFOSAA	ND		1.0	0.12	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
NEtFOSAA	ND		1.0	0.24	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
4:2 FTS	ND		1.0	0.26	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
6:2 FTS	ND		1.0	0.14	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
8:2 FTS	ND		1.0	0.18	ug/Kg		10/16/23 18:20	10/29/23 15:14	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-713658/1-A
Matrix: Solid
Analysis Batch: 716642

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 713658

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NMeFOSE	ND		1.0	0.24	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
NEtFOSE	ND		1.0	0.14	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
HFPO-DA (GenX)	ND		1.0	0.21	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
9CI-PF3ONS	ND		1.0	0.18	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
11CI-PF3OUdS	ND		1.0	0.16	ug/Kg		10/16/23 18:20	10/29/23 15:14	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.0	0.20	ug/Kg		10/16/23 18:20	10/29/23 15:14	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	25		25 - 150	10/16/23 18:20	10/29/23 15:14	1
13C2 PFHxA	90		25 - 150	10/16/23 18:20	10/29/23 15:14	1
13C4 PFHpA	91		25 - 150	10/16/23 18:20	10/29/23 15:14	1
13C4 PFOA	98		25 - 150	10/16/23 18:20	10/29/23 15:14	1
13C5 PFNA	90		25 - 150	10/16/23 18:20	10/29/23 15:14	1
13C2 PFDA	99		25 - 150	10/16/23 18:20	10/29/23 15:14	1
13C2 PFUnA	95		25 - 150	10/16/23 18:20	10/29/23 15:14	1
13C2 PFDoA	93		25 - 150	10/16/23 18:20	10/29/23 15:14	1
13C2 PFTeDA	85		25 - 150	10/16/23 18:20	10/29/23 15:14	1
13C3 PFBS	81		25 - 150	10/16/23 18:20	10/29/23 15:14	1
18O2 PFHxS	88		25 - 150	10/16/23 18:20	10/29/23 15:14	1
13C4 PFOS	79		25 - 150	10/16/23 18:20	10/29/23 15:14	1
13C8 FOSA	84		25 - 150	10/16/23 18:20	10/29/23 15:14	1
M2-4:2 FTS	83		25 - 150	10/16/23 18:20	10/29/23 15:14	1
M2-6:2 FTS	103		25 - 150	10/16/23 18:20	10/29/23 15:14	1
M2-8:2 FTS	103		25 - 150	10/16/23 18:20	10/29/23 15:14	1
d3-NMeFOSAA	82		25 - 150	10/16/23 18:20	10/29/23 15:14	1
d5-NEtFOSAA	94		25 - 150	10/16/23 18:20	10/29/23 15:14	1
d-N-MeFOSA-M	80		25 - 150	10/16/23 18:20	10/29/23 15:14	1
d-N-EtFOSA-M	73		25 - 150	10/16/23 18:20	10/29/23 15:14	1
d7-N-MeFOSE-M	77		25 - 150	10/16/23 18:20	10/29/23 15:14	1
13C3 HFPO-DA	90		25 - 150	10/16/23 18:20	10/29/23 15:14	1
d9-N-EtFOSE-M	75		25 - 150	10/16/23 18:20	10/29/23 15:14	1

Lab Sample ID: LCS 320-713658/2-A
Matrix: Solid
Analysis Batch: 716642

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 713658

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanoic acid (PFPeA)	10.0	10.9		ug/Kg		109	69 - 129
Perfluorohexanoic acid (PFHxA)	10.0	10.3		ug/Kg		103	71 - 131
Perfluoroheptanoic acid (PFHpA)	10.0	10.6		ug/Kg		106	71 - 131
Perfluorooctanoic acid (PFOA)	10.0	10.8		ug/Kg		108	72 - 132
Perfluorononanoic acid (PFNA)	10.0	10.4		ug/Kg		104	73 - 133
Perfluorodecanoic acid (PFDA)	10.0	9.72		ug/Kg		97	72 - 132
Perfluoroundecanoic acid (PFUnA)	10.0	10.2		ug/Kg		102	66 - 126
Perfluorododecanoic acid (PFDoA)	10.0	10.1		ug/Kg		101	71 - 131
Perfluorotridecanoic acid (PFTTrDA)	10.0	9.95		ug/Kg		99	71 - 131

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-713658/2-A
Matrix: Solid
Analysis Batch: 716642

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 713658

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorotetradecanoic acid (PFTeA)	10.0	10.1		ug/Kg		101	67 - 127
Perfluorobutanesulfonic acid (PFBS)	8.88	10.1		ug/Kg		113	69 - 129
Perfluoropentanesulfonic acid (PFPeS)	9.40	10.3		ug/Kg		110	66 - 126
Perfluorohexanesulfonic acid (PFHxS)	9.12	9.66		ug/Kg		106	62 - 122
Perfluoroheptanesulfonic acid (PFHpS)	9.54	11.2		ug/Kg		117	76 - 136
Perfluorooctanesulfonic acid (PFOS)	9.30	9.70		ug/Kg		104	68 - 141
Perfluorononanesulfonic acid (PFNS)	9.62	11.1		ug/Kg		115	72 - 132
Perfluorodecanesulfonic acid (PFDS)	9.64	10.5		ug/Kg		109	71 - 131
Perfluorododecanesulfonic acid (PFDoS)	9.70	9.90		ug/Kg		102	70 - 130
Perfluorooctanesulfonamide (FOSA)	10.0	9.88		ug/Kg		99	77 - 137
NMeFOSAA	10.0	10.7		ug/Kg		107	72 - 132
NEtFOSAA	10.0	9.69		ug/Kg		97	72 - 132
4:2 FTS	9.38	11.4		ug/Kg		122	68 - 143
6:2 FTS	9.52	9.84		ug/Kg		103	73 - 139
8:2 FTS	9.60	10.1		ug/Kg		105	75 - 135
NMeFOSE	10.0	7.92		ug/Kg		79	43 - 153
NEtFOSE	10.0	7.56		ug/Kg		76	44 - 155
HFPO-DA (GenX)	10.0	10.4		ug/Kg		104	53 - 158
9CI-PF3ONS	9.34	11.3		ug/Kg		120	74 - 134
11CI-PF3OUdS	9.44	10.4		ug/Kg		110	66 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.46	11.4		ug/Kg		121	79 - 139

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C5 PFPeA	42		25 - 150
13C2 PFHxA	92		25 - 150
13C4 PFHpA	94		25 - 150
13C4 PFOA	92		25 - 150
13C5 PFNA	91		25 - 150
13C2 PFDA	98		25 - 150
13C2 PFUnA	91		25 - 150
13C2 PFDoA	90		25 - 150
13C2 PFTeDA	81		25 - 150
13C3 PFBS	81		25 - 150
18O2 PFHxS	84		25 - 150
13C4 PFOS	79		25 - 150
13C8 FOSA	83		25 - 150
M2-4:2 FTS	92		25 - 150
M2-6:2 FTS	98		25 - 150
M2-8:2 FTS	100		25 - 150
d3-NMeFOSAA	86		25 - 150

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-713658/2-A
Matrix: Solid
Analysis Batch: 716642

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 713658

<i>Isotope Dilution</i>	<i>LCS LCS</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
<i>d5-NEtFOSAA</i>	92		25 - 150
<i>d-N-MeFOSA-M</i>	78		25 - 150
<i>d-N-EtFOSA-M</i>	82		25 - 150
<i>d7-N-MeFOSE-M</i>	77		25 - 150
<i>13C3 HFPO-DA</i>	97		25 - 150
<i>d9-N-EtFOSE-M</i>	76		25 - 150

Lab Sample ID: LCSD 320-713658/3-A
Matrix: Solid
Analysis Batch: 716642

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 713658

<i>Analyte</i>	<i>Spike Added</i>	<i>LCSD Result</i>	<i>LCSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec</i>		<i>RPD</i>	<i>RPD Limit</i>
							<i>Limits</i>	<i>RPD</i>		
Perfluoropentanoic acid (PFPeA)	10.0	11.6		ug/Kg		116	69 - 129	6	30	
Perfluorohexanoic acid (PFHxA)	10.0	10.4		ug/Kg		104	71 - 131	1	30	
Perfluoroheptanoic acid (PFHpA)	10.0	10.7		ug/Kg		107	71 - 131	1	30	
Perfluorooctanoic acid (PFOA)	10.0	9.81		ug/Kg		98	72 - 132	10	30	
Perfluorononanoic acid (PFNA)	10.0	10.2		ug/Kg		102	73 - 133	1	30	
Perfluorodecanoic acid (PFDA)	10.0	10.1		ug/Kg		101	72 - 132	3	30	
Perfluoroundecanoic acid (PFUnA)	10.0	8.95		ug/Kg		90	66 - 126	13	30	
Perfluorododecanoic acid (PFDoA)	10.0	10.0		ug/Kg		100	71 - 131	1	30	
Perfluorotridecanoic acid (PFTrDA)	10.0	9.47		ug/Kg		95	71 - 131	5	30	
Perfluorotetradecanoic acid (PFTeA)	10.0	9.49		ug/Kg		95	67 - 127	7	30	
Perfluorobutanesulfonic acid (PFBS)	8.88	9.00		ug/Kg		101	69 - 129	11	30	
Perfluoropentanesulfonic acid (PFPeS)	9.40	10.1		ug/Kg		108	66 - 126	2	30	
Perfluorohexanesulfonic acid (PFHxS)	9.12	9.39		ug/Kg		103	62 - 122	3	30	
Perfluoroheptanesulfonic acid (PFHpS)	9.54	10.9		ug/Kg		114	76 - 136	3	30	
Perfluorooctanesulfonic acid (PFOS)	9.30	9.97		ug/Kg		107	68 - 141	3	30	
Perfluorononanesulfonic acid (PFNS)	9.62	10.9		ug/Kg		113	72 - 132	2	30	
Perfluorodecanesulfonic acid (PFDS)	9.64	10.5		ug/Kg		109	71 - 131	0	30	
Perfluorododecanesulfonic acid (PFDoS)	9.70	9.47		ug/Kg		98	70 - 130	4	30	
Perfluorooctanesulfonamide (FOSA)	10.0	9.68		ug/Kg		97	77 - 137	2	30	
NMeFOSAA	10.0	9.45		ug/Kg		94	72 - 132	13	30	
NEtFOSAA	10.0	9.62		ug/Kg		96	72 - 132	1	30	
4:2 FTS	9.38	9.88		ug/Kg		105	68 - 143	15	30	
6:2 FTS	9.52	10.5		ug/Kg		110	73 - 139	6	30	
8:2 FTS	9.60	9.93		ug/Kg		103	75 - 135	1	30	
NMeFOSE	10.0	8.41		ug/Kg		84	43 - 153	6	30	
NEtFOSE	10.0	8.25		ug/Kg		83	44 - 155	9	30	
HFPO-DA (GenX)	10.0	10.2		ug/Kg		102	53 - 158	2	30	

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-713658/3-A
Matrix: Solid
Analysis Batch: 716642

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 713658

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
9CI-PF3ONS	9.34	11.2		ug/Kg		120	74 - 134	0	30
11CI-PF3OUdS	9.44	9.94		ug/Kg		105	66 - 136	5	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.46	10.7		ug/Kg		113	79 - 139	6	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	LCSD Limits
13C5 PFPeA	52		25 - 150
13C2 PFHxA	93		25 - 150
13C4 PFHpA	96		25 - 150
13C4 PFOA	95		25 - 150
13C5 PFNA	90		25 - 150
13C2 PFDA	96		25 - 150
13C2 PFUnA	102		25 - 150
13C2 PFDoA	97		25 - 150
13C2 PFTeDA	91		25 - 150
13C3 PFBS	83		25 - 150
18O2 PFHxS	86		25 - 150
13C4 PFOS	83		25 - 150
13C8 FOSA	90		25 - 150
M2-4:2 FTS	89		25 - 150
M2-6:2 FTS	94		25 - 150
M2-8:2 FTS	103		25 - 150
d3-NMeFOSAA	91		25 - 150
d5-NEtFOSAA	96		25 - 150
d-N-MeFOSA-M	83		25 - 150
d-N-EtFOSA-M	84		25 - 150
d7-N-MeFOSE-M	81		25 - 150
13C3 HFPO-DA	101		25 - 150
d9-N-EtFOSE-M	82		25 - 150

Lab Sample ID: MB 320-713655/1-A
Matrix: Solid
Analysis Batch: 716641

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 713655

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.563	J	1.0	0.23	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
Perfluoropentanoic acid (PFPeA)	ND		1.0	0.21	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
Perfluorohexanoic acid (PFHxA)	ND		1.0	0.16	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
Perfluoroheptanoic acid (PFHpA)	ND		1.0	0.19	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
Perfluorooctanoic acid (PFOA)	ND		1.0	0.27	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
Perfluorononanoic acid (PFNA)	ND		1.0	0.11	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
Perfluorodecanoic acid (PFDA)	ND		1.0	0.24	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
Perfluoroundecanoic acid (PFUnA)	ND		1.0	0.21	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
Perfluorododecanoic acid (PFDoA)	ND		1.0	0.15	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
Perfluorotridecanoic acid (PFTeDA)	ND		1.0	0.11	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.0	0.19	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.0	0.19	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.0	0.19	ug/Kg		10/16/23 18:05	10/29/23 10:58	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-713655/1-A
Matrix: Solid
Analysis Batch: 716641

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 713655

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorohexanesulfonic acid (PFHxS)	ND		1.0	0.15	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.0	0.25	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.0	0.22	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
Perfluorononanesulfonic acid (PFNS)	ND		1.0	0.15	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.0	0.26	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.0	0.24	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
Perfluorooctanesulfonamide (FOSA)	ND		1.0	0.17	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
NMeFOSAA	ND		1.0	0.12	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
NEtFOSAA	ND		1.0	0.24	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
4:2 FTS	ND		1.0	0.26	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
6:2 FTS	ND		1.0	0.14	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
8:2 FTS	ND		1.0	0.18	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
NEtFOSA	ND		1.0	0.24	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
NMeFOSA	ND		1.0	0.25	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
NMeFOSE	ND		1.0	0.24	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
NEtFOSE	ND		1.0	0.14	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
9Cl-PF3ONS	ND		1.0	0.18	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
11Cl-PF3OUdS	ND		1.0	0.16	ug/Kg		10/16/23 18:05	10/29/23 10:58	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.0	0.20	ug/Kg		10/16/23 18:05	10/29/23 10:58	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C4 PFBA	22	*5-	25 - 150	10/16/23 18:05	10/29/23 10:58	1
13C5 PFPeA	94		25 - 150	10/16/23 18:05	10/29/23 10:58	1
13C2 PFHxA	94		25 - 150	10/16/23 18:05	10/29/23 10:58	1
13C4 PFHpA	102		25 - 150	10/16/23 18:05	10/29/23 10:58	1
13C4 PFOA	100		25 - 150	10/16/23 18:05	10/29/23 10:58	1
13C5 PFNA	94		25 - 150	10/16/23 18:05	10/29/23 10:58	1
13C2 PFDA	99		25 - 150	10/16/23 18:05	10/29/23 10:58	1
13C2 PFUnA	95		25 - 150	10/16/23 18:05	10/29/23 10:58	1
13C2 PFDoA	90		25 - 150	10/16/23 18:05	10/29/23 10:58	1
13C2 PFTeDA	93		25 - 150	10/16/23 18:05	10/29/23 10:58	1
13C3 PFBS	89		25 - 150	10/16/23 18:05	10/29/23 10:58	1
18O2 PFHxS	96		25 - 150	10/16/23 18:05	10/29/23 10:58	1
13C4 PFOS	90		25 - 150	10/16/23 18:05	10/29/23 10:58	1
13C8 FOSA	92		25 - 150	10/16/23 18:05	10/29/23 10:58	1
M2-4:2 FTS	0		0 - 10	10/16/23 18:05	10/29/23 10:58	1
M2-6:2 FTS	100		25 - 150	10/16/23 18:05	10/29/23 10:58	1
M2-8:2 FTS	109		25 - 150	10/16/23 18:05	10/29/23 10:58	1
d3-NMeFOSAA	86		25 - 150	10/16/23 18:05	10/29/23 10:58	1
d5-NEtFOSAA	101		25 - 150	10/16/23 18:05	10/29/23 10:58	1
d-N-MeFOSA-M	80		25 - 150	10/16/23 18:05	10/29/23 10:58	1
d-N-EtFOSA-M	84		25 - 150	10/16/23 18:05	10/29/23 10:58	1
d7-N-MeFOSE-M	79		25 - 150	10/16/23 18:05	10/29/23 10:58	1
d9-N-EtFOSE-M	77		25 - 150	10/16/23 18:05	10/29/23 10:58	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-713655/2-A
Matrix: Solid
Analysis Batch: 716641

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 713655

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	10.0	13.4		ug/Kg		134	96 - 183
Perfluoropentanoic acid (PFPeA)	10.0	13.7		ug/Kg		137	81 - 141
Perfluorohexanoic acid (PFHxA)	10.0	17.0	*+	ug/Kg		170	92 - 152
Perfluoroheptanoic acid (PFHpA)	10.0	17.2	*+	ug/Kg		172	100 - 160
Perfluorooctanoic acid (PFOA)	10.0	24.0		ug/Kg		240	169 - 414
Perfluorononanoic acid (PFNA)	10.0	12.9		ug/Kg		129	82 - 142
Perfluorodecanoic acid (PFDA)	10.0	11.0		ug/Kg		110	81 - 141
Perfluoroundecanoic acid (PFUnA)	10.0	8.51		ug/Kg		85	70 - 130
Perfluorododecanoic acid (PFDoA)	10.0	8.71		ug/Kg		87	63 - 123
Perfluorotridecanoic acid (PFTTrDA)	10.0	7.77		ug/Kg		78	63 - 123
Perfluorotetradecanoic acid (PFTeA)	10.0	6.32		ug/Kg		63	55 - 115
Perfluorobutanesulfonic acid (PFBS)	8.88	10.3		ug/Kg		116	74 - 134
Perfluoropentanesulfonic acid (PFPeS)	9.40	10.4		ug/Kg		111	68 - 134
Perfluorohexanesulfonic acid (PFHxS)	9.12	9.23		ug/Kg		101	61 - 121
Perfluoroheptanesulfonic acid (PFHpS)	9.54	10.6		ug/Kg		111	68 - 128
Perfluorooctanesulfonic acid (PFOS)	9.30	10.5		ug/Kg		113	70 - 138
Perfluorononanesulfonic acid (PFNS)	9.62	9.71		ug/Kg		101	66 - 126
Perfluorodecanesulfonic acid (PFDS)	9.64	10.2		ug/Kg		106	66 - 126
Perfluorododecanesulfonic acid (PFDoS)	9.70	8.57		ug/Kg		88	70 - 130
Perfluorooctanesulfonamide (FOSA)	10.0	ND		ug/Kg		0	0 - 10
NMeFOSAA	10.0	ND		ug/Kg		0	0 - 10
NEtFOSAA	10.0	ND		ug/Kg		0	0 - 10
4:2 FTS	9.38	ND		ug/Kg		0	0 - 10
6:2 FTS	9.52	ND		ug/Kg		0	0 - 10
8:2 FTS	9.60	ND		ug/Kg		0	0 - 10
NEtFOSA	10.0	ND		ug/Kg		0	0 - 10
NMeFOSA	10.0	ND		ug/Kg		0	0 - 10
NMeFOSE	10.0	ND		ug/Kg		0	0 - 10
NEtFOSE	10.0	ND		ug/Kg		0	0 - 10
9Cl-PF3ONS	9.34	9.90		ug/Kg		106	74 - 134
11Cl-PF3OUdS	9.44	7.30		ug/Kg		77	66 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.46	ND		ug/Kg		0	0 - 10

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	35		25 - 150
13C5 PFPeA	96		25 - 150
13C2 PFHxA	93		25 - 150
13C4 PFHpA	102		25 - 150

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-713655/2-A
Matrix: Solid
Analysis Batch: 716641

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 713655

<i>Isotope Dilution</i>	<i>LCS</i>	<i>LCS</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C4 PFOA	97		25 - 150
13C5 PFNA	98		25 - 150
13C2 PFDA	103		25 - 150
13C2 PFUnA	98		25 - 150
13C2 PFDoA	101		25 - 150
13C2 PFTeDA	97		25 - 150
13C3 PFBS	86		25 - 150
18O2 PFHxS	96		25 - 150
13C4 PFOS	86		25 - 150
13C8 FOSA	90		25 - 150
M2-4:2 FTS	0		0 - 10
M2-6:2 FTS	104		25 - 150
M2-8:2 FTS	114		25 - 150
d3-NMeFOSAA	94		25 - 150
d5-NEtFOSAA	94		25 - 150
d-N-MeFOSA-M	79		25 - 150
d-N-EtFOSA-M	83		25 - 150
d7-N-MeFOSE-M	85		25 - 150
d9-N-EtFOSE-M	76		25 - 150

Lab Sample ID: LCSD 320-713655/3-A
Matrix: Solid
Analysis Batch: 716641

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 713655

<i>Analyte</i>	<i>Spike</i>	<i>LCSD</i>	<i>LCSD</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec</i>	<i>RPD</i>	<i>RPD</i>
	<i>Added</i>	<i>Result</i>	<i>Qualifier</i>			<i>Limits</i>	<i>Limits</i>	<i>RPD</i>	<i>Limit</i>
Perfluorobutanoic acid (PFBA)	10.0	11.6		ug/Kg		116	96 - 183	14	30
Perfluoropentanoic acid (PFPeA)	10.0	12.5		ug/Kg		125	81 - 141	9	30
Perfluorohexanoic acid (PFHxA)	10.0	16.0	*+	ug/Kg		160	92 - 152	7	30
Perfluoroheptanoic acid (PFHpA)	10.0	15.7		ug/Kg		157	100 - 160	9	30
Perfluorooctanoic acid (PFOA)	10.0	26.1		ug/Kg		261	169 - 414	8	30
Perfluorononanoic acid (PFNA)	10.0	13.6		ug/Kg		136	82 - 142	5	30
Perfluorodecanoic acid (PFDA)	10.0	12.5		ug/Kg		125	81 - 141	13	30
Perfluoroundecanoic acid (PFUnA)	10.0	8.95		ug/Kg		90	70 - 130	5	30
Perfluorododecanoic acid (PFDoA)	10.0	9.47		ug/Kg		95	63 - 123	8	30
Perfluorotridecanoic acid (PFTTrDA)	10.0	8.52		ug/Kg		85	63 - 123	9	30
Perfluorotetradecanoic acid (PFTeA)	10.0	6.51		ug/Kg		65	55 - 115	3	30
Perfluorobutanesulfonic acid (PFBS)	8.88	9.42		ug/Kg		106	74 - 134	9	30
Perfluoropentanesulfonic acid (PFPeS)	9.40	10.1		ug/Kg		108	68 - 134	3	30
Perfluorohexanesulfonic acid (PFHxS)	9.12	9.76		ug/Kg		107	61 - 121	6	30
Perfluoroheptanesulfonic acid (PFHpS)	9.54	10.3		ug/Kg		108	68 - 128	3	30
Perfluorooctanesulfonic acid (PFOS)	9.30	10.8		ug/Kg		116	70 - 138	3	30

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-713655/3-A
Matrix: Solid
Analysis Batch: 716641

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 713655

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorononanesulfonic acid (PFNS)	9.62	9.66		ug/Kg		100	66 - 126	1	30
Perfluorodecanesulfonic acid (PFDS)	9.64	9.91		ug/Kg		103	66 - 126	3	30
Perfluorododecanesulfonic acid (PFDoS)	9.70	7.04		ug/Kg		73	70 - 130	20	30
Perfluorooctanesulfonamide (FOSA)	10.0	ND		ug/Kg		0	0 - 10	NC	30
NMeFOSAA	10.0	ND		ug/Kg		0	0 - 10	NC	30
NEtFOSAA	10.0	ND		ug/Kg		0	0 - 10	NC	30
4:2 FTS	9.38	ND		ug/Kg		0	0 - 10	NC	30
6:2 FTS	9.52	ND		ug/Kg		0	0 - 10	NC	30
8:2 FTS	9.60	ND		ug/Kg		0	0 - 10	NC	30
NEtFOSA	10.0	ND		ug/Kg		0	0 - 10	NC	30
NMeFOSA	10.0	ND		ug/Kg		0	0 - 10	NC	30
NMeFOSE	10.0	ND		ug/Kg		0	0 - 10	NC	30
NEtFOSE	10.0	ND		ug/Kg		0	0 - 10	NC	30
9Cl-PF3ONS	9.34	9.41		ug/Kg		101	74 - 134	5	30
11Cl-PF3OUdS	9.44	6.82		ug/Kg		72	66 - 136	7	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.46	ND		ug/Kg		0	0 - 10	NC	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	LCSD Limits
13C4 PFBA	41		25 - 150
13C5 PFPeA	102		25 - 150
13C2 PFHxA	96		25 - 150
13C4 PFHpA	102		25 - 150
13C4 PFOA	97		25 - 150
13C5 PFNA	96		25 - 150
13C2 PFDA	100		25 - 150
13C2 PFUnA	101		25 - 150
13C2 PFDoA	93		25 - 150
13C2 PFTeDA	99		25 - 150
13C3 PFBS	89		25 - 150
18O2 PFHxS	95		25 - 150
13C4 PFOS	90		25 - 150
13C8 FOSA	94		25 - 150
M2-4:2 FTS	0		0 - 10
M2-6:2 FTS	103		25 - 150
M2-8:2 FTS	100		25 - 150
d3-NMeFOSAA	92		25 - 150
d5-NEtFOSAA	96		25 - 150
d-N-MeFOSA-M	84		25 - 150
d-N-EtFOSA-M	82		25 - 150
d7-N-MeFOSE-M	89		25 - 150
d9-N-EtFOSE-M	77		25 - 150

QC Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-717647/1-A
Matrix: Solid
Analysis Batch: 721042

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 717647

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA (GenX)	ND		1.0	0.21	ug/Kg		11/02/23 21:25	11/17/23 01:22	1
Isotope Dilution	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	98		25 - 150				11/02/23 21:25	11/17/23 01:22	1

Lab Sample ID: LCS 320-717647/2-A
Matrix: Solid
Analysis Batch: 721042

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 717647

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HFPO-DA (GenX)	10.0	6.49		ug/Kg		65	53 - 158
Isotope Dilution	%Recovery	LCS Qualifier	Limits				
13C3 HFPO-DA	89		25 - 150				

Lab Sample ID: LCSD 320-717647/3-A
Matrix: Solid
Analysis Batch: 721042

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 717647

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HFPO-DA (GenX)	10.0	4.68	* - *1	ug/Kg		47	53 - 158	32	30
Isotope Dilution	%Recovery	LCSD Qualifier	Limits						
13C3 HFPO-DA	99		25 - 150						

Method: 537 (modified) - Fluorinated Alkyl Substances - RE

Lab Sample ID: MB 320-717648/1-A
Matrix: Solid
Analysis Batch: 721268

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 717648

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA) - RE	ND		1.0	0.23	ug/Kg		11/02/23 21:25	11/18/23 04:08	1
Perfluoropentanoic acid (PFPeA) - RE	ND		1.0	0.21	ug/Kg		11/02/23 21:25	11/18/23 04:08	1
NEtFOSA - RE	ND		1.0	0.24	ug/Kg		11/02/23 21:25	11/18/23 04:08	1
NMeFOSA - RE	ND		1.0	0.25	ug/Kg		11/02/23 21:25	11/18/23 04:08	1
Isotope Dilution	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA - RE	90		25 - 150				11/02/23 21:25	11/18/23 04:08	1
13C5 PFPeA - RE	95		25 - 150				11/02/23 21:25	11/18/23 04:08	1
d-N-MeFOSA-M - RE	76		25 - 150				11/02/23 21:25	11/18/23 04:08	1
d-N-EtFOSA-M - RE	92		25 - 150				11/02/23 21:25	11/18/23 04:08	1

Lab Sample ID: LCS 320-717648/2-A
Matrix: Solid
Analysis Batch: 721268

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 717648

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA) - RE	10.0	9.68		ug/Kg		97	76 - 136

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method: 537 (modified) - Fluorinated Alkyl Substances - RE (Continued)

Lab Sample ID: LCS 320-717648/2-A
Matrix: Solid
Analysis Batch: 721268

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 717648

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanoic acid (PFPeA) - RE	10.0	9.51		ug/Kg		95	69 - 129
NEtFOSA - RE	10.0	9.79		ug/Kg		98	47 - 161
NMeFOSA - RE	10.0	8.07		ug/Kg		81	63 - 148
LCS LCS							
Isotope Dilution	%Recovery	Qualifier	Limits				
13C4 PFBA - RE	56		25 - 150				
13C5 PFPeA - RE	96		25 - 150				
d-N-MeFOSA-M - RE	81		25 - 150				
d-N-EtFOSA-M - RE	94		25 - 150				

Lab Sample ID: LCSD 320-717648/3-A
Matrix: Solid
Analysis Batch: 721268

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 717648

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA) - RE	10.0	9.16		ug/Kg		92	76 - 136	6	30
Perfluoropentanoic acid (PFPeA) - RE	10.0	9.66		ug/Kg		97	69 - 129	2	30
NEtFOSA - RE	10.0	9.73		ug/Kg		97	47 - 161	1	30
NMeFOSA - RE	10.0	8.36		ug/Kg		84	63 - 148	4	30
LCSD LCSD									
Isotope Dilution	%Recovery	Qualifier	Limits						
13C4 PFBA - RE	19	*5-	25 - 150						
13C5 PFPeA - RE	78		25 - 150						
d-N-MeFOSA-M - RE	101		25 - 150						
d-N-EtFOSA-M - RE	96		25 - 150						

Method: D 2216 - Percent Moisture

Lab Sample ID: 320-105928-3 DU
Matrix: Solid
Analysis Batch: 712998

Client Sample ID: Bio A 23-S-1 20231010
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Moisture	74.4		69.9		%		6	20
Percent Solids	25.6		30.1		%		16	20

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 500-737022/1
Matrix: Water
Analysis Batch: 737022

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		5.0	1.9	mg/L			10/13/23 14:59	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: LCS 500-737022/2
Matrix: Water
Analysis Batch: 737022

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	200	165		mg/L		83	80 - 120

Lab Sample ID: MB 500-737484/1
Matrix: Water
Analysis Batch: 737484

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		5.0	1.9	mg/L			10/17/23 11:26	1

Lab Sample ID: LCS 500-737484/2
Matrix: Water
Analysis Batch: 737484

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	200	192		mg/L		96	80 - 120

QC Association Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

LCMS

Prep Batch: 713655

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105928-7	Bio A 23-S-C 20231010	Post-Treatment	Solid	TOP Post-Prep	
MB 320-713655/1-A	Method Blank	Post-Treatment	Solid	TOP Post-Prep	
LCS 320-713655/2-A	Lab Control Sample	Post-Treatment	Solid	TOP Post-Prep	
LCSD 320-713655/3-A	Lab Control Sample Dup	Post-Treatment	Solid	TOP Post-Prep	

Prep Batch: 713658

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105928-7	Bio A 23-S-C 20231010	Pre-Treatment	Solid	TOP Pre-Prep	
MB 320-713658/1-A	Method Blank	Pre-Treatment	Solid	TOP Pre-Prep	
LCS 320-713658/2-A	Lab Control Sample	Pre-Treatment	Solid	TOP Pre-Prep	
LCSD 320-713658/3-A	Lab Control Sample Dup	Pre-Treatment	Solid	TOP Pre-Prep	

Prep Batch: 714305

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105928-3	Bio A 23-S-1 20231010	Total/NA	Solid	SHAKE	
320-105928-4	Bio A 23-S-2 20231010	Total/NA	Solid	SHAKE	
320-105928-5	Bio A 23-S-3 20231010	Total/NA	Solid	SHAKE	
320-105928-6	Bio A 23-S-4 20231010	Total/NA	Solid	SHAKE	
320-105928-7	Bio A 23-S-C 20231010	Total/NA	Solid	SHAKE	
320-105928-9	Bio A 23-D-2 20231011	Total/NA	Solid	SHAKE	
320-105928-10	Bio A 23-D-4 20231011	Total/NA	Solid	SHAKE	
MB 320-714305/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-714305/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
320-105928-10 MS	Bio A 23-D-4 20231011	Total/NA	Solid	SHAKE	
320-105928-10 MSD	Bio A 23-D-4 20231011	Total/NA	Solid	SHAKE	

Analysis Batch: 714781

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105928-3	Bio A 23-S-1 20231010	Total/NA	Solid	537 (modified)	714305
320-105928-4	Bio A 23-S-2 20231010	Total/NA	Solid	537 (modified)	714305
320-105928-5	Bio A 23-S-3 20231010	Total/NA	Solid	537 (modified)	714305
320-105928-6	Bio A 23-S-4 20231010	Total/NA	Solid	537 (modified)	714305
320-105928-7	Bio A 23-S-C 20231010	Total/NA	Solid	537 (modified)	714305
320-105928-9	Bio A 23-D-2 20231011	Total/NA	Solid	537 (modified)	714305
320-105928-10	Bio A 23-D-4 20231011	Total/NA	Solid	537 (modified)	714305
MB 320-714305/1-A	Method Blank	Total/NA	Solid	537 (modified)	714305
LCS 320-714305/2-A	Lab Control Sample	Total/NA	Solid	537 (modified)	714305
320-105928-10 MS	Bio A 23-D-4 20231011	Total/NA	Solid	537 (modified)	714305
320-105928-10 MSD	Bio A 23-D-4 20231011	Total/NA	Solid	537 (modified)	714305

Prep Batch: 715446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105928-1 - RA	InfComp 20231009	Total/NA	Water	3535	
320-105928-1	InfComp 20231009	Total/NA	Water	3535	
MB 320-715446/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-715446/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-715446/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 715648

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105928-1	InfComp 20231009	Total/NA	Water	537 (modified)	715446

Eurofins Sacramento

QC Association Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

LCMS (Continued)

Analysis Batch: 715648 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-715446/1-A	Method Blank	Total/NA	Water	537 (modified)	715446
LCS 320-715446/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	715446
LCSD 320-715446/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	715446

Prep Batch: 715763

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105928-2	Eff 20231010	Total/NA	Water	3535	
320-105928-8	EB01 20231010	Total/NA	Water	3535	
MB 320-715763/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-715763/2-B	Lab Control Sample	Total/NA	Water	3535	

Analysis Batch: 716641

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105928-7	Bio A 23-S-C 20231010	Post-Treatment	Solid	537 (modified)	713655
MB 320-713655/1-A	Method Blank	Post-Treatment	Solid	537 (modified)	713655
LCS 320-713655/2-A	Lab Control Sample	Post-Treatment	Solid	537 (modified)	713655
LCSD 320-713655/3-A	Lab Control Sample Dup	Post-Treatment	Solid	537 (modified)	713655

Analysis Batch: 716642

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105928-7	Bio A 23-S-C 20231010	Pre-Treatment	Solid	537 (modified)	713658
MB 320-713658/1-A	Method Blank	Pre-Treatment	Solid	537 (modified)	713658
LCS 320-713658/2-A	Lab Control Sample	Pre-Treatment	Solid	537 (modified)	713658
LCSD 320-713658/3-A	Lab Control Sample Dup	Pre-Treatment	Solid	537 (modified)	713658

Analysis Batch: 716933

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105928-1 - RA	InfComp 20231009	Total/NA	Water	537 (modified)	715446

Analysis Batch: 717044

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105928-2	Eff 20231010	Total/NA	Water	537 (modified)	715763
320-105928-8	EB01 20231010	Total/NA	Water	537 (modified)	715763
MB 320-715763/1-A	Method Blank	Total/NA	Water	537 (modified)	715763
LCS 320-715763/2-B	Lab Control Sample	Total/NA	Water	537 (modified)	715763

Prep Batch: 717647

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105928-7 - RE	Bio A 23-S-C 20231010	Post-Treatment	Solid	TOP Post-Prep	
MB 320-717647/1-A	Method Blank	Post-Treatment	Solid	TOP Post-Prep	
LCS 320-717647/2-A	Lab Control Sample	Post-Treatment	Solid	TOP Post-Prep	
LCSD 320-717647/3-A	Lab Control Sample Dup	Post-Treatment	Solid	TOP Post-Prep	

Prep Batch: 717648

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105928-7 - RE	Bio A 23-S-C 20231010	Pre-Treatment	Solid	TOP Pre-Prep	
MB 320-717648/1-A - RE	Method Blank	Pre-Treatment	Solid	TOP Pre-Prep	
LCS 320-717648/2-A - RE	Lab Control Sample	Pre-Treatment	Solid	TOP Pre-Prep	
LCSD 320-717648/3-A - RE	Lab Control Sample Dup	Pre-Treatment	Solid	TOP Pre-Prep	

Eurofins Sacramento

QC Association Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

LCMS

Analysis Batch: 721042

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105928-7 - RE	Bio A 23-S-C 20231010	Post-Treatment	Solid	537 (modified)	717647
MB 320-717647/1-A	Method Blank	Post-Treatment	Solid	537 (modified)	717647
LCS 320-717647/2-A	Lab Control Sample	Post-Treatment	Solid	537 (modified)	717647
LCSD 320-717647/3-A	Lab Control Sample Dup	Post-Treatment	Solid	537 (modified)	717647

Analysis Batch: 721268

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105928-7 - RE	Bio A 23-S-C 20231010	Pre-Treatment	Solid	537 (modified)	717648
MB 320-717648/1-A - RE	Method Blank	Pre-Treatment	Solid	537 (modified)	717648
LCS 320-717648/2-A - RE	Lab Control Sample	Pre-Treatment	Solid	537 (modified)	717648
LCSD 320-717648/3-A - RE	Lab Control Sample Dup	Pre-Treatment	Solid	537 (modified)	717648

General Chemistry

Analysis Batch: 712998

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105928-3	Bio A 23-S-1 20231010	Total/NA	Solid	D 2216	
320-105928-4	Bio A 23-S-2 20231010	Total/NA	Solid	D 2216	
320-105928-5	Bio A 23-S-3 20231010	Total/NA	Solid	D 2216	
320-105928-6	Bio A 23-S-4 20231010	Total/NA	Solid	D 2216	
320-105928-7	Bio A 23-S-C 20231010	Total/NA	Solid	D 2216	
320-105928-9	Bio A 23-D-2 20231011	Total/NA	Solid	D 2216	
320-105928-10	Bio A 23-D-4 20231011	Total/NA	Solid	D 2216	
320-105928-3 DU	Bio A 23-S-1 20231010	Total/NA	Solid	D 2216	

Analysis Batch: 737022

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105928-1	InfComp 20231009	Total/NA	Water	SM 2540D	
MB 500-737022/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 500-737022/2	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 737484

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105928-2	Eff 20231010	Total/NA	Water	SM 2540D	
MB 500-737484/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 500-737484/2	Lab Control Sample	Total/NA	Water	SM 2540D	

Lab Chronicle

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: InfComp 20231009

Date Collected: 10/09/23 23:59

Date Received: 10/12/23 09:20

Lab Sample ID: 320-105928-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535	RA		287.4 mL	10.0 mL	715446	10/24/23 19:17	PV	EET SAC
Total/NA	Analysis	537 (modified)	RA	1	1 mL	1 mL	716933	10/31/23 16:59	S1M	EET SAC
Total/NA	Prep	3535			287.4 mL	10.0 mL	715446	10/24/23 19:17	PV	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	715648	10/26/23 10:08	S1M	EET SAC
Total/NA	Analysis	SM 2540D		1	50 mL	500 mL	737022	10/13/23 15:39	SO	EET CHI

Completed: 10/13/23 15:43¹

Client Sample ID: Eff 20231010

Date Collected: 10/10/23 23:59

Date Received: 10/12/23 09:20

Lab Sample ID: 320-105928-2

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	3535			279.1 mL	10.0 mL	715763	10/26/23 05:30	GAT	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	717044	10/31/23 05:49	AP1	EET SAC
Total/NA	Analysis	SM 2540D		1	500 mL	500 mL	737484	10/17/23 13:03	SO	EET CHI

Completed: 10/17/23 13:08¹

Client Sample ID: Bio A 23-S-1 20231010

Date Collected: 10/10/23 13:27

Date Received: 10/12/23 09:20

Lab Sample ID: 320-105928-3

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			712998	10/13/23 15:20	JCB	EET SAC

Client Sample ID: Bio A 23-S-1 20231010

Date Collected: 10/10/23 13:27

Date Received: 10/12/23 09:20

Lab Sample ID: 320-105928-3

Matrix: Solid

Percent Solids: 25.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			1.44 g	10.0 mL	714305	10/19/23 11:23	EJR	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	714781	10/21/23 07:11	RS1	EET SAC

Client Sample ID: Bio A 23-S-2 20231010

Date Collected: 10/10/23 13:33

Date Received: 10/12/23 09:20

Lab Sample ID: 320-105928-4

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			712998	10/13/23 15:20	JCB	EET SAC

Client Sample ID: Bio A 23-S-2 20231010

Date Collected: 10/10/23 13:33

Date Received: 10/12/23 09:20

Lab Sample ID: 320-105928-4

Matrix: Solid

Percent Solids: 23.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			1.47 g	10.0 mL	714305	10/19/23 11:23	EJR	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	714781	10/21/23 07:22	RS1	EET SAC

Eurofins Sacramento

Lab Chronicle

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-3 20231010

Lab Sample ID: 320-105928-5

Date Collected: 10/10/23 13:37

Matrix: Solid

Date Received: 10/12/23 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			712998	10/13/23 15:20	JCB	EET SAC

Client Sample ID: Bio A 23-S-3 20231010

Lab Sample ID: 320-105928-5

Date Collected: 10/10/23 13:37

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 28.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			1.27 g	10.0 mL	714305	10/19/23 11:23	EJR	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	714781	10/21/23 07:33	RS1	EET SAC

Client Sample ID: Bio A 23-S-4 20231010

Lab Sample ID: 320-105928-6

Date Collected: 10/10/23 13:42

Matrix: Solid

Date Received: 10/12/23 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			712998	10/13/23 15:20	JCB	EET SAC

Client Sample ID: Bio A 23-S-4 20231010

Lab Sample ID: 320-105928-6

Date Collected: 10/10/23 13:42

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 24.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			1.32 g	10.0 mL	714305	10/19/23 11:23	EJR	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	714781	10/21/23 07:44	RS1	EET SAC

Client Sample ID: Bio A 23-S-C 20231010

Lab Sample ID: 320-105928-7

Date Collected: 10/10/23 13:44

Matrix: Solid

Date Received: 10/12/23 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			712998	10/13/23 15:20	JCB	EET SAC

Client Sample ID: Bio A 23-S-C 20231010

Lab Sample ID: 320-105928-7

Date Collected: 10/10/23 13:44

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 24.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOP Post-Prep			1.06 g	10.0 mL	713655	10/16/23 18:05	FX	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	716641	10/29/23 13:01	RS1	EET SAC
Post-Treatment	Prep	TOP Post-Prep	RE		1.02 g	10.0 mL	717647	11/02/23 21:25	FX	EET SAC
Post-Treatment	Analysis	537 (modified)	RE	1	1 mL	1 mL	721042	11/17/23 02:07	D1R	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep			1.10 g	10.0 mL	713658	10/16/23 18:20	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	716642	10/29/23 17:17	RS1	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep	RE		1.06 g	10.0 mL	717648	11/02/23 21:25	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)	RE	1	1 mL	1 mL	721268	11/18/23 04:52	D1R	EET SAC

Eurofins Sacramento

Lab Chronicle

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-C 20231010

Lab Sample ID: 320-105928-7

Date Collected: 10/10/23 13:44

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 24.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			1.49 g	10.0 mL	714305	10/19/23 11:23	EJR	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	714781	10/21/23 07:56	RS1	EET SAC

Client Sample ID: EB01 20231010

Lab Sample ID: 320-105928-8

Date Collected: 10/10/23 12:15

Matrix: Water

Date Received: 10/12/23 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			255.6 mL	10.0 mL	715763	10/26/23 05:30	GAT	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	717044	10/31/23 06:00	AP1	EET SAC

Client Sample ID: Bio A 23-D-2 20231011

Lab Sample ID: 320-105928-9

Date Collected: 10/11/23 06:52

Matrix: Solid

Date Received: 10/12/23 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			712998	10/13/23 15:20	JCB	EET SAC

Client Sample ID: Bio A 23-D-2 20231011

Lab Sample ID: 320-105928-9

Date Collected: 10/11/23 06:52

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 25.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			1.22 g	10.0 mL	714305	10/19/23 11:23	EJR	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	714781	10/21/23 08:07	RS1	EET SAC

Client Sample ID: Bio A 23-D-4 20231011

Lab Sample ID: 320-105928-10

Date Collected: 10/11/23 06:54

Matrix: Solid

Date Received: 10/12/23 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			712998	10/13/23 15:20	JCB	EET SAC

Client Sample ID: Bio A 23-D-4 20231011

Lab Sample ID: 320-105928-10

Date Collected: 10/11/23 06:54

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 24.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			1.24 g	10.0 mL	714305	10/19/23 11:23	EJR	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	714781	10/21/23 08:41	RS1	EET SAC

¹ This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Eurofins Sacramento

Accreditation/Certification Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

Laboratory: Eurofins Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4040	01-29-24

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
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids

Wisconsin	State	998204680	08-31-24
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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
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids

Laboratory: Eurofins Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999580010	08-31-24

Method Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	EET SAC
D 2216	Percent Moisture	ASTM	EET SAC
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CHI
3535	Solid-Phase Extraction (SPE)	SW846	EET SAC
SHAKE	Shake Extraction with Ultrasonic Bath Extraction	SW846	EET SAC
TOP Post-Prep	Shake Extraction with Ultrasonic Bath Extraction	SW846	EET SAC
TOP Pre-Prep	Shake Extraction with Ultrasonic Bath Extraction	SW846	EET SAC

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

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 CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-105928-1	InfComp 20231009	Water	10/09/23 23:59	10/12/23 09:20
320-105928-2	Eff 20231010	Water	10/10/23 23:59	10/12/23 09:20
320-105928-3	Bio A 23-S-1 20231010	Solid	10/10/23 13:27	10/12/23 09:20
320-105928-4	Bio A 23-S-2 20231010	Solid	10/10/23 13:33	10/12/23 09:20
320-105928-5	Bio A 23-S-3 20231010	Solid	10/10/23 13:37	10/12/23 09:20
320-105928-6	Bio A 23-S-4 20231010	Solid	10/10/23 13:42	10/12/23 09:20
320-105928-7	Bio A 23-S-C 20231010	Solid	10/10/23 13:44	10/12/23 09:20
320-105928-8	EB01 20231010	Water	10/10/23 12:15	10/12/23 09:20
320-105928-9	Bio A 23-D-2 20231011	Solid	10/11/23 06:52	10/12/23 09:20
320-105928-10	Bio A 23-D-4 20231011	Solid	10/11/23 06:54	10/12/23 09:20

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Reports to Mike Ursin mursine@compaines.com

Address: TRC
999 Fowler Dr Suite 101
Madison, WI 53717

Chain of Custody Record

705483



Environment Testing
America

TAL-8210

Regulatory Program: DW NPDES RCRA Other:

Project Manager: Julie Maas Date: 10/11/23 COC No: 705483
 Tell/Email: JulieMaas@eurofins.com Carrier: Fed Ex 1 of 1 COCs
 Analysis Turnaround Time: CALENDAR DAYS WORKING DAYS
 TAT if different from Below: 2 weeks 1 week 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)	Sample Specific Notes:	
								Lab Contact: <u>Mary Powers</u>	Site Contact: <u>Julie Maas</u>
<u>InfComp 20231009</u>	<u>10/9/23</u>	<u>23:54</u>	<u>C</u>	<u>WW</u>	<u>3</u>	<u>N</u>	<u>X</u>	<u>TOP ASSAY</u>	
<u>Eff 20231011</u>	<u>10/10/23</u>	<u>23:54</u>	<u>C</u>	<u>WN</u>	<u>3</u>	<u>X</u>	<u>X</u>	<u>PFA5</u>	
<u>Bio A 23-S-1 20231010</u>	<u>10/10/23</u>	<u>13:27</u>	<u>G</u>	<u>SL</u>	<u>1</u>	<u>X</u>	<u>X</u>		
<u>Bio A 23-S-2 20231010</u>	<u>10/10/23</u>	<u>13:33</u>	<u>G</u>	<u>SL</u>	<u>1</u>	<u>X</u>	<u>X</u>		
<u>Bio A 23-S-3 20231010</u>	<u>10/10/23</u>	<u>13:37</u>	<u>G</u>	<u>SL</u>	<u>1</u>	<u>X</u>	<u>X</u>		
<u>Bio A 23-S-4 20231010</u>	<u>10/10/23</u>	<u>13:42</u>	<u>G</u>	<u>SL</u>	<u>1</u>	<u>X</u>	<u>X</u>		
<u>Bio A 23-S-C 20231010</u>	<u>10/10/23</u>	<u>13:44</u>	<u>C</u>	<u>SL</u>	<u>2</u>	<u>X</u>	<u>X</u>		
<u>EB01 20231010</u>	<u>10/10/23</u>	<u>12:15</u>	<u>G</u>	<u>W</u>	<u>1</u>	<u>X</u>	<u>X</u>		
<u>Bio A 23-D-2 20231011</u>	<u>10/11/23</u>	<u>6:52</u>	<u>G</u>	<u>SL</u>	<u>1</u>	<u>X</u>	<u>X</u>		
<u>Bio A 23-D-4 20231011</u>	<u>10/11/23</u>	<u>6:54</u>	<u>G</u>	<u>SL</u>	<u>1</u>	<u>X</u>	<u>X</u>		



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.

Special Instructions/QC Requirements & Comments: Follow EPA-19-01 (W.I. PFA5 expectations) NO V13 procedure for particulates in aqueous samples. Centrifuge as needed

Custody Seal No.: 210635512106759 Cooler Temp. (°C): 5.7 Term ID No.: 602
 Company: MMSD Date/Time: 10/11/23 07:15 Received by: [Signature]
 Company: MMSD Date/Time: 10/12/23 09:20 Received by: [Signature]
 Company: [Blank] Date/Time: [Blank] Received in Laboratory by: [Blank]





Environment Testing

Sacramento Sample Receiving Notes (SSRN)

Job Loc 320 105928

Tracking # 6570 6543 7550

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.

Main form area containing sections: Therm ID, Ice, Cooler Custody Seal, Temp Observed, Opening/Processing The Shipment, Unpacking/Labeling The Samples, Notes, Trizma Lot #(s), Ammonium Acetate Lot #(s), Login Completion.



Environment Testing

Sacramento Sample Receiving Notes (SSRN)

Tracking # 6570 6543 8692

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

Form containing fields for Therm ID, Ice, Cooler Custody Seal, Temp Observed, Opening/Processing The Shipment, Unpacking/Labeling The Samples, and Login Completion. Includes checkboxes for Yes, No, and NA.



Reports to Mike Ursin mursine@trccompanies.com

Address: TBC
999 Fourier Dr Suite 101
Madison, WI 53717

Chain of Custody Record

705483



Environment Testing
America

TAL-8210

Regulatory Program: DW NPDES RCRA Other:

Project Manager: Julie Maas Date: 10/11/23 COC No.: 705483
 Tel/Email: juliemeadsaw@trc.com Carrier: Fed Ex
 Analysis Turnaround Time: CALENDAR DAYS WORKING DAYS
 TAT if different from Below: 2 weeks 1 week 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)	Site Contact: <u>Mary Powers</u>	Date: <u>10/11/23</u>	COC No.: <u>705483</u>	Sampler: <u>1 of 1 COCs</u>	For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	Sample Specific Notes:
<u>InfComp 20231009</u>	<u>10/9/23</u>	<u>23:54</u>	<u>C</u>	<u>WW</u>	<u>3</u>	<u>N</u>	<u>X</u>						
<u>Eff 20231011</u>	<u>10/10/23</u>	<u>23:54</u>	<u>C</u>	<u>WN</u>	<u>3</u>	<u>X</u>	<u>X</u>						
<u>Bio A 23-S-1 20231010</u>	<u>10/10/23</u>	<u>13:37</u>	<u>G</u>	<u>SL</u>	<u>1</u>	<u>X</u>	<u>X</u>						
<u>Bio A 23-S-2 20231010</u>	<u>10/10/23</u>	<u>13:33</u>	<u>G</u>	<u>SL</u>	<u>1</u>	<u>X</u>	<u>X</u>						
<u>Bio A 23-S-3 20231010</u>	<u>10/10/23</u>	<u>13:37</u>	<u>G</u>	<u>SL</u>	<u>1</u>	<u>X</u>	<u>X</u>						
<u>Bio A 23-S-4 20231010</u>	<u>10/10/23</u>	<u>13:42</u>	<u>G</u>	<u>SL</u>	<u>1</u>	<u>X</u>	<u>X</u>						
<u>Bio A 23-S-C 20231010</u>	<u>10/10/23</u>	<u>13:44</u>	<u>C</u>	<u>SL</u>	<u>2</u>	<u>X</u>	<u>X</u>						
<u>EB01 20231010</u>	<u>10/10/23</u>	<u>12:15</u>	<u>G</u>	<u>W</u>	<u>1</u>	<u>X</u>	<u>X</u>						
<u>Bio A 23-D-2 20231011</u>	<u>10/11/23</u>	<u>6:52</u>	<u>G</u>	<u>SL</u>	<u>1</u>	<u>X</u>	<u>X</u>						
<u>Bio A 23-D-4 20231011</u>	<u>10/11/23</u>	<u>6:54</u>	<u>G</u>	<u>SL</u>	<u>1</u>	<u>X</u>	<u>X</u>						



320-105928 Chain of Custody

Special Hazard Identification: Corrosive Ignitable Oxidizing Toxic Volatile Other

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-Hazardous Flammable Skin Irritant Poison B Unknown

Return to Client Disposal by Lab Archive for _____ Months

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Special Instructions/QC Requirements & Comments: Follow EPA-19-01 (WIPFAS experiments) & V13 procedure for particulates in aqueous samples. Centrifuge as needed

Custody Seal No.: 210635812106359 Cooler Temp. (°C): 3.2 Obs'd: 3.15.7 Corr'd: 3.15.7 Therm ID No.: 602

Relinquished by: Gregory Faust Date/Time: 10/11/23 07:15 Company: MMSD

Relinquished by: Bob Sisk Date/Time: 10/12/23 09:20 Company: Bob Sisk

Relinquished by: _____ Date/Time: _____ Company: _____





Environment Testing

Sacramento Sample Receiving Notes (SSRN)

Job Loc 320 105928

Tracking # 6570 6543 7550

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.

Main form area containing sections: Opening/Processing The Shipment, Unpacking/Labeling The Samples, Login Completion, and Notes. Includes checkboxes for 'Yes', 'No', 'NA' and handwritten entries for dates, temperatures, and sample details.





Environment Testing

Sacramento Sample Receiving Notes (SSRN)

Tracking #: 6570 6543 8692

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: 102 Corr. Factor: (+/-) _____ °C
Ice 1 Wet 1 Gel _____ Other _____
Cooler Custody Seal: 206140/206441
Cooler ID: _____
Temp Observed: 3.9 °C Corrected: 3.9 °C
From: Temp Blank Sample

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cooler Temperature is acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Frozen samples show signs of thaw?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Initials: MM Date: 10/12/23

Unpacking/Labeling The Samples	Yes	No	NA
Containers are not broken or leaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
COC is complete w/o discrepancies	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample custody seal?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample containers have legible labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample date/times are provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate containers are used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample bottles are completely filled?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample preservatives verified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is the Field Sampler's name on COC?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Samples w/o discrepancies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Zero headspace?*	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Alkalinity has no headspace?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Perchlorate has headspace? (Methods 314, 331, 6850)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Multiphasic samples are not present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials: MM Date: 10/12/23

Notes: _____

Trizma Lot #(s): _____

Ammonium
Acetate Lot #(s): _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NCM Filed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within hold time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Log Release checked in TALS?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Initials: MM Date: 10/12/23

Eurofins Sacramento

880 Riverside Parkway
West Sacramento, CA 95605
Phone 916-373-5600 Fax 916-372-1059

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler		Lab PM Smith, Micah		Carrier Tracking No(s)		COC No 320-321684 1			
Client Contact Shipping/Receiving		Phone		E-Mail Micah Smith@et eurofinsus.com		State of Origin Wisconsin		Page Page 1 of 1			
Company Eurofins Environment Testing North Centr				Accreditations Required (See note) NELAP - Oregon, State - Wisconsin				Job # 320 105928-1			
Address 2417 Bond Street,		Due Date Requested 11/1/2023		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 Z other (specify) Other:	
City University Park		TAT Requested (days)									
State, Zip: IL, 60484		PO #									
Phone 708-534-5200(Tel) 708-534-5211(Fax)		WO #									
Email		Project # 32021779									
Project Name PFAS Sampling		SSOW#		Field Filtered Sample (Yes or No)		Perform MMSMSD (Yes or No)		Total Number of containers			
Site 320-105928 COC		Project #		2640D							
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)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Special Instructions/Note:		
InfComp 20231009 (320-105928-1)		10/9/23	23 59 Central	Water			X		1		
Eff 20231011 (320-105928 2)		10/10/23	23 59 Central	Water			X		1		
Note: Since laboratory accreditations are subject to change Eurofins Environment Testing Northern California, 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 Northern California, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northern California, 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 Northern California, LLC.											
Possible Hazard Identification					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)						
Unconfirmed					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months						
Deliverable Requested I, II, III, IV, Other (specify)			Primary Deliverable Rank 1		Special Instructions/QC Requirements						
Empty Kit Relinquished by:		Date		Time		Method of Shipment					
Relinquished by:		Date/Time: 10/12/23 1630		Company: CEFCO		Received by:		Date/Time: 10/13/23 0910			
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:			
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:			
Custody Seals Intact: Δ Yes Δ No		Custody Seal No			Cooler Temperature(s) °C and Other Remarks 11 → 10						

1
2
3
4
5
6
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12
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14
15
16

Login Sample Receipt Checklist

Client: Madison Metropolitan Sewerage District

Job Number: 320-105928-1

Login Number: 105928

List Source: Eurofins Sacramento

List Number: 1

Creator: Medeiros, Ryan M

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	REFER TO SSRN
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.	N/A	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	N/A	
Cooler Temperature is recorded.	N/A	
COC is present.	N/A	
COC is filled out in ink and legible.	N/A	
COC is filled out with all pertinent information.	N/A	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	N/A	
Samples are received within Holding Time (excluding tests with immediate HTs)	N/A	
Sample containers have legible labels.	N/A	
Containers are not broken or leaking.	N/A	
Sample collection date/times are provided.	N/A	
Appropriate sample containers are used.	N/A	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	N/A	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Madison Metropolitan Sewerage District

Job Number: 320-105928-1

Login Number: 105928

List Number: 2

Creator: Scott, Sherri L

List Source: Eurofins Chicago

List Creation: 10/13/23 01:29 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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	1.0
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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

November 2023



ANALYTICAL REPORT

PREPARED FOR

Attn: Julie Maas
Madison Metropolitan Sewerage District
1610 Moorland Road
Madison, Wisconsin 53713-3398

Generated 12/8/2023 10:28:39 AM

JOB DESCRIPTION

Phase 3 PFAS Testing

JOB NUMBER

320-107170-1

Eurofins Sacramento

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 Northern California, LLC Project Manager.

Authorization



Generated
12/8/2023 10:28:39 AM

Authorized for release by
Micah Smith, Project Manager II
Micah.Smith@et.eurofinsus.com
(916)374-4302



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Definitions/Glossary

Client: Madison Metropolitan Sewerage District
Project/Site: Phase 3 PFAS Testing

Job ID: 320-107170-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
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.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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

Case Narrative

Client: Madison Metropolitan Sewerage District
Project/Site: Phase 3 PFAS Testing

Job ID: 320-107170-1

Job ID: 320-107170-1

Laboratory: Eurofins Sacramento

Narrative

Job Narrative 320-107170-1

Receipt

The samples were received on 11/16/2023 9:15 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 was 2.4° C.

LCMS

Method 537 (modified): 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: Inf Comp 20231113 (320-107170-1) and Eff 20231114 (320-107170-2).

Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: Inf Comp 20231113 (320-107170-1). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s).

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

General Chemistry

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

Organic Prep

Method 3535: The following samples were light brown and contained floating particulates prior to extraction: Inf Comp 20231113 (320-107170-1) and Eff 20231114 (320-107170-2).

Method 3535: During the solid phase extraction process, the following sample contained non-settable particulates which clogged the solid phase extraction column: Inf Comp 20231113 (320-107170-1). Approximately 49% of the sample container was filtered through the SPE column at which point the SPE column became clogged. The remainder of the unfiltered sample was retained in the original sample bottle. The SPE column along with the particulates that clogged it were then extracted using the elution solvent.

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-724087.

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

Detection Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: Phase 3 PFAS Testing

Job ID: 320-107170-1

Client Sample ID: Inf Comp 20231113

Lab Sample ID: 320-107170-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	7.0		4.7	2.3	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	5.3		1.9	0.46	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	11	I	1.9	0.55	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.5	J	1.9	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	5.1		1.9	0.80	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.6		1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.48	J	1.9	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	7.5		1.9	0.54	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	4.0		1.9	0.51	ng/L	1		537 (modified)	Total/NA
Total Suspended Solids	220		50	19	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Eff 20231114

Lab Sample ID: 320-107170-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	9.0		4.8	2.3	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	18		1.9	0.47	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	18		1.9	0.56	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.8	J	1.9	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	8.0		1.9	0.82	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.62	J	1.9	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.94	J	1.9	0.30	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	6.1	I	1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.95	J	1.9	0.29	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	7.1		1.9	0.55	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	4.0		1.9	0.52	ng/L	1		537 (modified)	Total/NA
NMeFOSAA	1.3	J	4.8	1.2	ng/L	1		537 (modified)	Total/NA
Total Suspended Solids	7.0		5.0	1.9	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: Phase 3 PFAS Testing

Job ID: 320-107170-1

Client Sample ID: Inf Comp 20231113

Lab Sample ID: 320-107170-1

Date Collected: 11/13/23 23:59

Matrix: Water

Date Received: 11/16/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	7.0		4.7	2.3	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluoropentanoic acid (PFPeA)	5.3		1.9	0.46	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorohexanoic acid (PFHxA)	11	I	1.9	0.55	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluoroheptanoic acid (PFHpA)	1.5	J	1.9	0.24	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorooctanoic acid (PFOA)	5.1		1.9	0.80	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorobutanesulfonic acid (PFBS)	3.6		1.9	0.19	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluoropentanesulfonic acid (PFPeS)	0.48	J	1.9	0.28	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorohexanesulfonic acid (PFHxS)	7.5		1.9	0.54	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorooctanesulfonic acid (PFOS)	4.0		1.9	0.51	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.35	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.92	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.93	ng/L		12/01/23 07:11	12/04/23 18:10	1
NEtFOSA	ND		1.9	0.82	ng/L		12/01/23 07:11	12/04/23 18:10	1
NMeFOSA	ND		1.9	0.41	ng/L		12/01/23 07:11	12/04/23 18:10	1
NMeFOSAA	ND		4.7	1.1	ng/L		12/01/23 07:11	12/04/23 18:10	1
NEtFOSAA	ND		4.7	1.2	ng/L		12/01/23 07:11	12/04/23 18:10	1
NMeFOSE	ND		3.8	1.3	ng/L		12/01/23 07:11	12/04/23 18:10	1
NEtFOSE	ND		1.9	0.80	ng/L		12/01/23 07:11	12/04/23 18:10	1
4:2 FTS	ND		1.9	0.23	ng/L		12/01/23 07:11	12/04/23 18:10	1
6:2 FTS	ND		4.7	2.4	ng/L		12/01/23 07:11	12/04/23 18:10	1
8:2 FTS	ND		1.9	0.44	ng/L		12/01/23 07:11	12/04/23 18:10	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		12/01/23 07:11	12/04/23 18:10	1
HFPO-DA (GenX)	ND		3.8	1.4	ng/L		12/01/23 07:11	12/04/23 18:10	1
9CI-PF3ONS	ND		1.9	0.23	ng/L		12/01/23 07:11	12/04/23 18:10	1
11CI-PF3OUdS	ND		1.9	0.30	ng/L		12/01/23 07:11	12/04/23 18:10	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	49		25 - 150				12/01/23 07:11	12/04/23 18:10	1
13C5 PFPeA	26		25 - 150				12/01/23 07:11	12/04/23 18:10	1
13C2 PFHxA	58		25 - 150				12/01/23 07:11	12/04/23 18:10	1
13C4 PFHpA	66		25 - 150				12/01/23 07:11	12/04/23 18:10	1
13C4 PFOA	63		25 - 150				12/01/23 07:11	12/04/23 18:10	1
13C5 PFNA	59		25 - 150				12/01/23 07:11	12/04/23 18:10	1
13C2 PFDA	44		25 - 150				12/01/23 07:11	12/04/23 18:10	1
13C2 PFUnA	42		25 - 150				12/01/23 07:11	12/04/23 18:10	1
13C2 PFDoA	30		25 - 150				12/01/23 07:11	12/04/23 18:10	1
13C2 PFTeDA	21	*5-	25 - 150				12/01/23 07:11	12/04/23 18:10	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: Phase 3 PFAS Testing

Job ID: 320-107170-1

Client Sample ID: Inf Comp 20231113

Lab Sample ID: 320-107170-1

Date Collected: 11/13/23 23:59

Matrix: Water

Date Received: 11/16/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	35		25 - 150	12/01/23 07:11	12/04/23 18:10	1
18O2 PFHxS	57		25 - 150	12/01/23 07:11	12/04/23 18:10	1
13C4 PFOS	52		25 - 150	12/01/23 07:11	12/04/23 18:10	1
13C8 FOSA	37		10 - 150	12/01/23 07:11	12/04/23 18:10	1
d3-NMeFOSAA	20	*5-	25 - 150	12/01/23 07:11	12/04/23 18:10	1
d5-NEtFOSAA	30		25 - 150	12/01/23 07:11	12/04/23 18:10	1
d-N-MeFOSA-M	23		10 - 150	12/01/23 07:11	12/04/23 18:10	1
d-N-EtFOSA-M	23		10 - 150	12/01/23 07:11	12/04/23 18:10	1
d7-N-MeFOSE-M	24		10 - 150	12/01/23 07:11	12/04/23 18:10	1
d9-N-EtFOSE-M	23		10 - 150	12/01/23 07:11	12/04/23 18:10	1
M2-4:2 FTS	52		25 - 150	12/01/23 07:11	12/04/23 18:10	1
M2-6:2 FTS	71		25 - 150	12/01/23 07:11	12/04/23 18:10	1
M2-8:2 FTS	61		25 - 150	12/01/23 07:11	12/04/23 18:10	1
13C3 HFPO-DA	66		25 - 150	12/01/23 07:11	12/04/23 18:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	220		50	19	mg/L			11/19/23 16:13	1

Client Sample ID: Eff 20231114

Lab Sample ID: 320-107170-2

Date Collected: 11/14/23 23:59

Matrix: Water

Date Received: 11/16/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	9.0		4.8	2.3	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluoropentanoic acid (PFPeA)	18		1.9	0.47	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorohexanoic acid (PFHxA)	18		1.9	0.56	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluoroheptanoic acid (PFHpA)	1.8	J	1.9	0.24	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorooctanoic acid (PFOA)	8.0		1.9	0.82	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorononanoic acid (PFNA)	0.62	J	1.9	0.26	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorodecanoic acid (PFDA)	0.94	J	1.9	0.30	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorobutanesulfonic acid (PFBS)	6.1	I	1.9	0.19	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluoropentanesulfonic acid (PFPeS)	0.95	J	1.9	0.29	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorohexanesulfonic acid (PFHxS)	7.1		1.9	0.55	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorooctanesulfonic acid (PFOS)	4.0		1.9	0.52	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.35	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.31	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.93	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.94	ng/L		12/01/23 07:11	12/04/23 18:22	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: Phase 3 PFAS Testing

Job ID: 320-107170-1

Client Sample ID: Eff 20231114

Lab Sample ID: 320-107170-2

Date Collected: 11/14/23 23:59

Matrix: Water

Date Received: 11/16/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSA	ND		1.9	0.83	ng/L		12/01/23 07:11	12/04/23 18:22	1
NMeFOSA	ND		1.9	0.41	ng/L		12/01/23 07:11	12/04/23 18:22	1
NMeFOSAA	1.3	J	4.8	1.2	ng/L		12/01/23 07:11	12/04/23 18:22	1
NEtFOSAA	ND		4.8	1.2	ng/L		12/01/23 07:11	12/04/23 18:22	1
NMeFOSE	ND		3.8	1.3	ng/L		12/01/23 07:11	12/04/23 18:22	1
NEtFOSE	ND		1.9	0.82	ng/L		12/01/23 07:11	12/04/23 18:22	1
4:2 FTS	ND		1.9	0.23	ng/L		12/01/23 07:11	12/04/23 18:22	1
6:2 FTS	ND		4.8	2.4	ng/L		12/01/23 07:11	12/04/23 18:22	1
8:2 FTS	ND		1.9	0.44	ng/L		12/01/23 07:11	12/04/23 18:22	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		12/01/23 07:11	12/04/23 18:22	1
HFPO-DA (GenX)	ND		3.8	1.4	ng/L		12/01/23 07:11	12/04/23 18:22	1
9Cl-PF3ONS	ND		1.9	0.23	ng/L		12/01/23 07:11	12/04/23 18:22	1
11Cl-PF3OUdS	ND		1.9	0.31	ng/L		12/01/23 07:11	12/04/23 18:22	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFBA	68		25 - 150				12/01/23 07:11	12/04/23 18:22	1
13C5 PFPeA	41		25 - 150				12/01/23 07:11	12/04/23 18:22	1
13C2 PFHxA	101		25 - 150				12/01/23 07:11	12/04/23 18:22	1
13C4 PFHpA	112		25 - 150				12/01/23 07:11	12/04/23 18:22	1
13C4 PFOA	102		25 - 150				12/01/23 07:11	12/04/23 18:22	1
13C5 PFNA	104		25 - 150				12/01/23 07:11	12/04/23 18:22	1
13C2 PFDA	110		25 - 150				12/01/23 07:11	12/04/23 18:22	1
13C2 PFUnA	108		25 - 150				12/01/23 07:11	12/04/23 18:22	1
13C2 PFDoA	99		25 - 150				12/01/23 07:11	12/04/23 18:22	1
13C2 PFTeDA	53		25 - 150				12/01/23 07:11	12/04/23 18:22	1
13C3 PFBS	62		25 - 150				12/01/23 07:11	12/04/23 18:22	1
18O2 PFHxS	92		25 - 150				12/01/23 07:11	12/04/23 18:22	1
13C4 PFOS	93		25 - 150				12/01/23 07:11	12/04/23 18:22	1
13C8 FOSA	90		10 - 150				12/01/23 07:11	12/04/23 18:22	1
d3-NMeFOSAA	85		25 - 150				12/01/23 07:11	12/04/23 18:22	1
d5-NEtFOSAA	82		25 - 150				12/01/23 07:11	12/04/23 18:22	1
d-N-MeFOSA-M	77		10 - 150				12/01/23 07:11	12/04/23 18:22	1
d-N-EtFOSA-M	72		10 - 150				12/01/23 07:11	12/04/23 18:22	1
d7-N-MeFOSE-M	68		10 - 150				12/01/23 07:11	12/04/23 18:22	1
d9-N-EtFOSE-M	67		10 - 150				12/01/23 07:11	12/04/23 18:22	1
M2-4:2 FTS	94		25 - 150				12/01/23 07:11	12/04/23 18:22	1
M2-6:2 FTS	84		25 - 150				12/01/23 07:11	12/04/23 18:22	1
M2-8:2 FTS	110		25 - 150				12/01/23 07:11	12/04/23 18:22	1
13C3 HFPO-DA	107		25 - 150				12/01/23 07:11	12/04/23 18:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	7.0		5.0	1.9	mg/L			11/20/23 15:34	1

Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: Phase 3 PFAS Testing

Job ID: 320-107170-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-107170-1	Inf Comp 20231113	49	26	58	66	63	59	44	42
320-107170-2	Eff 20231114	68	41	101	112	102	104	110	108
LCS 320-724087/3-A	Lab Control Sample	94	62	106	106	99	102	107	110
LCSD 320-724087/4-A	Lab Control Sample Dup	94	56	101	98	96	100	108	105
LLCS 320-724087/2-A	Lab Control Sample	93	57	105	108	99	106	111	107
MB 320-724087/1-A	Method Blank	89	56	101	95	97	97	105	99

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDaA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
320-107170-1	Inf Comp 20231113	30	21 *5-	35	57	52	37	20 *5-	30
320-107170-2	Eff 20231114	99	53	62	92	93	90	85	82
LCS 320-724087/3-A	Lab Control Sample	103	92	83	90	101	92	85	73
LCSD 320-724087/4-A	Lab Control Sample Dup	104	85	76	88	96	90	87	74
LLCS 320-724087/2-A	Lab Control Sample	108	90	79	96	104	87	80	69
MB 320-724087/1-A	Method Blank	101	83	69	87	89	91	81	74

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	dMeFOSA (10-150)	dEtFOSA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	HFPODA (25-150)
320-107170-1	Inf Comp 20231113	23	23	24	23	52	71	61	66
320-107170-2	Eff 20231114	77	72	68	67	94	84	110	107
LCS 320-724087/3-A	Lab Control Sample	66	61	80	76	95	89	115	104
LCSD 320-724087/4-A	Lab Control Sample Dup	76	74	80	75	90	83	114	101
LLCS 320-724087/2-A	Lab Control Sample	77	75	80	79	103	86	120	101
MB 320-724087/1-A	Method Blank	73	70	75	74	92	80	109	94

Surrogate Legend

- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- C4PFHA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDaA = 13C2 PFDaA
- PFTDA = 13C2 PFTeDA
- C3PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- PFOSA = 13C8 FOSA
- d3NMFOS = d3-NMeFOSAA
- d5NEFOS = d5-NEtFOSAA
- dMeFOSA = d-N-MeFOSA-M
- dEtFOSA = d-N-EtFOSA-M
- NMFM = d7-N-MeFOSE-M
- NEFM = d9-N-EtFOSE-M
- M242FTS = M2-4:2 FTS
- M262FTS = M2-6:2 FTS
- M282FTS = M2-8:2 FTS

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Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District

Project/Site: Phase 3 PFAS Testing

HFPODA = 13C3 HFPO-DA

Job ID: 320-107170-1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: Phase 3 PFAS Testing

Job ID: 320-107170-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-724087/1-A
Matrix: Water
Analysis Batch: 724902

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 724087

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		12/01/23 07:11	12/04/23 17:14	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		12/01/23 07:11	12/04/23 17:14	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		12/01/23 07:11	12/04/23 17:14	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		12/01/23 07:11	12/04/23 17:14	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		12/01/23 07:11	12/04/23 17:14	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		12/01/23 07:11	12/04/23 17:14	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		12/01/23 07:11	12/04/23 17:14	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		12/01/23 07:11	12/04/23 17:14	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		12/01/23 07:11	12/04/23 17:14	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		12/01/23 07:11	12/04/23 17:14	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		12/01/23 07:11	12/04/23 17:14	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		12/01/23 07:11	12/04/23 17:14	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.30	ng/L		12/01/23 07:11	12/04/23 17:14	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		12/01/23 07:11	12/04/23 17:14	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.19	ng/L		12/01/23 07:11	12/04/23 17:14	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		12/01/23 07:11	12/04/23 17:14	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.37	ng/L		12/01/23 07:11	12/04/23 17:14	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		12/01/23 07:11	12/04/23 17:14	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.97	ng/L		12/01/23 07:11	12/04/23 17:14	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		12/01/23 07:11	12/04/23 17:14	1
NEtFOSA	ND		2.0	0.87	ng/L		12/01/23 07:11	12/04/23 17:14	1
NMeFOSA	ND		2.0	0.43	ng/L		12/01/23 07:11	12/04/23 17:14	1
NMeFOSAA	ND		5.0	1.2	ng/L		12/01/23 07:11	12/04/23 17:14	1
NEtFOSAA	ND		5.0	1.3	ng/L		12/01/23 07:11	12/04/23 17:14	1
NMeFOSE	ND		4.0	1.4	ng/L		12/01/23 07:11	12/04/23 17:14	1
NEtFOSE	ND		2.0	0.85	ng/L		12/01/23 07:11	12/04/23 17:14	1
4:2 FTS	ND		2.0	0.24	ng/L		12/01/23 07:11	12/04/23 17:14	1
6:2 FTS	ND		5.0	2.5	ng/L		12/01/23 07:11	12/04/23 17:14	1
8:2 FTS	ND		2.0	0.46	ng/L		12/01/23 07:11	12/04/23 17:14	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.40	ng/L		12/01/23 07:11	12/04/23 17:14	1
HFPO-DA (GenX)	ND		4.0	1.5	ng/L		12/01/23 07:11	12/04/23 17:14	1
9Cl-PF3ONS	ND		2.0	0.24	ng/L		12/01/23 07:11	12/04/23 17:14	1
11Cl-PF3OUdS	ND		2.0	0.32	ng/L		12/01/23 07:11	12/04/23 17:14	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C4 PFBA	89		25 - 150	12/01/23 07:11	12/04/23 17:14	1
13C5 PFPeA	56		25 - 150	12/01/23 07:11	12/04/23 17:14	1
13C2 PFHxA	101		25 - 150	12/01/23 07:11	12/04/23 17:14	1
13C4 PFHpA	95		25 - 150	12/01/23 07:11	12/04/23 17:14	1
13C4 PFOA	97		25 - 150	12/01/23 07:11	12/04/23 17:14	1
13C5 PFNA	97		25 - 150	12/01/23 07:11	12/04/23 17:14	1
13C2 PFDA	105		25 - 150	12/01/23 07:11	12/04/23 17:14	1
13C2 PFUnA	99		25 - 150	12/01/23 07:11	12/04/23 17:14	1
13C2 PFDoA	101		25 - 150	12/01/23 07:11	12/04/23 17:14	1
13C2 PFTeDA	83		25 - 150	12/01/23 07:11	12/04/23 17:14	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: Phase 3 PFAS Testing

Job ID: 320-107170-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-724087/1-A
Matrix: Water
Analysis Batch: 724902

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 724087

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 PFBS	69		25 - 150	12/01/23 07:11	12/04/23 17:14	1
18O2 PFHxS	87		25 - 150	12/01/23 07:11	12/04/23 17:14	1
13C4 PFOS	89		25 - 150	12/01/23 07:11	12/04/23 17:14	1
13C8 FOSA	91		10 - 150	12/01/23 07:11	12/04/23 17:14	1
d3-NMeFOSAA	81		25 - 150	12/01/23 07:11	12/04/23 17:14	1
d5-NEtFOSAA	74		25 - 150	12/01/23 07:11	12/04/23 17:14	1
d-N-MeFOSA-M	73		10 - 150	12/01/23 07:11	12/04/23 17:14	1
d-N-EtFOSA-M	70		10 - 150	12/01/23 07:11	12/04/23 17:14	1
d7-N-MeFOSE-M	75		10 - 150	12/01/23 07:11	12/04/23 17:14	1
d9-N-EtFOSE-M	74		10 - 150	12/01/23 07:11	12/04/23 17:14	1
M2-4:2 FTS	92		25 - 150	12/01/23 07:11	12/04/23 17:14	1
M2-6:2 FTS	80		25 - 150	12/01/23 07:11	12/04/23 17:14	1
M2-8:2 FTS	109		25 - 150	12/01/23 07:11	12/04/23 17:14	1
13C3 HFPO-DA	94		25 - 150	12/01/23 07:11	12/04/23 17:14	1

Lab Sample ID: LCS 320-724087/3-A
Matrix: Water
Analysis Batch: 724902

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 724087

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	40.0	33.7		ng/L		84	60 - 135
Perfluoropentanoic acid (PFPeA)	40.0	41.3		ng/L		103	60 - 135
Perfluorohexanoic acid (PFHxA)	40.0	36.6		ng/L		91	60 - 135
Perfluoroheptanoic acid (PFHpA)	40.0	36.4		ng/L		91	60 - 135
Perfluorooctanoic acid (PFOA)	40.0	36.8		ng/L		92	60 - 135
Perfluorononanoic acid (PFNA)	40.0	38.1		ng/L		95	60 - 135
Perfluorodecanoic acid (PFDA)	40.0	40.1		ng/L		100	60 - 135
Perfluoroundecanoic acid (PFUnA)	40.0	37.7		ng/L		94	60 - 135
Perfluorododecanoic acid (PFDoA)	40.0	39.8		ng/L		99	60 - 135
Perfluorotridecanoic acid (PFTrDA)	40.0	37.7		ng/L		94	60 - 135
Perfluorotetradecanoic acid (PFTeA)	40.0	38.0		ng/L		95	60 - 135
Perfluorobutanesulfonic acid (PFBS)	35.5	36.0		ng/L		101	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	37.6	40.6		ng/L		108	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	36.5	34.8		ng/L		95	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	38.2	35.8		ng/L		94	60 - 135
Perfluorooctanesulfonic acid (PFOS)	37.2	36.1		ng/L		97	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.5	39.1		ng/L		102	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	34.4		ng/L		89	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.8	39.5		ng/L		102	60 - 135

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: Phase 3 PFAS Testing

Job ID: 320-107170-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-724087/3-A
Matrix: Water
Analysis Batch: 724902

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 724087

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	40.0	39.8		ng/L		99	60 - 135
NEtFOSA	40.0	38.3		ng/L		96	60 - 135
NMeFOSA	40.0	37.3		ng/L		93	60 - 135
NMeFOSAA	40.0	38.9		ng/L		97	60 - 135
NEtFOSAA	40.0	42.0		ng/L		105	60 - 135
NMeFOSE	40.0	38.4		ng/L		96	60 - 135
NEtFOSE	40.0	42.6		ng/L		107	60 - 135
4:2 FTS	37.5	35.7		ng/L		95	60 - 135
6:2 FTS	38.1	38.9		ng/L		102	60 - 135
8:2 FTS	38.4	32.8		ng/L		86	60 - 135
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	37.2		ng/L		98	60 - 135
HFPO-DA (GenX)	40.0	36.2		ng/L		91	60 - 135
9Cl-PF3ONS	37.4	35.2		ng/L		94	60 - 135
11Cl-PF3OUdS	37.8	36.9		ng/L		98	60 - 135

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	94		25 - 150
13C5 PFPeA	62		25 - 150
13C2 PFHxA	106		25 - 150
13C4 PFHpA	106		25 - 150
13C4 PFOA	99		25 - 150
13C5 PFNA	102		25 - 150
13C2 PFDA	107		25 - 150
13C2 PFUnA	110		25 - 150
13C2 PFDoA	103		25 - 150
13C2 PFTeDA	92		25 - 150
13C3 PFBS	83		25 - 150
18O2 PFHxS	90		25 - 150
13C4 PFOS	101		25 - 150
13C8 FOSA	92		10 - 150
d3-NMeFOSAA	85		25 - 150
d5-NEtFOSAA	73		25 - 150
d-N-MeFOSA-M	66		10 - 150
d-N-EtFOSA-M	61		10 - 150
d7-N-MeFOSE-M	80		10 - 150
d9-N-EtFOSE-M	76		10 - 150
M2-4:2 FTS	95		25 - 150
M2-6:2 FTS	89		25 - 150
M2-8:2 FTS	115		25 - 150
13C3 HFPO-DA	104		25 - 150

Lab Sample ID: LCSD 320-724087/4-A
Matrix: Water
Analysis Batch: 724902

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 724087

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	
								RPD	Limit
Perfluorobutanoic acid (PFBA)	40.0	33.0		ng/L		82	60 - 135	2	30

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: Phase 3 PFAS Testing

Job ID: 320-107170-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-724087/4-A
Matrix: Water
Analysis Batch: 724902

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 724087

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoropentanoic acid (PFPeA)	40.0	43.5		ng/L		109	60 - 135	5	30
Perfluorohexanoic acid (PFHxA)	40.0	40.4		ng/L		101	60 - 135	10	30
Perfluoroheptanoic acid (PFHpA)	40.0	37.1		ng/L		93	60 - 135	2	30
Perfluorooctanoic acid (PFOA)	40.0	39.1		ng/L		98	60 - 135	6	30
Perfluorononanoic acid (PFNA)	40.0	38.7		ng/L		97	60 - 135	2	30
Perfluorodecanoic acid (PFDA)	40.0	38.5		ng/L		96	60 - 135	4	30
Perfluoroundecanoic acid (PFUnA)	40.0	37.6		ng/L		94	60 - 135	0	30
Perfluorododecanoic acid (PFDoA)	40.0	38.9		ng/L		97	60 - 135	2	30
Perfluorotridecanoic acid (PFTrDA)	40.0	37.7		ng/L		94	60 - 135	0	30
Perfluorotetradecanoic acid (PFTeA)	40.0	39.7		ng/L		99	60 - 135	4	30
Perfluorobutanesulfonic acid (PFBS)	35.5	37.1		ng/L		104	60 - 135	3	30
Perfluoropentanesulfonic acid (PFPeS)	37.6	46.1		ng/L		122	60 - 135	13	30
Perfluorohexanesulfonic acid (PFHxS)	36.5	35.1		ng/L		96	60 - 135	1	30
Perfluoroheptanesulfonic acid (PFHpS)	38.2	36.8		ng/L		96	60 - 135	3	30
Perfluorooctanesulfonic acid (PFOS)	37.2	37.1		ng/L		100	60 - 135	3	30
Perfluorononanesulfonic acid (PFNS)	38.5	40.4		ng/L		105	60 - 135	3	30
Perfluorodecanesulfonic acid (PFDS)	38.6	37.1		ng/L		96	60 - 135	7	30
Perfluorododecanesulfonic acid (PFDoS)	38.8	42.4		ng/L		109	60 - 135	7	30
Perfluorooctanesulfonamide (FOSA)	40.0	41.3		ng/L		103	60 - 135	4	30
NEtFOSA	40.0	38.5		ng/L		96	60 - 135	0	30
NMeFOSA	40.0	40.1		ng/L		100	60 - 135	7	30
NMeFOSAA	40.0	37.8		ng/L		95	60 - 135	3	30
NEtFOSAA	40.0	44.1		ng/L		110	60 - 135	5	30
NMeFOSE	40.0	38.5		ng/L		96	60 - 135	0	30
NEtFOSE	40.0	43.4		ng/L		109	60 - 135	2	30
4:2 FTS	37.5	35.6		ng/L		95	60 - 135	0	30
6:2 FTS	38.1	40.6		ng/L		107	60 - 135	4	30
8:2 FTS	38.4	37.7		ng/L		98	60 - 135	14	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	37.9		ng/L		100	60 - 135	2	30
HFPO-DA (GenX)	40.0	37.1		ng/L		93	60 - 135	2	30
9Cl-PF3ONS	37.4	39.1		ng/L		105	60 - 135	11	30
11Cl-PF3OUdS	37.8	38.8		ng/L		103	60 - 135	5	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	LCSD Limits
13C4 PFBA	94		25 - 150
13C5 PFPeA	56		25 - 150
13C2 PFHxA	101		25 - 150
13C4 PFHpA	98		25 - 150

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: Phase 3 PFAS Testing

Job ID: 320-107170-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-724087/4-A
Matrix: Water
Analysis Batch: 724902

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 724087

<i>Isotope Dilution</i>	<i>LCS D</i>	<i>LCS D</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C4 PFOA	96		25 - 150
13C5 PFNA	100		25 - 150
13C2 PFDA	108		25 - 150
13C2 PFUnA	105		25 - 150
13C2 PFDoA	104		25 - 150
13C2 PFTeDA	85		25 - 150
13C3 PFBS	76		25 - 150
18O2 PFHxS	88		25 - 150
13C4 PFOS	96		25 - 150
13C8 FOSA	90		10 - 150
d3-NMeFOSAA	87		25 - 150
d5-NEtFOSAA	74		25 - 150
d-N-MeFOSA-M	76		10 - 150
d-N-EtFOSA-M	74		10 - 150
d7-N-MeFOSE-M	80		10 - 150
d9-N-EtFOSE-M	75		10 - 150
M2-4:2 FTS	90		25 - 150
M2-6:2 FTS	83		25 - 150
M2-8:2 FTS	114		25 - 150
13C3 HFPO-DA	101		25 - 150

Lab Sample ID: LLCS 320-724087/2-A
Matrix: Water
Analysis Batch: 724902

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 724087

<i>Analyte</i>	<i>Spike Added</i>	<i>LLCS Result</i>	<i>LLCS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>Limits</i>
Perfluorobutanoic acid (PFBA)	8.00	7.21		ng/L		90	50 - 150
Perfluoropentanoic acid (PFPeA)	8.00	9.15		ng/L		114	50 - 150
Perfluorohexanoic acid (PFHxA)	8.00	8.38		ng/L		105	50 - 150
Perfluoroheptanoic acid (PFHpA)	8.00	8.08		ng/L		101	50 - 150
Perfluorooctanoic acid (PFOA)	8.00	8.16		ng/L		102	50 - 150
Perfluorononanoic acid (PFNA)	8.00	7.85		ng/L		98	50 - 150
Perfluorodecanoic acid (PFDA)	8.00	8.47		ng/L		106	50 - 150
Perfluoroundecanoic acid (PFUnA)	8.00	8.26		ng/L		103	50 - 150
Perfluorododecanoic acid (PFDoA)	8.00	8.46		ng/L		106	50 - 150
Perfluorotridecanoic acid (PFTTrDA)	8.00	7.49		ng/L		94	50 - 150
Perfluorotetradecanoic acid (PFTeA)	8.00	8.03		ng/L		100	50 - 150
Perfluorobutanesulfonic acid (PFBS)	7.10	7.64		ng/L		108	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	7.52	9.82		ng/L		131	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	7.30	7.38		ng/L		101	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	7.63	7.46		ng/L		98	50 - 150
Perfluorooctanesulfonic acid (PFOS)	7.44	7.50		ng/L		101	50 - 150

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: Phase 3 PFAS Testing

Job ID: 320-107170-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LLCS 320-724087/2-A
Matrix: Water
Analysis Batch: 724902

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 724087

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorononanesulfonic acid (PFNS)	7.70	8.13		ng/L		106	50 - 150
Perfluorodecanesulfonic acid (PFDS)	7.71	7.00		ng/L		91	50 - 150
Perfluorododecanesulfonic acid (PFDoS)	7.76	7.93		ng/L		102	50 - 150
Perfluorooctanesulfonamide (FOSA)	8.00	9.05		ng/L		113	50 - 150
NEtFOSA	8.00	8.33		ng/L		104	50 - 150
NMeFOSA	8.00	8.18		ng/L		102	50 - 150
NMeFOSAA	8.00	8.76		ng/L		109	50 - 150
NEtFOSAA	8.00	9.43		ng/L		118	50 - 150
NMeFOSE	8.00	8.03		ng/L		100	50 - 150
NEtFOSE	8.00	8.86		ng/L		111	50 - 150
4:2 FTS	7.50	7.58		ng/L		101	50 - 150
6:2 FTS	7.62	8.64		ng/L		113	50 - 150
8:2 FTS	7.68	8.04		ng/L		105	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	7.57	7.87		ng/L		104	50 - 150
HFPO-DA (GenX)	8.00	8.32		ng/L		104	50 - 150
9CI-PF3ONS	7.47	7.81		ng/L		104	50 - 150
11CI-PF3OUdS	7.55	7.35		ng/L		97	50 - 150

Isotope Dilution	LLCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	93		25 - 150
13C5 PFPeA	57		25 - 150
13C2 PFHxA	105		25 - 150
13C4 PFHpA	108		25 - 150
13C4 PFOA	99		25 - 150
13C5 PFNA	106		25 - 150
13C2 PFDA	111		25 - 150
13C2 PFUnA	107		25 - 150
13C2 PFDoA	108		25 - 150
13C2 PFTeDA	90		25 - 150
13C3 PFBS	79		25 - 150
18O2 PFHxS	96		25 - 150
13C4 PFOS	104		25 - 150
13C8 FOSA	87		10 - 150
d3-NMeFOSAA	80		25 - 150
d5-NEtFOSAA	69		25 - 150
d-N-MeFOSA-M	77		10 - 150
d-N-EtFOSA-M	75		10 - 150
d7-N-MeFOSE-M	80		10 - 150
d9-N-EtFOSE-M	79		10 - 150
M2-4:2 FTS	103		25 - 150
M2-6:2 FTS	86		25 - 150
M2-8:2 FTS	120		25 - 150
13C3 HFPO-DA	101		25 - 150

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: Phase 3 PFAS Testing

Job ID: 320-107170-1

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 500-742931/1
Matrix: Water
Analysis Batch: 742931

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		5.0	1.9	mg/L			11/19/23 15:34	1

Lab Sample ID: LCS 500-742931/2
Matrix: Water
Analysis Batch: 742931

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	200	183		mg/L		92	80 - 120

Lab Sample ID: MB 500-743110/1
Matrix: Water
Analysis Batch: 743110

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		5.0	1.9	mg/L			11/20/23 13:27	1

Lab Sample ID: LCS 500-743110/2
Matrix: Water
Analysis Batch: 743110

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	200	188		mg/L		94	80 - 120

QC Association Summary

Client: Madison Metropolitan Sewerage District
Project/Site: Phase 3 PFAS Testing

Job ID: 320-107170-1

LCMS

Prep Batch: 724087

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-107170-1	Inf Comp 20231113	Total/NA	Water	3535	
320-107170-2	Eff 20231114	Total/NA	Water	3535	
MB 320-724087/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-724087/3-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-724087/4-A	Lab Control Sample Dup	Total/NA	Water	3535	
LLCS 320-724087/2-A	Lab Control Sample	Total/NA	Water	3535	

Analysis Batch: 724902

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-107170-1	Inf Comp 20231113	Total/NA	Water	537 (modified)	724087
320-107170-2	Eff 20231114	Total/NA	Water	537 (modified)	724087
MB 320-724087/1-A	Method Blank	Total/NA	Water	537 (modified)	724087
LCS 320-724087/3-A	Lab Control Sample	Total/NA	Water	537 (modified)	724087
LCSD 320-724087/4-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	724087
LLCS 320-724087/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	724087

General Chemistry

Analysis Batch: 742931

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-107170-1	Inf Comp 20231113	Total/NA	Water	SM 2540D	
MB 500-742931/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 500-742931/2	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 743110

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-107170-2	Eff 20231114	Total/NA	Water	SM 2540D	
MB 500-743110/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 500-743110/2	Lab Control Sample	Total/NA	Water	SM 2540D	

Lab Chronicle

Client: Madison Metropolitan Sewerage District
 Project/Site: Phase 3 PFAS Testing

Job ID: 320-107170-1

Client Sample ID: Inf Comp 20231113
Date Collected: 11/13/23 23:59
Date Received: 11/16/23 09:15

Lab Sample ID: 320-107170-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			264.1 mL	10.0 mL	724087	12/01/23 07:11	EJR	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	724902	12/04/23 18:10	C1P	EET SAC
Total/NA	Analysis	SM 2540D		1	50 mL	500 mL	742931	11/19/23 16:13	SO	EET CHI
								Completed: 11/19/23 16:15 ¹		

Client Sample ID: Eff 20231114
Date Collected: 11/14/23 23:59
Date Received: 11/16/23 09:15

Lab Sample ID: 320-107170-2
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	3535			260.7 mL	10.0 mL	724087	12/01/23 07:11	EJR	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	724902	12/04/23 18:22	C1P	EET SAC
Total/NA	Analysis	SM 2540D		1	500 mL	500 mL	743110	11/20/23 15:34	SO	EET CHI
								Completed: 11/20/23 15:40 ¹		

¹ This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200
 EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: Madison Metropolitan Sewerage District
Project/Site: Phase 3 PFAS Testing

Job ID: 320-107170-1

Laboratory: Eurofins Sacramento

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4040	01-29-24
Wisconsin	State	998204680	08-31-24

Laboratory: Eurofins Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999580010	08-31-24

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- 12
- 13
- 14
- 15

Method Summary

Client: Madison Metropolitan Sewerage District
Project/Site: Phase 3 PFAS Testing

Job ID: 320-107170-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	EET SAC
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CHI
3535	Solid-Phase Extraction (SPE)	SW846	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

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 CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: Madison Metropolitan Sewerage District
Project/Site: Phase 3 PFAS Testing

Job ID: 320-107170-1

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Collected</u>	<u>Received</u>
320-107170-1	Inf Comp 20231113	Water	11/13/23 23:59	11/16/23 09:15
320-107170-2	Eff 20231114	Water	11/14/23 23:59	11/16/23 09:15

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Eurofins Sacramento

880 Riverside Parkway
West Sacramento, CA 95605
Phone 916-373-5600 Fax 916-372 1059

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:	Lab PM Smith, Micah	Carrier Tracking No(s)	COC No 320-324316 1					
Client Contact Shipping/Receiving		Phone:	E-Mail Micah Smith@et eurofins.com	State of Origin Wisconsin	Page Page 1 of 1					
Company: Eurofins Environment Testing North Centr		Accreditations Required (See note) NELAP Oregon, State Wisconsin			Job # 320 107170-1					
Address 2417 Bond Street,		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 Z other (specify) Other					
City: University Park		Due Date Requested 12/11/2023								
State, Zip: IL, 60484		TAT Requested (days)								
Phone 708-534-5200(Tel) 708-534-5211(Fax)		PO #:								
Email		WO #:								
Project Name: Phase 3 PFAS Testing		Project #: 32021779								
Site: 320-107170 COC		SSOW#								
		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)	Total Number of containers		Special Instructions/Note:
Sample Identification - Client ID (Lab ID)				Preservation Code:						
Inf Comp 20231113 (320 107170 1)		11/13/23	23 59 Central		Water		X	1		
Eff 20231114 (320-107170-2)		11/14/23	23 59 Central		Water		X	1		
<p>Note: Since laboratory accreditations are subject to change Eurofins Environment Testing Northern California, 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 Northern California, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northern California, 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 Northern California, LLC.</p>										
Possible Hazard Identification					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
Unconfirmed					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Deliverable Requested I, II, III, IV, Other (specify)					Primary Deliverable Rank 1					
Special Instructions/QC Requirements										
Empty Kit Relinquished by:			Date	Time	Method of Shipment					
Relinquished by:			Date/Time 11/16/23 1530	Company EETS	Received by:		Date/Time 11/17/23 0935	Company 		
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 55-79-718 0.6-7.0C					



Login Sample Receipt Checklist

Client: Madison Metropolitan Sewerage District

Job Number: 320-107170-1

Login Number: 107170

List Source: Eurofins Sacramento

List Number: 1

Creator: Smith, Micah

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	REFER TO SSRN
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.	N/A	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	N/A	
Cooler Temperature is recorded.	N/A	
COC is present.	N/A	
COC is filled out in ink and legible.	N/A	
COC is filled out with all pertinent information.	N/A	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	N/A	
Samples are received within Holding Time (excluding tests with immediate HTs)	N/A	
Sample containers have legible labels.	N/A	
Containers are not broken or leaking.	N/A	
Sample collection date/times are provided.	N/A	
Appropriate sample containers are used.	N/A	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	N/A	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Madison Metropolitan Sewerage District

Job Number: 320-107170-1

Login Number: 107170

List Number: 2

Creator: Scott, Sherri L

List Source: Eurofins Chicago

List Creation: 11/17/23 04:41 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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	-0.7 samples not frozen
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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	



December 2023



ANALYTICAL REPORT

PREPARED FOR

Attn: Julie Maas
Madison Metropolitan Sewerage District
1610 Moorland Road
Madison, Wisconsin 53713-3398

Generated 1/26/2024 4:37:27 PM

JOB DESCRIPTION

PFAS Sampling

JOB NUMBER

320-108053-1

Eurofins Sacramento

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 Northern California, LLC Project Manager.

Authorization



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Authorized for release by
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Micah.Smith@et.eurofinsus.com
(916)374-4302



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Definitions/Glossary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-108053-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
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.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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

Case Narrative

Client: Madison Metropolitan Sewerage District
Project: PFAS Sampling

Job ID: 320-108053-1

Job ID: 320-108053-1

Eurofins Sacramento

Job Narrative 320-108053-1

Comments

The TOPS portion of this job was canceled per the client's request.

Receipt

The samples were received on 12/14/2023 9:15 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 0.7° C and 1.7° C.

LCMS

Method 537 (modified): The method blank for preparation batch 320-728421 and analytical batch 320-728467 contained Perfluorohexanoic acid (PFHxA) above the method detection limit. This target analyte concentration was less than one-half the reporting limit (RL) in the method blank; therefore, re-extraction of samples were not performed.

Method 537 (modified): 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: Bio B 20231212 (320-108053-8), Bio A 22-20231212 (320-108053-9), (320-108053-A-9-B MS) and (320-108053-A-9-C MSD).

Method 537 (modified): The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 320-728421 and analytical batch 320-728467 were outside control limits for one or more analytes. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit: Bio B 20231212 (320-108053-8), Bio A 22-20231212 (320-108053-9) and (320-108053-A-9-C MSD). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s).

Method 537 (modified): Results for samples Inf 02-20231211 (320-108053-1), Inf 07-20231211 (320-108053-2), Inf 08-20231211 (320-108053-3) and Inf 11-20231211 (320-108053-4) were reported from the analysis of a diluted extract due to sample matrix in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits.

Method 537 (modified): 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: Inf 07-20231211 (320-108053-2), Inf 08-20231211 (320-108053-3), Inf 11-20231211 (320-108053-4) and Inf 18-20231211 (320-108053-5).

Method 537 (modified): The transition mass ratio was outside of the established ratio limit for Perfluorodecanesulfonic acid (PFDS) in (CCVL 320-729672/5) associated to this data set. This is indicated by the "R" flag in the raw data. As the flagged data is in control in the low level continuing calibration verification (CCVL) (CCVL 320-729672/5), there is no adverse impact to the data.

Method 537 (modified): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following samples: EB01-20231212 (320-108053-10) and (LCS 320-728935/2-A). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method 537 (modified): 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: Inf-Comp 20231211 (320-108053-6) and Eff 20231212 (320-108053-7).

Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: Bio A 22-20231212 (320-108053-9). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s).

Method 537 (modified): 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: Bio B 20231212 (320-108053-8) and Bio A 22-20231212 (320-108053-9).

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

General Chemistry

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

Eurofins Sacramento

Case Narrative

Client: Madison Metropolitan Sewerage District
Project: PFAS Sampling

Job ID: 320-108053-1

Job ID: 320-108053-1 (Continued)

Eurofins Sacramento

Organic Prep

Method SHAKE: Due to the matrix, the initial volumes used for the following samples deviated from the standard procedure: Bio B 20231212 (320-108053-8), Bio A 22-20231212 (320-108053-9), (320-108053-A-9 MS) and (320-108053-A-9 MSD). The reporting limits (RLs) have been adjusted proportionately.

Method 3535: During the solid phase extraction(SPE) process, the following samples contained non-settable particulates which clogged the solid phase extraction column: Inf 02-20231211 (320-108053-1), Inf 07-20231211 (320-108053-2), Inf 08-20231211 (320-108053-3), Inf 11-20231211 (320-108053-4) and Inf 18-20231211 (320-108053-5). The volume of each sample that was extracted via SPE prior to the clogging of the SPE cartridge is as follows: 76.5%, 73.6%, 64.7%, 69.8%, and 62.9% respectively. The remainder of the unfiltered samples were retained in the original sample bottles. The SPE columns along with the particulates that clogged them were then extracted using the elution solvent.

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-728815.

Method 3535: The following samples in preparation batch 320-728815 were light yellow in color prior to extraction: Inf 02-20231211 (320-108053-1), Inf 07-20231211 (320-108053-2), Inf 08-20231211 (320-108053-3), Inf 11-20231211 (320-108053-4) and Inf 18-20231211 (320-108053-5).

Method 3535: The following samples in preparation batch 320-728815 were light green in color following extraction. Inf 02-20231211 (320-108053-1), Inf 07-20231211 (320-108053-2), Inf 08-20231211 (320-108053-3), Inf 11-20231211 (320-108053-4) and Inf 18-20231211 (320-108053-5).

Method 3535: The following samples in preparation batch 320-728935 were yellow in color prior to extraction. Inf-Comp 20231211 (320-108053-6) and Eff 20231212 (320-108053-7).

Method 3535: The following samples in preparation batch 320-728935 were yellow in color following extraction. Inf-Comp 20231211 (320-108053-6) and Eff 20231212 (320-108053-7).

Method 3535: The following samples in preparation batch 320-728935 were observed to have floating particulates present in the sample bottle: Inf-Comp 20231211 (320-108053-6). Sediment and particulates were loaded with the water onto the columns and eluted.

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

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Inf 02-20231211

Lab Sample ID: 320-108053-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.6	J	4.6	2.2	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	2.3		1.8	0.45	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.80	J	1.8	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	2.0		1.8	0.78	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.32	J	1.8	0.25	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.2	J	1.8	0.18	ng/L	1		537 (modified)	Total/NA
Total Suspended Solids	250		42	16	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Inf 07-20231211

Lab Sample ID: 320-108053-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	15		4.5	2.2	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	7.5		1.8	0.45	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.3		1.8	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	6.6		1.8	0.77	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.56	J I	1.8	0.25	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	5.4		1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.85	J	1.8	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	11		1.8	0.52	ng/L	1		537 (modified)	Total/NA
NMeFOSE	2.3	J	3.6	1.3	ng/L	1		537 (modified)	Total/NA
Total Suspended Solids	230		50	19	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Inf 08-20231211

Lab Sample ID: 320-108053-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	3.5	J	4.7	2.3	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	4.1		1.9	0.46	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	6.3		1.9	0.55	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.57	J	1.9	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.4	J	1.9	0.81	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.29	J I	1.9	0.29	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.0	J	1.9	0.19	ng/L	1		537 (modified)	Total/NA
Total Suspended Solids	210		42	16	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Inf 11-20231211

Lab Sample ID: 320-108053-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPeA)	1.9		1.9	0.46	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	5.2	I	1.9	0.54	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.42	J	1.9	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.4	J	1.9	0.80	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.97	J	1.9	0.19	ng/L	1		537 (modified)	Total/NA
NMeFOSE	2.1	J	3.8	1.3	ng/L	1		537 (modified)	Total/NA
Total Suspended Solids	280		50	19	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Inf 18-20231211

Lab Sample ID: 320-108053-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	9.9		4.4	2.1	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	4.5		1.8	0.44	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	16	I	1.8	0.52	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.7	J	1.8	0.22	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Inf 18-20231211 (Continued)

Lab Sample ID: 320-108053-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	7.1		1.8	0.76	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.3		1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	1.2	J	1.8	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	13		1.8	0.51	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	5.8		1.8	0.48	ng/L	1		537 (modified)	Total/NA
NMeFOSE	1.4	J	3.6	1.2	ng/L	1		537 (modified)	Total/NA
Total Suspended Solids	190		42	16	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Inf-Comp 20231211

Lab Sample ID: 320-108053-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	6.3		4.7	2.3	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	3.8		1.9	0.46	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.4	J	1.9	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	3.9		1.9	0.80	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.45	J	1.9	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.2		1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.6		1.9	0.54	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	4.0		1.9	0.51	ng/L	1		537 (modified)	Total/NA
Perfluorodecanesulfonic acid (PFDS)	12	I	1.9	0.30	ng/L	1		537 (modified)	Total/NA
NMeFOSE	1.4	J	3.8	1.3	ng/L	1		537 (modified)	Total/NA
8:2 FTS	0.52	J	1.9	0.43	ng/L	1		537 (modified)	Total/NA
Total Suspended Solids	250		50	19	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Eff 20231212

Lab Sample ID: 320-108053-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	8.3		4.8	2.3	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	13		1.9	0.47	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	25		1.9	0.55	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.0		1.9	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	8.6		1.9	0.81	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.57	J	1.9	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	1.1	J	1.9	0.30	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	7.7	I	1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.67	J I	1.9	0.29	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	7.7		1.9	0.54	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	4.3		1.9	0.52	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.0	J	1.9	0.94	ng/L	1		537 (modified)	Total/NA
NMeFOSAA	1.3	J	4.8	1.1	ng/L	1		537 (modified)	Total/NA
Total Suspended Solids	5.2		5.0	1.9	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Bio B 20231212

Lab Sample ID: 320-108053-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	8.2	J B	30	4.6	ug/Kg	1	☼	537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	4.4	J I	30	4.3	ug/Kg	1	☼	537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	10	J I	30	6.4	ug/Kg	1	☼	537 (modified)	Total/NA
NMeFOSAA	17	J	30	3.4	ug/Kg	1	☼	537 (modified)	Total/NA
NMeFOSE	13	J	30	6.9	ug/Kg	1	☼	537 (modified)	Total/NA
NEtFOSE	4.5	J	30	4.1	ug/Kg	1	☼	537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Detection Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Bio A 22-20231212

Lab Sample ID: 320-108053-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	8.0		5.3	1.2	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	12		5.3	1.1	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	23	B	5.3	0.82	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.8	J	5.3	1.0	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	16		5.3	1.4	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	1.5	J	5.3	0.58	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	11		5.3	1.3	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.5	J	5.3	1.1	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	3.9	J	5.3	0.79	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	1.2	J	5.3	0.98	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.1	J	5.3	1.0	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.6	J I	5.3	0.77	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	13	I	5.3	1.1	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorodecanesulfonic acid (PFDS)	4.8	J	5.3	1.4	ug/Kg	1	✳	537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.9	J	5.3	0.87	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSAA	32		5.3	0.61	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSAA	9.0		5.3	1.3	ug/Kg	1	✳	537 (modified)	Total/NA
NMeFOSE	19		5.3	1.2	ug/Kg	1	✳	537 (modified)	Total/NA
NEtFOSE	6.9		5.3	0.74	ug/Kg	1	✳	537 (modified)	Total/NA
6:2 FTS	1.9	J	5.3	0.71	ug/Kg	1	✳	537 (modified)	Total/NA
8:2 FTS	1.3	J	5.3	0.93	ug/Kg	1	✳	537 (modified)	Total/NA

Client Sample ID: EB01-20231212

Lab Sample ID: 320-108053-10

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Inf 02-20231211

Lab Sample ID: 320-108053-1

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	2.6	J	4.6	2.2	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluoropentanoic acid (PFPeA)	2.3		1.8	0.45	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.53	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluoroheptanoic acid (PFHpA)	0.80	J	1.8	0.23	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorooctanoic acid (PFOA)	2.0		1.8	0.78	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorononanoic acid (PFNA)	0.32	J	1.8	0.25	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.67	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorobutanesulfonic acid (PFBS)	1.2	J	1.8	0.18	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.8	0.27	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.52	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.49	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.34	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.89	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.90	ng/L		12/19/23 12:42	12/23/23 02:18	1
NEtFOSA	ND		1.8	0.79	ng/L		12/19/23 12:42	12/23/23 02:18	1
NMeFOSA	ND		1.8	0.39	ng/L		12/19/23 12:42	12/23/23 02:18	1
NMeFOSAA	ND		4.6	1.1	ng/L		12/19/23 12:42	12/23/23 02:18	1
NEtFOSAA	ND		4.6	1.2	ng/L		12/19/23 12:42	12/23/23 02:18	1
NMeFOSE	ND		3.7	1.3	ng/L		12/19/23 12:42	12/23/23 02:18	1
NEtFOSE	ND		1.8	0.78	ng/L		12/19/23 12:42	12/23/23 02:18	1
4:2 FTS	ND		1.8	0.22	ng/L		12/19/23 12:42	12/23/23 02:18	1
8:2 FTS	ND		1.8	0.42	ng/L		12/19/23 12:42	12/23/23 02:18	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.37	ng/L		12/19/23 12:42	12/23/23 02:18	1
HFPO-DA (GenX)	ND		3.7	1.4	ng/L		12/19/23 12:42	12/23/23 02:18	1
9CI-PF3ONS	ND		1.8	0.22	ng/L		12/19/23 12:42	12/23/23 02:18	1
11CI-PF3OUdS	ND		1.8	0.29	ng/L		12/19/23 12:42	12/23/23 02:18	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	65		25 - 150				12/19/23 12:42	12/23/23 02:18	1
13C5 PFPeA	74		25 - 150				12/19/23 12:42	12/23/23 02:18	1
13C2 PFHxA	85		25 - 150				12/19/23 12:42	12/23/23 02:18	1
13C4 PFHpA	98		25 - 150				12/19/23 12:42	12/23/23 02:18	1
13C4 PFOA	87		25 - 150				12/19/23 12:42	12/23/23 02:18	1
13C5 PFNA	74		25 - 150				12/19/23 12:42	12/23/23 02:18	1
13C2 PFDA	73		25 - 150				12/19/23 12:42	12/23/23 02:18	1
13C2 PFUnA	49		25 - 150				12/19/23 12:42	12/23/23 02:18	1
13C2 PFDoA	43		25 - 150				12/19/23 12:42	12/23/23 02:18	1
13C2 PFTeDA	43		25 - 150				12/19/23 12:42	12/23/23 02:18	1
13C3 PFBS	80		25 - 150				12/19/23 12:42	12/23/23 02:18	1
18O2 PFHxS	81		25 - 150				12/19/23 12:42	12/23/23 02:18	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Inf 02-20231211

Lab Sample ID: 320-108053-1

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	71		25 - 150	12/19/23 12:42	12/23/23 02:18	1
13C8 FOSA	60		10 - 150	12/19/23 12:42	12/23/23 02:18	1
d3-NMeFOSAA	51		25 - 150	12/19/23 12:42	12/23/23 02:18	1
d5-NEtFOSAA	37		25 - 150	12/19/23 12:42	12/23/23 02:18	1
d-N-MeFOSA-M	47		10 - 150	12/19/23 12:42	12/23/23 02:18	1
d-N-EtFOSA-M	56		10 - 150	12/19/23 12:42	12/23/23 02:18	1
d7-N-MeFOSE-M	46		10 - 150	12/19/23 12:42	12/23/23 02:18	1
d9-N-EtFOSE-M	60		10 - 150	12/19/23 12:42	12/23/23 02:18	1
M2-4:2 FTS	98		25 - 150	12/19/23 12:42	12/23/23 02:18	1
M2-8:2 FTS	107		25 - 150	12/19/23 12:42	12/23/23 02:18	1
13C3 HFPO-DA	96		25 - 150	12/19/23 12:42	12/23/23 02:18	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 FTS	ND		91	46	ng/L		12/19/23 12:42	12/23/23 03:26	20
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
M2-6:2 FTS	121		25 - 150	12/19/23 12:42	12/23/23 03:26	20			

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	250		42	16	mg/L			12/18/23 14:26	1

Client Sample ID: Inf 07-20231211

Lab Sample ID: 320-108053-2

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	15		4.5	2.2	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluoropentanoic acid (PFPeA)	7.5		1.8	0.45	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.53	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluoroheptanoic acid (PFHpA)	2.3		1.8	0.23	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluorooctanoic acid (PFOA)	6.6		1.8	0.77	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluorononanoic acid (PFNA)	0.56	J I	1.8	0.25	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.8	1.2	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.66	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluorobutanesulfonic acid (PFBS)	5.4		1.8	0.18	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluoropentanesulfonic acid (PFPeS)	0.85	J	1.8	0.27	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluorohexanesulfonic acid (PFHxS)	11		1.8	0.52	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.49	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.34	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		12/19/23 12:42	12/23/23 02:29	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Inf 07-20231211

Lab Sample ID: 320-108053-2

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.88	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.89	ng/L		12/19/23 12:42	12/23/23 02:29	1
NEtFOSA	ND		1.8	0.79	ng/L		12/19/23 12:42	12/23/23 02:29	1
NMeFOSA	ND		1.8	0.39	ng/L		12/19/23 12:42	12/23/23 02:29	1
NMeFOSAA	ND		4.5	1.1	ng/L		12/19/23 12:42	12/23/23 02:29	1
NEtFOSAA	ND		4.5	1.2	ng/L		12/19/23 12:42	12/23/23 02:29	1
NMeFOSE	2.3	J	3.6	1.3	ng/L		12/19/23 12:42	12/23/23 02:29	1
NEtFOSE	ND		1.8	0.77	ng/L		12/19/23 12:42	12/23/23 02:29	1
4:2 FTS	ND		1.8	0.22	ng/L		12/19/23 12:42	12/23/23 02:29	1
8:2 FTS	ND		1.8	0.42	ng/L		12/19/23 12:42	12/23/23 02:29	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		12/19/23 12:42	12/23/23 02:29	1
HFPO-DA (GenX)	ND		3.6	1.4	ng/L		12/19/23 12:42	12/23/23 02:29	1
9Cl-PF3ONS	ND		1.8	0.22	ng/L		12/19/23 12:42	12/23/23 02:29	1
11Cl-PF3OUdS	ND		1.8	0.29	ng/L		12/19/23 12:42	12/23/23 02:29	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	67		25 - 150				12/19/23 12:42	12/23/23 02:29	1
13C5 PFPeA	91		25 - 150				12/19/23 12:42	12/23/23 02:29	1
13C2 PFHxA	86		25 - 150				12/19/23 12:42	12/23/23 02:29	1
13C4 PFHpA	99		25 - 150				12/19/23 12:42	12/23/23 02:29	1
13C4 PFOA	90		25 - 150				12/19/23 12:42	12/23/23 02:29	1
13C5 PFNA	72		25 - 150				12/19/23 12:42	12/23/23 02:29	1
13C2 PFDA	78		25 - 150				12/19/23 12:42	12/23/23 02:29	1
13C2 PFUnA	55		25 - 150				12/19/23 12:42	12/23/23 02:29	1
13C2 PFDoA	40		25 - 150				12/19/23 12:42	12/23/23 02:29	1
13C2 PFTeDA	45		25 - 150				12/19/23 12:42	12/23/23 02:29	1
13C3 PFBS	84		25 - 150				12/19/23 12:42	12/23/23 02:29	1
18O2 PFHxS	79		25 - 150				12/19/23 12:42	12/23/23 02:29	1
13C4 PFOS	72		25 - 150				12/19/23 12:42	12/23/23 02:29	1
13C8 FOSA	61		10 - 150				12/19/23 12:42	12/23/23 02:29	1
d3-NMeFOSAA	52		25 - 150				12/19/23 12:42	12/23/23 02:29	1
d5-NEtFOSAA	41		25 - 150				12/19/23 12:42	12/23/23 02:29	1
d-N-MeFOSA-M	48		10 - 150				12/19/23 12:42	12/23/23 02:29	1
d-N-EtFOSA-M	63		10 - 150				12/19/23 12:42	12/23/23 02:29	1
d7-N-MeFOSE-M	44		10 - 150				12/19/23 12:42	12/23/23 02:29	1
d9-N-EtFOSE-M	72		10 - 150				12/19/23 12:42	12/23/23 02:29	1
M2-4:2 FTS	113		25 - 150				12/19/23 12:42	12/23/23 02:29	1
M2-8:2 FTS	118		25 - 150				12/19/23 12:42	12/23/23 02:29	1
13C3 HFPO-DA	98		25 - 150				12/19/23 12:42	12/23/23 02:29	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 FTS	ND		91	45	ng/L		12/19/23 12:42	12/23/23 03:59	20
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
M2-6:2 FTS	109		25 - 150				12/19/23 12:42	12/23/23 03:59	20

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Inf 07-20231211

Lab Sample ID: 320-108053-2

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	230		50	19	mg/L			12/18/23 14:30	1

Client Sample ID: Inf 08-20231211

Lab Sample ID: 320-108053-3

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	3.5	J	4.7	2.3	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluoropentanoic acid (PFPeA)	4.1		1.9	0.46	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorohexanoic acid (PFHxA)	6.3		1.9	0.55	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluoroheptanoic acid (PFHpA)	0.57	J	1.9	0.24	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorooctanoic acid (PFOA)	1.4	J	1.9	0.81	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorodecanoic acid (PFDA)	0.29	J I	1.9	0.29	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorobutanesulfonic acid (PFBS)	1.0	J	1.9	0.19	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.9	0.28	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.54	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.51	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.35	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.92	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.93	ng/L		12/19/23 12:42	12/23/23 02:40	1
NEtFOSA	ND		1.9	0.82	ng/L		12/19/23 12:42	12/23/23 02:40	1
NMeFOSA	ND		1.9	0.41	ng/L		12/19/23 12:42	12/23/23 02:40	1
NMeFOSAA	ND		4.7	1.1	ng/L		12/19/23 12:42	12/23/23 02:40	1
NEtFOSAA	ND		4.7	1.2	ng/L		12/19/23 12:42	12/23/23 02:40	1
NMeFOSE	ND		3.8	1.3	ng/L		12/19/23 12:42	12/23/23 02:40	1
NEtFOSE	ND		1.9	0.81	ng/L		12/19/23 12:42	12/23/23 02:40	1
4:2 FTS	ND		1.9	0.23	ng/L		12/19/23 12:42	12/23/23 02:40	1
8:2 FTS	ND		1.9	0.44	ng/L		12/19/23 12:42	12/23/23 02:40	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		12/19/23 12:42	12/23/23 02:40	1
HFPO-DA (GenX)	ND		3.8	1.4	ng/L		12/19/23 12:42	12/23/23 02:40	1
9CI-PF3ONS	ND		1.9	0.23	ng/L		12/19/23 12:42	12/23/23 02:40	1
11CI-PF3OUdS	ND		1.9	0.30	ng/L		12/19/23 12:42	12/23/23 02:40	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	57		25 - 150				12/19/23 12:42	12/23/23 02:40	1
13C5 PFPeA	74		25 - 150				12/19/23 12:42	12/23/23 02:40	1
13C2 PFHxA	71		25 - 150				12/19/23 12:42	12/23/23 02:40	1
13C4 PFHpA	83		25 - 150				12/19/23 12:42	12/23/23 02:40	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Inf 08-20231211

Lab Sample ID: 320-108053-3

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOA	76		25 - 150	12/19/23 12:42	12/23/23 02:40	1
13C5 PFNA	73		25 - 150	12/19/23 12:42	12/23/23 02:40	1
13C2 PFDA	67		25 - 150	12/19/23 12:42	12/23/23 02:40	1
13C2 PFUnA	50		25 - 150	12/19/23 12:42	12/23/23 02:40	1
13C2 PFDoA	38		25 - 150	12/19/23 12:42	12/23/23 02:40	1
13C2 PFTeDA	39		25 - 150	12/19/23 12:42	12/23/23 02:40	1
13C3 PFBS	69		25 - 150	12/19/23 12:42	12/23/23 02:40	1
18O2 PFHxS	72		25 - 150	12/19/23 12:42	12/23/23 02:40	1
13C4 PFOS	72		25 - 150	12/19/23 12:42	12/23/23 02:40	1
13C8 FOSA	56		10 - 150	12/19/23 12:42	12/23/23 02:40	1
d3-NMeFOSAA	51		25 - 150	12/19/23 12:42	12/23/23 02:40	1
d5-NEtFOSAA	39		25 - 150	12/19/23 12:42	12/23/23 02:40	1
d-N-MeFOSA-M	45		10 - 150	12/19/23 12:42	12/23/23 02:40	1
d-N-EtFOSA-M	49		10 - 150	12/19/23 12:42	12/23/23 02:40	1
d7-N-MeFOSE-M	46		10 - 150	12/19/23 12:42	12/23/23 02:40	1
d9-N-EtFOSE-M	59		10 - 150	12/19/23 12:42	12/23/23 02:40	1
M2-4:2 FTS	92		25 - 150	12/19/23 12:42	12/23/23 02:40	1
M2-8:2 FTS	109		25 - 150	12/19/23 12:42	12/23/23 02:40	1
13C3 HFPO-DA	78		25 - 150	12/19/23 12:42	12/23/23 02:40	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 FTS	ND		95	47	ng/L		12/19/23 12:42	12/23/23 04:11	20
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
M2-6:2 FTS	86		25 - 150	12/19/23 12:42	12/23/23 04:11	20			

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	210		42	16	mg/L			12/18/23 14:33	1

Client Sample ID: Inf 11-20231211

Lab Sample ID: 320-108053-4

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.7	2.3	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluoropentanoic acid (PFPeA)	1.9		1.9	0.46	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorohexanoic acid (PFHxA)	5.2	I	1.9	0.54	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluoroheptanoic acid (PFHpA)	0.42	J	1.9	0.23	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorooctanoic acid (PFOA)	1.4	J	1.9	0.80	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.9	1.2	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorobutanesulfonic acid (PFBS)	0.97	J	1.9	0.19	ng/L		12/19/23 12:42	12/23/23 02:51	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Inf 11-20231211

Lab Sample ID: 320-108053-4

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanesulfonic acid (PFPeS)	ND		1.9	0.28	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.53	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.51	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.35	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.91	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.92	ng/L		12/19/23 12:42	12/23/23 02:51	1
NEtFOSA	ND		1.9	0.82	ng/L		12/19/23 12:42	12/23/23 02:51	1
NMeFOSA	ND		1.9	0.40	ng/L		12/19/23 12:42	12/23/23 02:51	1
NMeFOSAA	ND		4.7	1.1	ng/L		12/19/23 12:42	12/23/23 02:51	1
NEtFOSAA	ND		4.7	1.2	ng/L		12/19/23 12:42	12/23/23 02:51	1
NMeFOSE	2.1	J	3.8	1.3	ng/L		12/19/23 12:42	12/23/23 02:51	1
NEtFOSE	ND		1.9	0.80	ng/L		12/19/23 12:42	12/23/23 02:51	1
4:2 FTS	ND		1.9	0.23	ng/L		12/19/23 12:42	12/23/23 02:51	1
8:2 FTS	ND		1.9	0.43	ng/L		12/19/23 12:42	12/23/23 02:51	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		12/19/23 12:42	12/23/23 02:51	1
HFPO-DA (GenX)	ND		3.8	1.4	ng/L		12/19/23 12:42	12/23/23 02:51	1
9Cl-PF3ONS	ND		1.9	0.23	ng/L		12/19/23 12:42	12/23/23 02:51	1
11Cl-PF3OUdS	ND		1.9	0.30	ng/L		12/19/23 12:42	12/23/23 02:51	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	64		25 - 150	12/19/23 12:42	12/23/23 02:51	1
13C5 PFPeA	84		25 - 150	12/19/23 12:42	12/23/23 02:51	1
13C2 PFHxA	84		25 - 150	12/19/23 12:42	12/23/23 02:51	1
13C4 PFHpA	94		25 - 150	12/19/23 12:42	12/23/23 02:51	1
13C4 PFOA	86		25 - 150	12/19/23 12:42	12/23/23 02:51	1
13C5 PFNA	72		25 - 150	12/19/23 12:42	12/23/23 02:51	1
13C2 PFDA	67		25 - 150	12/19/23 12:42	12/23/23 02:51	1
13C2 PFUnA	46		25 - 150	12/19/23 12:42	12/23/23 02:51	1
13C2 PFDoA	36		25 - 150	12/19/23 12:42	12/23/23 02:51	1
13C2 PFTeDA	39		25 - 150	12/19/23 12:42	12/23/23 02:51	1
13C3 PFBS	83		25 - 150	12/19/23 12:42	12/23/23 02:51	1
18O2 PFHxS	76		25 - 150	12/19/23 12:42	12/23/23 02:51	1
13C4 PFOS	70		25 - 150	12/19/23 12:42	12/23/23 02:51	1
13C8 FOSA	57		10 - 150	12/19/23 12:42	12/23/23 02:51	1
d3-NMeFOSAA	42		25 - 150	12/19/23 12:42	12/23/23 02:51	1
d5-NEtFOSAA	32		25 - 150	12/19/23 12:42	12/23/23 02:51	1
d-N-MeFOSA-M	44		10 - 150	12/19/23 12:42	12/23/23 02:51	1
d-N-EtFOSA-M	55		10 - 150	12/19/23 12:42	12/23/23 02:51	1
d7-N-MeFOSE-M	43		10 - 150	12/19/23 12:42	12/23/23 02:51	1
d9-N-EtFOSE-M	62		10 - 150	12/19/23 12:42	12/23/23 02:51	1
M2-4:2 FTS	104		25 - 150	12/19/23 12:42	12/23/23 02:51	1
M2-8:2 FTS	111		25 - 150	12/19/23 12:42	12/23/23 02:51	1
13C3 HFPO-DA	91		25 - 150	12/19/23 12:42	12/23/23 02:51	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Inf 11-20231211

Lab Sample ID: 320-108053-4

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 FTS	ND		94	47	ng/L		12/19/23 12:42	12/23/23 04:22	20
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
M2-6:2 FTS	124		25 - 150				12/19/23 12:42	12/23/23 04:22	20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	280		50	19	mg/L			12/18/23 14:37	1

Client Sample ID: Inf 18-20231211

Lab Sample ID: 320-108053-5

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	9.9		4.4	2.1	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluoropentanoic acid (PFPeA)	4.5		1.8	0.44	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorohexanoic acid (PFHxA)	16	I	1.8	0.52	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluoroheptanoic acid (PFHpA)	1.7	J	1.8	0.22	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorooctanoic acid (PFOA)	7.1		1.8	0.76	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.98	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorobutanesulfonic acid (PFBS)	3.3		1.8	0.18	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluoropentanesulfonic acid (PFPeS)	1.2	J	1.8	0.27	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorohexanesulfonic acid (PFHxS)	13		1.8	0.51	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorooctanesulfonic acid (PFOS)	5.8		1.8	0.48	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.33	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.28	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.86	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.87	ng/L		12/19/23 12:42	12/23/23 03:03	1
NEtFOSA	ND		1.8	0.77	ng/L		12/19/23 12:42	12/23/23 03:03	1
NMeFOSA	ND		1.8	0.38	ng/L		12/19/23 12:42	12/23/23 03:03	1
NMeFOSAA	ND		4.4	1.1	ng/L		12/19/23 12:42	12/23/23 03:03	1
NEtFOSAA	ND		4.4	1.2	ng/L		12/19/23 12:42	12/23/23 03:03	1
NMeFOSE	1.4	J	3.6	1.2	ng/L		12/19/23 12:42	12/23/23 03:03	1
NEtFOSE	ND		1.8	0.76	ng/L		12/19/23 12:42	12/23/23 03:03	1
4:2 FTS	ND		1.8	0.21	ng/L		12/19/23 12:42	12/23/23 03:03	1
6:2 FTS	ND		4.4	2.2	ng/L		12/19/23 12:42	12/23/23 03:03	1
8:2 FTS	ND		1.8	0.41	ng/L		12/19/23 12:42	12/23/23 03:03	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		12/19/23 12:42	12/23/23 03:03	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Inf 18-20231211

Lab Sample ID: 320-108053-5

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA (GenX)	ND		3.6	1.3	ng/L		12/19/23 12:42	12/23/23 03:03	1
9CI-PF3ONS	ND		1.8	0.21	ng/L		12/19/23 12:42	12/23/23 03:03	1
11CI-PF3OUdS	ND		1.8	0.28	ng/L		12/19/23 12:42	12/23/23 03:03	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	64		25 - 150				12/19/23 12:42	12/23/23 03:03	1
13C5 PFPeA	87		25 - 150				12/19/23 12:42	12/23/23 03:03	1
13C2 PFHxA	76		25 - 150				12/19/23 12:42	12/23/23 03:03	1
13C4 PFHpA	96		25 - 150				12/19/23 12:42	12/23/23 03:03	1
13C4 PFOA	77		25 - 150				12/19/23 12:42	12/23/23 03:03	1
13C5 PFNA	71		25 - 150				12/19/23 12:42	12/23/23 03:03	1
13C2 PFDA	71		25 - 150				12/19/23 12:42	12/23/23 03:03	1
13C2 PFUnA	54		25 - 150				12/19/23 12:42	12/23/23 03:03	1
13C2 PFDoA	42		25 - 150				12/19/23 12:42	12/23/23 03:03	1
13C2 PFTeDA	44		25 - 150				12/19/23 12:42	12/23/23 03:03	1
13C3 PFBS	79		25 - 150				12/19/23 12:42	12/23/23 03:03	1
18O2 PFHxS	71		25 - 150				12/19/23 12:42	12/23/23 03:03	1
13C4 PFOS	62		25 - 150				12/19/23 12:42	12/23/23 03:03	1
13C8 FOSA	57		10 - 150				12/19/23 12:42	12/23/23 03:03	1
d3-NMeFOSAA	51		25 - 150				12/19/23 12:42	12/23/23 03:03	1
d5-NEtFOSAA	36		25 - 150				12/19/23 12:42	12/23/23 03:03	1
d-N-MeFOSA-M	42		10 - 150				12/19/23 12:42	12/23/23 03:03	1
d-N-EtFOSA-M	58		10 - 150				12/19/23 12:42	12/23/23 03:03	1
d7-N-MeFOSE-M	48		10 - 150				12/19/23 12:42	12/23/23 03:03	1
d9-N-EtFOSE-M	70		10 - 150				12/19/23 12:42	12/23/23 03:03	1
M2-4:2 FTS	100		25 - 150				12/19/23 12:42	12/23/23 03:03	1
M2-6:2 FTS	135		25 - 150				12/19/23 12:42	12/23/23 03:03	1
M2-8:2 FTS	114		25 - 150				12/19/23 12:42	12/23/23 03:03	1
13C3 HFPO-DA	89		25 - 150				12/19/23 12:42	12/23/23 03:03	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	190		42	16	mg/L			12/18/23 14:40	1

Client Sample ID: Inf-Comp 20231211

Lab Sample ID: 320-108053-6

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	6.3		4.7	2.3	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluoropentanoic acid (PFPeA)	3.8		1.9	0.46	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.55	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluoroheptanoic acid (PFHpA)	1.4	J	1.9	0.24	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluorooctanoic acid (PFOA)	3.9		1.9	0.80	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluorononanoic acid (PFNA)	0.45	J	1.9	0.26	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.9	1.2	ng/L		12/19/23 20:29	12/23/23 08:31	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Inf-Comp 20231211

Lab Sample ID: 320-108053-6

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluorobutanesulfonic acid (PFBS)	2.2		1.9	0.19	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.9	0.28	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluorohexanesulfonic acid (PFHxS)	5.6		1.9	0.54	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluorooctanesulfonic acid (PFOS)	4.0		1.9	0.51	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.35	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluorodecanesulfonic acid (PFDS)	12 I		1.9	0.30	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.92	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.93	ng/L		12/19/23 20:29	12/23/23 08:31	1
NEtFOSA	ND		1.9	0.82	ng/L		12/19/23 20:29	12/23/23 08:31	1
NMeFOSA	ND		1.9	0.41	ng/L		12/19/23 20:29	12/23/23 08:31	1
NMeFOSAA	ND		4.7	1.1	ng/L		12/19/23 20:29	12/23/23 08:31	1
NEtFOSAA	ND		4.7	1.2	ng/L		12/19/23 20:29	12/23/23 08:31	1
NMeFOSE	1.4 J		3.8	1.3	ng/L		12/19/23 20:29	12/23/23 08:31	1
NEtFOSE	ND		1.9	0.80	ng/L		12/19/23 20:29	12/23/23 08:31	1
4:2 FTS	ND		1.9	0.23	ng/L		12/19/23 20:29	12/23/23 08:31	1
6:2 FTS	ND		4.7	2.4	ng/L		12/19/23 20:29	12/23/23 08:31	1
8:2 FTS	0.52 J		1.9	0.43	ng/L		12/19/23 20:29	12/23/23 08:31	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		12/19/23 20:29	12/23/23 08:31	1
HFPO-DA (GenX)	ND		3.8	1.4	ng/L		12/19/23 20:29	12/23/23 08:31	1
9Cl-PF3ONS	ND		1.9	0.23	ng/L		12/19/23 20:29	12/23/23 08:31	1
11Cl-PF3OUdS	ND		1.9	0.30	ng/L		12/19/23 20:29	12/23/23 08:31	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	39		25 - 150	12/19/23 20:29	12/23/23 08:31	1
13C5 PFPeA	46		25 - 150	12/19/23 20:29	12/23/23 08:31	1
13C2 PFHxA	51		25 - 150	12/19/23 20:29	12/23/23 08:31	1
13C4 PFHpA	61		25 - 150	12/19/23 20:29	12/23/23 08:31	1
13C4 PFOA	53		25 - 150	12/19/23 20:29	12/23/23 08:31	1
13C5 PFNA	53		25 - 150	12/19/23 20:29	12/23/23 08:31	1
13C2 PFDA	49		25 - 150	12/19/23 20:29	12/23/23 08:31	1
13C2 PFUnA	38		25 - 150	12/19/23 20:29	12/23/23 08:31	1
13C2 PFDoA	26		25 - 150	12/19/23 20:29	12/23/23 08:31	1
13C2 PFTeDA	28		25 - 150	12/19/23 20:29	12/23/23 08:31	1
13C3 PFBS	46		25 - 150	12/19/23 20:29	12/23/23 08:31	1
18O2 PFHxS	48		25 - 150	12/19/23 20:29	12/23/23 08:31	1
13C4 PFOS	51		25 - 150	12/19/23 20:29	12/23/23 08:31	1
13C8 FOSA	40		10 - 150	12/19/23 20:29	12/23/23 08:31	1
d3-NMeFOSAA	37		25 - 150	12/19/23 20:29	12/23/23 08:31	1
d5-NEtFOSAA	29		25 - 150	12/19/23 20:29	12/23/23 08:31	1
d-N-MeFOSA-M	31		10 - 150	12/19/23 20:29	12/23/23 08:31	1
d-N-EtFOSA-M	36		10 - 150	12/19/23 20:29	12/23/23 08:31	1
d7-N-MeFOSE-M	31		10 - 150	12/19/23 20:29	12/23/23 08:31	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Inf-Comp 20231211

Lab Sample ID: 320-108053-6

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d9-N-EtFOSE-M	35		10 - 150	12/19/23 20:29	12/23/23 08:31	1
M2-4:2 FTS	62		25 - 150	12/19/23 20:29	12/23/23 08:31	1
M2-6:2 FTS	79		25 - 150	12/19/23 20:29	12/23/23 08:31	1
M2-8:2 FTS	71		25 - 150	12/19/23 20:29	12/23/23 08:31	1
13C3 HFPO-DA	54		25 - 150	12/19/23 20:29	12/23/23 08:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	250		50	19	mg/L			12/18/23 14:44	1

Client Sample ID: Eff 20231212

Lab Sample ID: 320-108053-7

Date Collected: 12/12/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	8.3		4.8	2.3	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluoropentanoic acid (PFPeA)	13		1.9	0.47	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorohexanoic acid (PFHxA)	25		1.9	0.55	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluoroheptanoic acid (PFHpA)	2.0		1.9	0.24	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorooctanoic acid (PFOA)	8.6		1.9	0.81	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorononanoic acid (PFNA)	0.57	J	1.9	0.26	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorodecanoic acid (PFDA)	1.1	J	1.9	0.30	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorobutanesulfonic acid (PFBS)	7.7	I	1.9	0.19	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluoropentanesulfonic acid (PFPeS)	0.67	J I	1.9	0.29	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorohexanesulfonic acid (PFHxS)	7.7		1.9	0.54	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorooctanesulfonic acid (PFOS)	4.3		1.9	0.52	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.35	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.31	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.93	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorooctanesulfonamide (FOSA)	1.0	J	1.9	0.94	ng/L		12/19/23 20:29	12/23/23 10:02	1
NEtFOSA	ND		1.9	0.83	ng/L		12/19/23 20:29	12/23/23 10:02	1
NMeFOSA	ND		1.9	0.41	ng/L		12/19/23 20:29	12/23/23 10:02	1
NMeFOSAA	1.3	J	4.8	1.1	ng/L		12/19/23 20:29	12/23/23 10:02	1
NEtFOSAA	ND		4.8	1.2	ng/L		12/19/23 20:29	12/23/23 10:02	1
NMeFOSE	ND		3.8	1.3	ng/L		12/19/23 20:29	12/23/23 10:02	1
NEtFOSE	ND		1.9	0.81	ng/L		12/19/23 20:29	12/23/23 10:02	1
4:2 FTS	ND		1.9	0.23	ng/L		12/19/23 20:29	12/23/23 10:02	1
6:2 FTS	ND		4.8	2.4	ng/L		12/19/23 20:29	12/23/23 10:02	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Eff 20231212

Lab Sample ID: 320-108053-7

Date Collected: 12/12/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
8:2 FTS	ND		1.9	0.44	ng/L		12/19/23 20:29	12/23/23 10:02	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		12/19/23 20:29	12/23/23 10:02	1
HFPO-DA (GenX)	ND		3.8	1.4	ng/L		12/19/23 20:29	12/23/23 10:02	1
9CI-PF3ONS	ND		1.9	0.23	ng/L		12/19/23 20:29	12/23/23 10:02	1
11CI-PF3OUdS	ND		1.9	0.31	ng/L		12/19/23 20:29	12/23/23 10:02	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	83		25 - 150				12/19/23 20:29	12/23/23 10:02	1
13C5 PFPeA	96		25 - 150				12/19/23 20:29	12/23/23 10:02	1
13C2 PFHxA	111		25 - 150				12/19/23 20:29	12/23/23 10:02	1
13C4 PFHpA	116		25 - 150				12/19/23 20:29	12/23/23 10:02	1
13C4 PFOA	108		25 - 150				12/19/23 20:29	12/23/23 10:02	1
13C5 PFNA	121		25 - 150				12/19/23 20:29	12/23/23 10:02	1
13C2 PFDA	129		25 - 150				12/19/23 20:29	12/23/23 10:02	1
13C2 PFUnA	116		25 - 150				12/19/23 20:29	12/23/23 10:02	1
13C2 PFDoA	104		25 - 150				12/19/23 20:29	12/23/23 10:02	1
13C2 PFTeDA	66		25 - 150				12/19/23 20:29	12/23/23 10:02	1
13C3 PFBS	105		25 - 150				12/19/23 20:29	12/23/23 10:02	1
18O2 PFHxS	103		25 - 150				12/19/23 20:29	12/23/23 10:02	1
13C4 PFOS	124		25 - 150				12/19/23 20:29	12/23/23 10:02	1
13C8 FOSA	128		10 - 150				12/19/23 20:29	12/23/23 10:02	1
d3-NMeFOSAA	119		25 - 150				12/19/23 20:29	12/23/23 10:02	1
d5-NEtFOSAA	128		25 - 150				12/19/23 20:29	12/23/23 10:02	1
d-N-MeFOSA-M	103		10 - 150				12/19/23 20:29	12/23/23 10:02	1
d-N-EtFOSA-M	89		10 - 150				12/19/23 20:29	12/23/23 10:02	1
d7-N-MeFOSE-M	87		10 - 150				12/19/23 20:29	12/23/23 10:02	1
d9-N-EtFOSE-M	78		10 - 150				12/19/23 20:29	12/23/23 10:02	1
M2-4:2 FTS	121		25 - 150				12/19/23 20:29	12/23/23 10:02	1
M2-6:2 FTS	150		25 - 150				12/19/23 20:29	12/23/23 10:02	1
M2-8:2 FTS	191	*5+	25 - 150				12/19/23 20:29	12/23/23 10:02	1
13C3 HFPO-DA	110		25 - 150				12/19/23 20:29	12/23/23 10:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	5.2		5.0	1.9	mg/L			12/19/23 16:56	1

Client Sample ID: Bio B 20231212

Lab Sample ID: 320-108053-8

Date Collected: 12/12/23 13:11

Matrix: Solid

Date Received: 12/14/23 09:15

Percent Solids: 6.3

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		30	6.8	ug/Kg	☆	12/17/23 19:57	12/18/23 13:56	1
Perfluoropentanoic acid (PFPeA)	ND		30	6.1	ug/Kg	☆	12/17/23 19:57	12/18/23 13:56	1
Perfluorohexanoic acid (PFHxA)	8.2	J B	30	4.6	ug/Kg	☆	12/17/23 19:57	12/18/23 13:56	1
Perfluoroheptanoic acid (PFHpA)	ND		30	5.6	ug/Kg	☆	12/17/23 19:57	12/18/23 13:56	1
Perfluorooctanoic acid (PFOA)	ND		30	7.8	ug/Kg	☆	12/17/23 19:57	12/18/23 13:56	1
Perfluorononanoic acid (PFNA)	ND		30	3.2	ug/Kg	☆	12/17/23 19:57	12/18/23 13:56	1
Perfluorodecanoic acid (PFDA)	ND		30	7.1	ug/Kg	☆	12/17/23 19:57	12/18/23 13:56	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Bio B 20231212

Lab Sample ID: 320-108053-8

Date Collected: 12/12/23 13:11

Matrix: Solid

Date Received: 12/14/23 09:15

Percent Solids: 6.3

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroundecanoic acid (PFUnA)	ND		30	6.2	ug/Kg	☼	12/17/23 19:57	12/18/23 13:56	1
Perfluorododecanoic acid (PFDoA)	ND		30	4.4	ug/Kg	☼	12/17/23 19:57	12/18/23 13:56	1
Perfluorotridecanoic acid (PFTrDA)	ND		30	3.1	ug/Kg	☼	12/17/23 19:57	12/18/23 13:56	1
Perfluorotetradecanoic acid (PFTeA)	ND		30	5.5	ug/Kg	☼	12/17/23 19:57	12/18/23 13:56	1
Perfluorobutanesulfonic acid (PFBS)	ND		30	5.6	ug/Kg	☼	12/17/23 19:57	12/18/23 13:56	1
Perfluoropentanesulfonic acid (PFPeS)	ND		30	5.5	ug/Kg	☼	12/17/23 19:57	12/18/23 13:56	1
Perfluorohexanesulfonic acid (PFHxS)	4.4	J I	30	4.3	ug/Kg	☼	12/17/23 19:57	12/18/23 13:56	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		30	7.2	ug/Kg	☼	12/17/23 19:57	12/18/23 13:56	1
Perfluorooctanesulfonic acid (PFOS)	10	J I	30	6.4	ug/Kg	☼	12/17/23 19:57	12/18/23 13:56	1
Perfluorononanesulfonic acid (PFNS)	ND		30	4.3	ug/Kg	☼	12/17/23 19:57	12/18/23 13:56	1
Perfluorodecanesulfonic acid (PFDS)	ND		30	7.7	ug/Kg	☼	12/17/23 19:57	12/18/23 13:56	1
Perfluorododecanesulfonic acid (PFDoS)	ND		30	6.9	ug/Kg	☼	12/17/23 19:57	12/18/23 13:56	1
Perfluorooctanesulfonamide (FOSA)	ND		30	4.9	ug/Kg	☼	12/17/23 19:57	12/18/23 13:56	1
NEtFOSA	ND		30	6.9	ug/Kg	☼	12/17/23 19:57	12/18/23 13:56	1
NMeFOSA	ND		30	7.2	ug/Kg	☼	12/17/23 19:57	12/18/23 13:56	1
NMeFOSAA	17	J	30	3.4	ug/Kg	☼	12/17/23 19:57	12/18/23 13:56	1
NEtFOSAA	ND		30	7.1	ug/Kg	☼	12/17/23 19:57	12/18/23 13:56	1
NMeFOSE	13	J	30	6.9	ug/Kg	☼	12/17/23 19:57	12/18/23 13:56	1
NEtFOSE	4.5	J	30	4.1	ug/Kg	☼	12/17/23 19:57	12/18/23 13:56	1
4:2 FTS	ND		30	7.5	ug/Kg	☼	12/17/23 19:57	12/18/23 13:56	1
6:2 FTS	ND		30	4.0	ug/Kg	☼	12/17/23 19:57	12/18/23 13:56	1
8:2 FTS	ND		30	5.2	ug/Kg	☼	12/17/23 19:57	12/18/23 13:56	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		30	5.8	ug/Kg	☼	12/17/23 19:57	12/18/23 13:56	1
HFPO-DA (GenX)	ND		30	6.1	ug/Kg	☼	12/17/23 19:57	12/18/23 13:56	1
9Cl-PF3ONS	ND		30	5.2	ug/Kg	☼	12/17/23 19:57	12/18/23 13:56	1
11Cl-PF3OUdS	ND		30	4.6	ug/Kg	☼	12/17/23 19:57	12/18/23 13:56	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	13	*5-	25 - 150	12/17/23 19:57	12/18/23 13:56	1
13C5 PFPeA	84		25 - 150	12/17/23 19:57	12/18/23 13:56	1
13C2 PFHxA	84		25 - 150	12/17/23 19:57	12/18/23 13:56	1
13C4 PFHpA	90		25 - 150	12/17/23 19:57	12/18/23 13:56	1
13C4 PFOA	94		25 - 150	12/17/23 19:57	12/18/23 13:56	1
13C5 PFNA	90		25 - 150	12/17/23 19:57	12/18/23 13:56	1
13C2 PFDA	90		25 - 150	12/17/23 19:57	12/18/23 13:56	1
13C2 PFUnA	92		25 - 150	12/17/23 19:57	12/18/23 13:56	1
13C2 PFDoA	72		25 - 150	12/17/23 19:57	12/18/23 13:56	1
13C2 PFTeDA	80		25 - 150	12/17/23 19:57	12/18/23 13:56	1
13C3 PFBS	89		25 - 150	12/17/23 19:57	12/18/23 13:56	1
18O2 PFHxS	88		25 - 150	12/17/23 19:57	12/18/23 13:56	1
13C4 PFOS	78		25 - 150	12/17/23 19:57	12/18/23 13:56	1
13C8 FOSA	89		10 - 150	12/17/23 19:57	12/18/23 13:56	1
d3-NMeFOSAA	90		25 - 150	12/17/23 19:57	12/18/23 13:56	1
d5-NEtFOSAA	101		25 - 150	12/17/23 19:57	12/18/23 13:56	1
d-N-MeFOSA-M	80		10 - 150	12/17/23 19:57	12/18/23 13:56	1
d-N-EtFOSA-M	64		10 - 150	12/17/23 19:57	12/18/23 13:56	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Bio B 20231212

Lab Sample ID: 320-108053-8

Date Collected: 12/12/23 13:11

Matrix: Solid

Date Received: 12/14/23 09:15

Percent Solids: 6.3

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d7-N-MeFOSE-M	80		10 - 150	12/17/23 19:57	12/18/23 13:56	1
d9-N-EtFOSE-M	72		10 - 150	12/17/23 19:57	12/18/23 13:56	1
M2-4:2 FTS	100		25 - 150	12/17/23 19:57	12/18/23 13:56	1
M2-6:2 FTS	115		25 - 150	12/17/23 19:57	12/18/23 13:56	1
M2-8:2 FTS	123		25 - 150	12/17/23 19:57	12/18/23 13:56	1
13C3 HFPO-DA	82		25 - 150	12/17/23 19:57	12/18/23 13:56	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	93.7		0.1	0.1	%			12/15/23 11:00	1
Percent Solids (ASTM D 2216)	6.3		0.1	0.1	%			12/15/23 11:00	1

Client Sample ID: Bio A 22-20231212

Lab Sample ID: 320-108053-9

Date Collected: 12/12/23 14:10

Matrix: Solid

Date Received: 12/14/23 09:15

Percent Solids: 24.9

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	8.0		5.3	1.2	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
Perfluoropentanoic acid (PFPeA)	12		5.3	1.1	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
Perfluorohexanoic acid (PFHxA)	23	B	5.3	0.82	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
Perfluoroheptanoic acid (PFHpA)	1.8	J	5.3	1.0	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
Perfluorooctanoic acid (PFOA)	16		5.3	1.4	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
Perfluorononanoic acid (PFNA)	1.5	J	5.3	0.58	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
Perfluorodecanoic acid (PFDA)	11		5.3	1.3	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
Perfluoroundecanoic acid (PFUnA)	1.5	J	5.3	1.1	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
Perfluorododecanoic acid (PFDoA)	3.9	J	5.3	0.79	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
Perfluorotridecanoic acid (PFTTrDA)	ND	F1 F2	5.3	0.56	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
Perfluorotetradecanoic acid (PFTeA)	1.2	J	5.3	0.98	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
Perfluorobutanesulfonic acid (PFBS)	1.1	J	5.3	1.0	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.3	0.98	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
Perfluorohexanesulfonic acid (PFHxS)	1.6	J I	5.3	0.77	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.3	1.3	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
Perfluorooctanesulfonic acid (PFOS)	13	I	5.3	1.1	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
Perfluorononanesulfonic acid (PFNS)	ND		5.3	0.77	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
Perfluorodecanesulfonic acid (PFDS)	4.8	J	5.3	1.4	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.3	1.2	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
Perfluorooctanesulfonamide (FOSA)	1.9	J	5.3	0.87	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
NEtFOSA	ND		5.3	1.2	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
NMeFOSA	ND		5.3	1.3	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
NMeFOSAA	32		5.3	0.61	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
NEtFOSAA	9.0		5.3	1.3	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Bio A 22-20231212

Lab Sample ID: 320-108053-9

Date Collected: 12/12/23 14:10

Matrix: Solid

Date Received: 12/14/23 09:15

Percent Solids: 24.9

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NMeFOSE	19		5.3	1.2	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
NEtFOSE	6.9		5.3	0.74	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
4:2 FTS	ND		5.3	1.3	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
6:2 FTS	1.9	J	5.3	0.71	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
8:2 FTS	1.3	J	5.3	0.93	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.3	1.0	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
HFPO-DA (GenX)	ND		5.3	1.1	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
9CI-PF3ONS	ND		5.3	0.93	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
11CI-PF3OUdS	ND	F1	5.3	0.82	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	22	*5-	25 - 150	12/17/23 19:57	12/18/23 14:07	1
13C5 PFPeA	110		25 - 150	12/17/23 19:57	12/18/23 14:07	1
13C2 PFHxA	87		25 - 150	12/17/23 19:57	12/18/23 14:07	1
13C4 PFHpA	86		25 - 150	12/17/23 19:57	12/18/23 14:07	1
13C4 PFOA	87		25 - 150	12/17/23 19:57	12/18/23 14:07	1
13C5 PFNA	94		25 - 150	12/17/23 19:57	12/18/23 14:07	1
13C2 PFDA	94		25 - 150	12/17/23 19:57	12/18/23 14:07	1
13C2 PFUnA	87		25 - 150	12/17/23 19:57	12/18/23 14:07	1
13C2 PFDoA	53		25 - 150	12/17/23 19:57	12/18/23 14:07	1
13C2 PFTeDA	59		25 - 150	12/17/23 19:57	12/18/23 14:07	1
13C3 PFBS	86		25 - 150	12/17/23 19:57	12/18/23 14:07	1
18O2 PFHxS	79		25 - 150	12/17/23 19:57	12/18/23 14:07	1
13C4 PFOS	75		25 - 150	12/17/23 19:57	12/18/23 14:07	1
13C8 FOSA	80		10 - 150	12/17/23 19:57	12/18/23 14:07	1
d3-NMeFOSAA	85		25 - 150	12/17/23 19:57	12/18/23 14:07	1
d5-NEtFOSAA	78		25 - 150	12/17/23 19:57	12/18/23 14:07	1
d-N-MeFOSA-M	58		10 - 150	12/17/23 19:57	12/18/23 14:07	1
d-N-EtFOSA-M	38		10 - 150	12/17/23 19:57	12/18/23 14:07	1
d7-N-MeFOSE-M	67		10 - 150	12/17/23 19:57	12/18/23 14:07	1
d9-N-EtFOSE-M	42		10 - 150	12/17/23 19:57	12/18/23 14:07	1
M2-4:2 FTS	109		25 - 150	12/17/23 19:57	12/18/23 14:07	1
M2-6:2 FTS	110		25 - 150	12/17/23 19:57	12/18/23 14:07	1
M2-8:2 FTS	133		25 - 150	12/17/23 19:57	12/18/23 14:07	1
13C3 HFPO-DA	82		25 - 150	12/17/23 19:57	12/18/23 14:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	75.1		0.1	0.1	%			12/15/23 11:00	1
Percent Solids (ASTM D 2216)	24.9		0.1	0.1	%			12/15/23 11:00	1

Client Sample ID: EB01-20231212

Lab Sample ID: 320-108053-10

Date Collected: 12/12/23 13:45

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.3	2.1	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluoropentanoic acid (PFPeA)	ND		1.7	0.42	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorohexanoic acid (PFHxA)	ND		1.7	0.50	ng/L		12/19/23 20:29	12/23/23 10:13	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: EB01-20231212

Lab Sample ID: 320-108053-10

Date Collected: 12/12/23 13:45

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	ND		1.7	0.21	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorooctanoic acid (PFOA)	ND		1.7	0.73	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.23	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.27	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.95	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.47	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.7	1.1	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.63	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.7	0.17	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.7	0.26	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.7	0.49	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.7	0.16	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	0.46	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.32	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.28	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.83	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorooctanesulfonamide (FOSA)	ND		1.7	0.84	ng/L		12/19/23 20:29	12/23/23 10:13	1
NEtFOSA	ND		1.7	0.75	ng/L		12/19/23 20:29	12/23/23 10:13	1
NMeFOSA	ND		1.7	0.37	ng/L		12/19/23 20:29	12/23/23 10:13	1
NMeFOSAA	ND		4.3	1.0	ng/L		12/19/23 20:29	12/23/23 10:13	1
NEtFOSAA	ND		4.3	1.1	ng/L		12/19/23 20:29	12/23/23 10:13	1
NMeFOSE	ND		3.4	1.2	ng/L		12/19/23 20:29	12/23/23 10:13	1
NEtFOSE	ND		1.7	0.73	ng/L		12/19/23 20:29	12/23/23 10:13	1
4:2 FTS	ND		1.7	0.21	ng/L		12/19/23 20:29	12/23/23 10:13	1
6:2 FTS	ND		4.3	2.1	ng/L		12/19/23 20:29	12/23/23 10:13	1
8:2 FTS	ND		1.7	0.40	ng/L		12/19/23 20:29	12/23/23 10:13	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.34	ng/L		12/19/23 20:29	12/23/23 10:13	1
HFPO-DA (GenX)	ND		3.4	1.3	ng/L		12/19/23 20:29	12/23/23 10:13	1
9Cl-PF3ONS	ND		1.7	0.21	ng/L		12/19/23 20:29	12/23/23 10:13	1
11Cl-PF3OUdS	ND		1.7	0.28	ng/L		12/19/23 20:29	12/23/23 10:13	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	82		25 - 150	12/19/23 20:29	12/23/23 10:13	1
13C5 PFPeA	93		25 - 150	12/19/23 20:29	12/23/23 10:13	1
13C2 PFHxA	99		25 - 150	12/19/23 20:29	12/23/23 10:13	1
13C4 PFHpA	115		25 - 150	12/19/23 20:29	12/23/23 10:13	1
13C4 PFOA	115		25 - 150	12/19/23 20:29	12/23/23 10:13	1
13C5 PFNA	121		25 - 150	12/19/23 20:29	12/23/23 10:13	1
13C2 PFDA	128		25 - 150	12/19/23 20:29	12/23/23 10:13	1
13C2 PFUnA	112		25 - 150	12/19/23 20:29	12/23/23 10:13	1
13C2 PFDoA	112		25 - 150	12/19/23 20:29	12/23/23 10:13	1
13C2 PFTeDA	101		25 - 150	12/19/23 20:29	12/23/23 10:13	1
13C3 PFBS	96		25 - 150	12/19/23 20:29	12/23/23 10:13	1
18O2 PFHxS	102		25 - 150	12/19/23 20:29	12/23/23 10:13	1
13C4 PFOS	122		25 - 150	12/19/23 20:29	12/23/23 10:13	1
13C8 FOSA	111		10 - 150	12/19/23 20:29	12/23/23 10:13	1
d3-NMeFOSAA	112		25 - 150	12/19/23 20:29	12/23/23 10:13	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: EB01-20231212

Lab Sample ID: 320-108053-10

Date Collected: 12/12/23 13:45

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
d5-NEtFOSAA	103		25 - 150	12/19/23 20:29	12/23/23 10:13	1
d-N-MeFOSA-M	97		10 - 150	12/19/23 20:29	12/23/23 10:13	1
d-N-EtFOSA-M	93		10 - 150	12/19/23 20:29	12/23/23 10:13	1
d7-N-MeFOSE-M	99		10 - 150	12/19/23 20:29	12/23/23 10:13	1
d9-N-EtFOSE-M	100		10 - 150	12/19/23 20:29	12/23/23 10:13	1
M2-4:2 FTS	113		25 - 150	12/19/23 20:29	12/23/23 10:13	1
M2-6:2 FTS	119		25 - 150	12/19/23 20:29	12/23/23 10:13	1
M2-8:2 FTS	155	*5+	25 - 150	12/19/23 20:29	12/23/23 10:13	1
13C3 HFPO-DA	104		25 - 150	12/19/23 20:29	12/23/23 10:13	1

Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-108053-8	Bio B 20231212	13 *5-	84	84	90	94	90	90	92
320-108053-9	Bio A 22-20231212	22 *5-	110	87	86	87	94	94	87
320-108053-9 MS	Bio A 22-20231212	33	100	83	89	93	94	89	92
320-108053-9 MSD	Bio A 22-20231212	10 *5-	74	93	92	97	98	96	90
LCS 320-728421/2-A	Lab Control Sample	35	95	82	89	88	82	87	90
MB 320-728421/1-A	Method Blank	39	97	77	79	82	83	80	81

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDaA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
320-108053-8	Bio B 20231212	72	80	89	88	78	89	90	101
320-108053-9	Bio A 22-20231212	53	59	86	79	75	80	85	78
320-108053-9 MS	Bio A 22-20231212	63	68	85	81	80	81	92	90
320-108053-9 MSD	Bio A 22-20231212	61	67	86	79	84	79	85	85
LCS 320-728421/2-A	Lab Control Sample	89	81	82	81	74	84	97	109
MB 320-728421/1-A	Method Blank	77	81	82	77	68	78	88	100

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	dMeFOSA (10-150)	dEtFOSA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	HFPODA (25-150)
320-108053-8	Bio B 20231212	80	64	80	72	100	115	123	82
320-108053-9	Bio A 22-20231212	58	38	67	42	109	110	133	82
320-108053-9 MS	Bio A 22-20231212	59	41	68	45	93	114	129	88
320-108053-9 MSD	Bio A 22-20231212	64	42	70	44	105	118	130	93
LCS 320-728421/2-A	Lab Control Sample	83	83	86	89	72	89	93	80
MB 320-728421/1-A	Method Blank	77	81	79	86	76	80	86	77

Surrogate Legend

- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- C4PFHA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDaA = 13C2 PFDaA
- PFTDA = 13C2 PFTeDA
- C3PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- PFOSA = 13C8 FOSA
- d3NMFOS = d3-NMeFOSAA
- d5NEFOS = d5-NEtFOSAA
- dMeFOSA = d-N-MeFOSA-M
- dEtFOSA = d-N-EtFOSA-M
- NMFM = d7-N-MeFOSE-M
- NEFM = d9-N-EtFOSE-M
- M242FTS = M2-4:2 FTS
- M262FTS = M2-6:2 FTS
- M282FTS = M2-8:2 FTS

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Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling
 HFPODA = 13C3 HFPO-DA

Job ID: 320-108053-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-108053-1	Inf 02-20231211	65	74	85	98	87	74	73	49
320-108053-1 - DL	Inf 02-20231211								
320-108053-2	Inf 07-20231211	67	91	86	99	90	72	78	55
320-108053-2 - DL	Inf 07-20231211								
320-108053-3	Inf 08-20231211	57	74	71	83	76	73	67	50
320-108053-3 - DL	Inf 08-20231211								
320-108053-4	Inf 11-20231211	64	84	84	94	86	72	67	46
320-108053-4 - DL	Inf 11-20231211								
320-108053-5	Inf 18-20231211	64	87	76	96	77	71	71	54
320-108053-6	Inf-Comp 20231211	39	46	51	61	53	53	49	38
320-108053-7	Eff 20231212	83	96	111	116	108	121	129	116
320-108053-10	EB01-20231212	82	93	99	115	115	121	128	112
LCS 320-728935/2-A	Lab Control Sample	93	97	108	123	111	128	133	123
MB 320-728935/1-A	Method Blank	83	83	99	110	108	119	111	107

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
320-108053-1	Inf 02-20231211	43	43	80	81	71	60	51	37
320-108053-1 - DL	Inf 02-20231211								
320-108053-2	Inf 07-20231211	40	45	84	79	72	61	52	41
320-108053-2 - DL	Inf 07-20231211								
320-108053-3	Inf 08-20231211	38	39	69	72	72	56	51	39
320-108053-3 - DL	Inf 08-20231211								
320-108053-4	Inf 11-20231211	36	39	83	76	70	57	42	32
320-108053-4 - DL	Inf 11-20231211								
320-108053-5	Inf 18-20231211	42	44	79	71	62	57	51	36
320-108053-6	Inf-Comp 20231211	26	28	46	48	51	40	37	29
320-108053-7	Eff 20231212	104	66	105	103	124	128	119	128
320-108053-10	EB01-20231212	112	101	96	102	122	111	112	103
LCS 320-728935/2-A	Lab Control Sample	138	123	111	112	140	126	137	130
MB 320-728935/1-A	Method Blank	111	105	87	104	118	112	111	109

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	dMeFOSA (10-150)	dEtFOSA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	HFPODA (25-150)
320-108053-1	Inf 02-20231211	47	56	46	60	98		107	96
320-108053-1 - DL	Inf 02-20231211						121		
320-108053-2	Inf 07-20231211	48	63	44	72	113		118	98
320-108053-2 - DL	Inf 07-20231211						109		
320-108053-3	Inf 08-20231211	45	49	46	59	92		109	78
320-108053-3 - DL	Inf 08-20231211						86		
320-108053-4	Inf 11-20231211	44	55	43	62	104		111	91
320-108053-4 - DL	Inf 11-20231211						124		
320-108053-5	Inf 18-20231211	42	58	48	70	100	135	114	89
320-108053-6	Inf-Comp 20231211	31	36	31	35	62	79	71	54
320-108053-7	Eff 20231212	103	89	87	78	121	150	191 *5+	110
320-108053-10	EB01-20231212	97	93	99	100	113	119	155 *5+	104
LCS 320-728935/2-A	Lab Control Sample	120	123	112	111	115	126	160 *5+	114
MB 320-728935/1-A	Method Blank	99	95	103	100	112	121	148	102

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Isotope Dilution Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-108053-1

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFOSA = 13C8 FOSA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
dMeFOSA = d-N-MeFOSA-M
dEtFOSA = d-N-EtFOSA-M
NMFm = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
HFPODA = 13C3 HFPO-DA

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-728421/1-A

Matrix: Solid

Analysis Batch: 728467

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 728421

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.20	0.046	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
Perfluoropentanoic acid (PFPeA)	ND		0.20	0.041	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
Perfluorohexanoic acid (PFHxA)	0.0366	J	0.20	0.031	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.038	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.053	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.022	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.048	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.042	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.030	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.20	0.021	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.037	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.038	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.20	0.037	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.029	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.20	0.049	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.20	0.043	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
Perfluorononanesulfonic acid (PFNS)	ND		0.20	0.029	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.20	0.052	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.20	0.047	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
Perfluorooctanesulfonamide (FOSA)	ND		0.20	0.033	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
NEtFOSA	ND		0.20	0.047	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
NMeFOSA	ND		0.20	0.049	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
NMeFOSAA	ND		0.20	0.023	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
NEtFOSAA	ND		0.20	0.048	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
NMeFOSE	ND		0.20	0.047	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
NEtFOSE	ND		0.20	0.028	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
4:2 FTS	ND		0.20	0.051	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
6:2 FTS	ND		0.20	0.027	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
8:2 FTS	ND		0.20	0.035	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.039	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
HFPO-DA (GenX)	ND		0.20	0.041	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
9Cl-PF3ONS	ND		0.20	0.035	ug/Kg		12/17/23 19:57	12/18/23 13:33	1
11Cl-PF3OUdS	ND		0.20	0.031	ug/Kg		12/17/23 19:57	12/18/23 13:33	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	39		25 - 150	12/17/23 19:57	12/18/23 13:33	1
13C5 PFPeA	97		25 - 150	12/17/23 19:57	12/18/23 13:33	1
13C2 PFHxA	77		25 - 150	12/17/23 19:57	12/18/23 13:33	1
13C4 PFHpA	79		25 - 150	12/17/23 19:57	12/18/23 13:33	1
13C4 PFOA	82		25 - 150	12/17/23 19:57	12/18/23 13:33	1
13C5 PFNA	83		25 - 150	12/17/23 19:57	12/18/23 13:33	1
13C2 PFDA	80		25 - 150	12/17/23 19:57	12/18/23 13:33	1
13C2 PFUnA	81		25 - 150	12/17/23 19:57	12/18/23 13:33	1
13C2 PFDoA	77		25 - 150	12/17/23 19:57	12/18/23 13:33	1
13C2 PFTeDA	81		25 - 150	12/17/23 19:57	12/18/23 13:33	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-728421/1-A
Matrix: Solid
Analysis Batch: 728467

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 728421

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 PFBS	82		25 - 150	12/17/23 19:57	12/18/23 13:33	1
18O2 PFHxS	77		25 - 150	12/17/23 19:57	12/18/23 13:33	1
13C4 PFOS	68		25 - 150	12/17/23 19:57	12/18/23 13:33	1
13C8 FOSA	78		10 - 150	12/17/23 19:57	12/18/23 13:33	1
d3-NMeFOSAA	88		25 - 150	12/17/23 19:57	12/18/23 13:33	1
d5-NEtFOSAA	100		25 - 150	12/17/23 19:57	12/18/23 13:33	1
d-N-MeFOSA-M	77		10 - 150	12/17/23 19:57	12/18/23 13:33	1
d-N-EtFOSA-M	81		10 - 150	12/17/23 19:57	12/18/23 13:33	1
d7-N-MeFOSE-M	79		10 - 150	12/17/23 19:57	12/18/23 13:33	1
d9-N-EtFOSE-M	86		10 - 150	12/17/23 19:57	12/18/23 13:33	1
M2-4:2 FTS	76		25 - 150	12/17/23 19:57	12/18/23 13:33	1
M2-6:2 FTS	80		25 - 150	12/17/23 19:57	12/18/23 13:33	1
M2-8:2 FTS	86		25 - 150	12/17/23 19:57	12/18/23 13:33	1
13C3 HFPO-DA	77		25 - 150	12/17/23 19:57	12/18/23 13:33	1

Lab Sample ID: LCS 320-728421/2-A
Matrix: Solid
Analysis Batch: 728467

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 728421

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	2.00	2.34		ug/Kg		117	60 - 135
Perfluoropentanoic acid (PFPeA)	2.00	1.86		ug/Kg		93	60 - 135
Perfluorohexanoic acid (PFHxA)	2.00	2.11		ug/Kg		105	60 - 135
Perfluoroheptanoic acid (PFHpA)	2.00	1.76		ug/Kg		88	60 - 135
Perfluorooctanoic acid (PFOA)	2.00	1.99		ug/Kg		100	60 - 135
Perfluorononanoic acid (PFNA)	2.00	1.91		ug/Kg		95	60 - 135
Perfluorodecanoic acid (PFDA)	2.00	1.91		ug/Kg		95	60 - 135
Perfluoroundecanoic acid (PFUnA)	2.00	1.91		ug/Kg		96	60 - 135
Perfluorododecanoic acid (PFDoA)	2.00	2.02		ug/Kg		101	60 - 135
Perfluorotridecanoic acid (PFTrDA)	2.00	1.95		ug/Kg		97	60 - 135
Perfluorotetradecanoic acid (PFTeA)	2.00	1.72		ug/Kg		86	60 - 135
Perfluorobutanesulfonic acid (PFBS)	1.78	1.61		ug/Kg		91	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	1.88	1.55		ug/Kg		82	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.53		ug/Kg		84	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	1.91	1.99		ug/Kg		104	60 - 135
Perfluorooctanesulfonic acid (PFOS)	1.86	1.86		ug/Kg		100	60 - 135
Perfluorononanesulfonic acid (PFNS)	1.92	1.78		ug/Kg		92	60 - 135
Perfluorodecanesulfonic acid (PFDS)	1.93	1.91		ug/Kg		99	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	1.94	1.73		ug/Kg		89	60 - 135

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-728421/2-A

Matrix: Solid

Analysis Batch: 728467

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 728421

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	2.00	1.82		ug/Kg		91	60 - 135
NEtFOSA	2.00	1.82		ug/Kg		91	60 - 135
NMeFOSA	2.00	1.97		ug/Kg		98	60 - 135
NMeFOSAA	2.00	1.94		ug/Kg		97	60 - 135
NEtFOSAA	2.00	1.88		ug/Kg		94	60 - 135
NMeFOSE	2.00	1.61		ug/Kg		80	60 - 135
NEtFOSE	2.00	1.85		ug/Kg		93	60 - 135
4:2 FTS	1.88	2.07		ug/Kg		110	60 - 135
6:2 FTS	1.90	1.81		ug/Kg		95	60 - 135
8:2 FTS	1.92	1.94		ug/Kg		101	60 - 135
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.89	2.10		ug/Kg		111	60 - 135
HFPO-DA (GenX)	2.00	1.70		ug/Kg		85	60 - 135
9Cl-PF3ONS	1.87	1.75		ug/Kg		94	60 - 135
11Cl-PF3OUdS	1.89	1.95		ug/Kg		103	60 - 135

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	35		25 - 150
13C5 PFPeA	95		25 - 150
13C2 PFHxA	82		25 - 150
13C4 PFHpA	89		25 - 150
13C4 PFOA	88		25 - 150
13C5 PFNA	82		25 - 150
13C2 PFDA	87		25 - 150
13C2 PFUnA	90		25 - 150
13C2 PFDa	89		25 - 150
13C2 PFTeDA	81		25 - 150
13C3 PFBS	82		25 - 150
18O2 PFHxS	81		25 - 150
13C4 PFOS	74		25 - 150
13C8 FOSA	84		10 - 150
d3-NMeFOSAA	97		25 - 150
d5-NEtFOSAA	109		25 - 150
d-N-MeFOSA-M	83		10 - 150
d-N-EtFOSA-M	83		10 - 150
d7-N-MeFOSE-M	86		10 - 150
d9-N-EtFOSE-M	89		10 - 150
M2-4:2 FTS	72		25 - 150
M2-6:2 FTS	89		25 - 150
M2-8:2 FTS	93		25 - 150
13C3 HFPO-DA	80		25 - 150

Lab Sample ID: 320-108053-9 MS

Matrix: Solid

Analysis Batch: 728467

Client Sample ID: Bio A 22-20231212

Prep Type: Total/NA

Prep Batch: 728421

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	8.0		69.3	89.0		ug/Kg	☆	117	70 - 130

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 320-108053-9 MS

Matrix: Solid

Analysis Batch: 728467

Client Sample ID: Bio A 22-20231212

Prep Type: Total/NA

Prep Batch: 728421

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
Perfluoropentanoic acid (PFPeA)	12		69.3	76.3		ug/Kg	☼	93	70 - 130
Perfluorohexanoic acid (PFHxA)	23	B	69.3	106		ug/Kg	☼	120	70 - 130
Perfluoroheptanoic acid (PFHpA)	1.8	J	69.3	63.7		ug/Kg	☼	89	70 - 130
Perfluorooctanoic acid (PFOA)	16		69.3	82.4		ug/Kg	☼	96	70 - 130
Perfluorononanoic acid (PFNA)	1.5	J	69.3	66.1		ug/Kg	☼	93	70 - 130
Perfluorodecanoic acid (PFDA)	11		69.3	88.5		ug/Kg	☼	112	70 - 130
Perfluoroundecanoic acid (PFUnA)	1.5	J	69.3	65.1		ug/Kg	☼	92	70 - 130
Perfluorododecanoic acid (PFDoA)	3.9	J	69.3	67.4		ug/Kg	☼	92	70 - 130
Perfluorotridecanoic acid (PFTrDA)	ND	F1 F2	69.3	49.0		ug/Kg	☼	71	70 - 130
Perfluorotetradecanoic acid (PFTeA)	1.2	J	69.3	64.5		ug/Kg	☼	91	70 - 130
Perfluorobutanesulfonic acid (PFBS)	1.1	J	61.5	54.1		ug/Kg	☼	86	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	ND		65.1	57.8		ug/Kg	☼	89	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	1.6	J I	63.2	56.8		ug/Kg	☼	87	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	ND		66.1	64.5		ug/Kg	☼	98	70 - 130
Perfluorooctanesulfonic acid (PFOS)	13	I	64.5	73.9	I	ug/Kg	☼	94	70 - 130
Perfluorononanesulfonic acid (PFNS)	ND		66.7	55.9		ug/Kg	☼	84	70 - 130
Perfluorodecanesulfonic acid (PFDS)	4.8	J	66.8	70.2		ug/Kg	☼	98	70 - 130
Perfluorododecanesulfonic acid (PFDoS)	ND		67.2	66.1		ug/Kg	☼	98	70 - 130
Perfluorooctanesulfonamide (FOSA)	1.9	J	69.3	66.8		ug/Kg	☼	94	70 - 130
NEtFOSA	ND		69.3	70.0		ug/Kg	☼	101	70 - 130
NMeFOSA	ND		69.3	63.9		ug/Kg	☼	92	70 - 130
NMeFOSAA	32		69.3	100		ug/Kg	☼	98	70 - 130
NEtFOSAA	9.0		69.3	76.6		ug/Kg	☼	98	70 - 130
NMeFOSE	19		69.3	72.6		ug/Kg	☼	78	70 - 130
NEtFOSE	6.9		69.3	72.7		ug/Kg	☼	95	70 - 130
4:2 FTS	ND		65.0	65.5		ug/Kg	☼	101	70 - 130
6:2 FTS	1.9	J	66.0	67.2		ug/Kg	☼	99	70 - 130
8:2 FTS	1.3	J	66.5	70.2		ug/Kg	☼	104	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		65.6	58.4		ug/Kg	☼	89	70 - 130
HFPO-DA (GenX)	ND		69.3	63.7		ug/Kg	☼	92	70 - 130
9Cl-PF3ONS	ND		64.7	66.7		ug/Kg	☼	103	70 - 130
11Cl-PF3OUdS	ND	F1	65.4	41.7	F1	ug/Kg	☼	64	70 - 130
		MS MS							
Isotope Dilution		%Recovery	Qualifier	Limits					
13C4 PFBA		33		25 - 150					
13C5 PFPeA		100		25 - 150					
13C2 PFHxA		83		25 - 150					
13C4 PFHpA		89		25 - 150					

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 320-108053-9 MS
Matrix: Solid
Analysis Batch: 728467

Client Sample ID: Bio A 22-20231212
Prep Type: Total/NA
Prep Batch: 728421

<i>Isotope Dilution</i>	<i>MS</i>	<i>MS</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C4 PFOA	93		25 - 150
13C5 PFNA	94		25 - 150
13C2 PFDA	89		25 - 150
13C2 PFUnA	92		25 - 150
13C2 PFDoA	63		25 - 150
13C2 PFTeDA	68		25 - 150
13C3 PFBS	85		25 - 150
18O2 PFHxS	81		25 - 150
13C4 PFOS	80		25 - 150
13C8 FOSA	81		10 - 150
d3-NMeFOSAA	92		25 - 150
d5-NEtFOSAA	90		25 - 150
d-N-MeFOSA-M	59		10 - 150
d-N-EtFOSA-M	41		10 - 150
d7-N-MeFOSE-M	68		10 - 150
d9-N-EtFOSE-M	45		10 - 150
M2-4:2 FTS	93		25 - 150
M2-6:2 FTS	114		25 - 150
M2-8:2 FTS	129		25 - 150
13C3 HFPO-DA	88		25 - 150

Lab Sample ID: 320-108053-9 MSD
Matrix: Solid
Analysis Batch: 728467

Client Sample ID: Bio A 22-20231212
Prep Type: Total/NA
Prep Batch: 728421

<i>Analyte</i>	<i>Sample</i>	<i>Sample</i>	<i>Spike</i>	<i>MSD</i>	<i>MSD</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec</i>	<i>RPD</i>	<i>Limit</i>
	<i>Result</i>	<i>Qualifier</i>	<i>Added</i>	<i>Result</i>	<i>Qualifier</i>				<i>Limits</i>		
Perfluorobutanoic acid (PFBA)	8.0		60.0	79.1		ug/Kg	☼	119	70 - 130	12	30
Perfluoropentanoic acid (PFPeA)	12		60.0	63.2		ug/Kg	☼	86	70 - 130	19	30
Perfluorohexanoic acid (PFHxA)	23	B	60.0	84.0		ug/Kg	☼	101	70 - 130	24	30
Perfluoroheptanoic acid (PFHpA)	1.8	J	60.0	57.7		ug/Kg	☼	93	70 - 130	10	30
Perfluorooctanoic acid (PFOA)	16		60.0	71.2		ug/Kg	☼	92	70 - 130	15	30
Perfluorononanoic acid (PFNA)	1.5	J	60.0	55.2		ug/Kg	☼	90	70 - 130	18	30
Perfluorodecanoic acid (PFDA)	11		60.0	75.4		ug/Kg	☼	107	70 - 130	16	30
Perfluoroundecanoic acid (PFUnA)	1.5	J	60.0	61.5		ug/Kg	☼	100	70 - 130	6	30
Perfluorododecanoic acid (PFDoA)	3.9	J	60.0	58.0		ug/Kg	☼	90	70 - 130	15	30
Perfluorotridecanoic acid (PFTTrDA)	ND	F1 F2	60.0	35.0	F1 F2	ug/Kg	☼	58	70 - 130	33	30
Perfluorotetradecanoic acid (PFTeA)	1.2	J	60.0	54.9		ug/Kg	☼	89	70 - 130	16	30
Perfluorobutanesulfonic acid (PFBS)	1.1	J	53.3	47.7		ug/Kg	☼	88	70 - 130	12	30
Perfluoropentanesulfonic acid (PFPeS)	ND		56.4	52.5		ug/Kg	☼	93	70 - 130	10	30
Perfluorohexanesulfonic acid (PFHxS)	1.6	J I	54.7	52.5		ug/Kg	☼	93	70 - 130	8	30
Perfluoroheptanesulfonic acid (PFHpS)	ND		57.2	55.5		ug/Kg	☼	97	70 - 130	15	30
Perfluorooctanesulfonic acid (PFOS)	13	I	55.8	62.7	I	ug/Kg	☼	88	70 - 130	17	30

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 320-108053-9 MSD

Matrix: Solid

Analysis Batch: 728467

Client Sample ID: Bio A 22-20231212

Prep Type: Total/NA

Prep Batch: 728421

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorononanesulfonic acid (PFNS)	ND		57.7	53.4		ug/Kg	⊛	93	70 - 130	5	30
Perfluorodecanesulfonic acid (PFDS)	4.8	J	57.8	65.7		ug/Kg	⊛	105	70 - 130	7	30
Perfluorododecanesulfonic acid (PFDoS)	ND		58.2	48.7		ug/Kg	⊛	84	70 - 130	30	30
Perfluorooctanesulfonamide (FOSA)	1.9	J	60.0	58.4		ug/Kg	⊛	94	70 - 130	13	30
NEtFOSA	ND		60.0	55.2		ug/Kg	⊛	92	70 - 130	24	30
NMeFOSA	ND		60.0	53.3		ug/Kg	⊛	89	70 - 130	18	30
NMeFOSAA	32		60.0	97.9		ug/Kg	⊛	109	70 - 130	2	30
NEtFOSAA	9.0		60.0	62.3		ug/Kg	⊛	89	70 - 130	21	30
NMeFOSE	19		60.0	70.1		ug/Kg	⊛	86	70 - 130	3	30
NEtFOSE	6.9		60.0	67.2		ug/Kg	⊛	100	70 - 130	8	30
4:2 FTS	ND		56.3	61.7		ug/Kg	⊛	110	70 - 130	6	30
6:2 FTS	1.9	J	57.1	60.3		ug/Kg	⊛	102	70 - 130	11	30
8:2 FTS	1.3	J	57.6	61.9		ug/Kg	⊛	105	70 - 130	13	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		56.8	49.4		ug/Kg	⊛	87	70 - 130	17	30
HFPO-DA (GenX)	ND		60.0	54.5		ug/Kg	⊛	91	70 - 130	16	30
9CI-PF3ONS	ND		56.0	54.6		ug/Kg	⊛	97	70 - 130	20	30
11CI-PF3OUdS	ND	F1	56.6	47.7		ug/Kg	⊛	84	70 - 130	14	30

Isotope Dilution	MSD %Recovery	MSD Qualifier	Limits
13C4 PFBA	10	*5-	25 - 150
13C5 PFPeA	74		25 - 150
13C2 PFHxA	93		25 - 150
13C4 PFHpA	92		25 - 150
13C4 PFOA	97		25 - 150
13C5 PFNA	98		25 - 150
13C2 PFDA	96		25 - 150
13C2 PFUnA	90		25 - 150
13C2 PFDoA	61		25 - 150
13C2 PFTeDA	67		25 - 150
13C3 PFBS	86		25 - 150
18O2 PFHxS	79		25 - 150
13C4 PFOS	84		25 - 150
13C8 FOSA	79		10 - 150
d3-NMeFOSAA	85		25 - 150
d5-NEtFOSAA	85		25 - 150
d-N-MeFOSA-M	64		10 - 150
d-N-EtFOSA-M	42		10 - 150
d7-N-MeFOSE-M	70		10 - 150
d9-N-EtFOSE-M	44		10 - 150
M2-4:2 FTS	105		25 - 150
M2-6:2 FTS	118		25 - 150
M2-8:2 FTS	130		25 - 150
13C3 HFPO-DA	93		25 - 150

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-728935/1-A
Matrix: Water
Analysis Batch: 729693

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 728935

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		12/19/23 20:29	12/23/23 07:12	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		12/19/23 20:29	12/23/23 07:12	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		12/19/23 20:29	12/23/23 07:12	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		12/19/23 20:29	12/23/23 07:12	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		12/19/23 20:29	12/23/23 07:12	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		12/19/23 20:29	12/23/23 07:12	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		12/19/23 20:29	12/23/23 07:12	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		12/19/23 20:29	12/23/23 07:12	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		12/19/23 20:29	12/23/23 07:12	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		12/19/23 20:29	12/23/23 07:12	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		12/19/23 20:29	12/23/23 07:12	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		12/19/23 20:29	12/23/23 07:12	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.30	ng/L		12/19/23 20:29	12/23/23 07:12	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		12/19/23 20:29	12/23/23 07:12	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.19	ng/L		12/19/23 20:29	12/23/23 07:12	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		12/19/23 20:29	12/23/23 07:12	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.37	ng/L		12/19/23 20:29	12/23/23 07:12	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		12/19/23 20:29	12/23/23 07:12	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.97	ng/L		12/19/23 20:29	12/23/23 07:12	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		12/19/23 20:29	12/23/23 07:12	1
NEtFOSA	ND		2.0	0.87	ng/L		12/19/23 20:29	12/23/23 07:12	1
NMeFOSA	ND		2.0	0.43	ng/L		12/19/23 20:29	12/23/23 07:12	1
NMeFOSAA	ND		5.0	1.2	ng/L		12/19/23 20:29	12/23/23 07:12	1
NEtFOSAA	ND		5.0	1.3	ng/L		12/19/23 20:29	12/23/23 07:12	1
NMeFOSE	ND		4.0	1.4	ng/L		12/19/23 20:29	12/23/23 07:12	1
NEtFOSE	ND		2.0	0.85	ng/L		12/19/23 20:29	12/23/23 07:12	1
4:2 FTS	ND		2.0	0.24	ng/L		12/19/23 20:29	12/23/23 07:12	1
6:2 FTS	ND		5.0	2.5	ng/L		12/19/23 20:29	12/23/23 07:12	1
8:2 FTS	ND		2.0	0.46	ng/L		12/19/23 20:29	12/23/23 07:12	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.40	ng/L		12/19/23 20:29	12/23/23 07:12	1
HFPO-DA (GenX)	ND		4.0	1.5	ng/L		12/19/23 20:29	12/23/23 07:12	1
9Cl-PF3ONS	ND		2.0	0.24	ng/L		12/19/23 20:29	12/23/23 07:12	1
11Cl-PF3OUdS	ND		2.0	0.32	ng/L		12/19/23 20:29	12/23/23 07:12	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	83		25 - 150	12/19/23 20:29	12/23/23 07:12	1
13C5 PFPeA	83		25 - 150	12/19/23 20:29	12/23/23 07:12	1
13C2 PFHxA	99		25 - 150	12/19/23 20:29	12/23/23 07:12	1
13C4 PFHpA	110		25 - 150	12/19/23 20:29	12/23/23 07:12	1
13C4 PFOA	108		25 - 150	12/19/23 20:29	12/23/23 07:12	1
13C5 PFNA	119		25 - 150	12/19/23 20:29	12/23/23 07:12	1
13C2 PFDA	111		25 - 150	12/19/23 20:29	12/23/23 07:12	1
13C2 PFUnA	107		25 - 150	12/19/23 20:29	12/23/23 07:12	1
13C2 PFDoA	111		25 - 150	12/19/23 20:29	12/23/23 07:12	1
13C2 PFTeDA	105		25 - 150	12/19/23 20:29	12/23/23 07:12	1

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QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-728935/1-A
Matrix: Water
Analysis Batch: 729693

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 728935

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 PFBS	87		25 - 150	12/19/23 20:29	12/23/23 07:12	1
18O2 PFHxS	104		25 - 150	12/19/23 20:29	12/23/23 07:12	1
13C4 PFOS	118		25 - 150	12/19/23 20:29	12/23/23 07:12	1
13C8 FOSA	112		10 - 150	12/19/23 20:29	12/23/23 07:12	1
d3-NMeFOSAA	111		25 - 150	12/19/23 20:29	12/23/23 07:12	1
d5-NEtFOSAA	109		25 - 150	12/19/23 20:29	12/23/23 07:12	1
d-N-MeFOSA-M	99		10 - 150	12/19/23 20:29	12/23/23 07:12	1
d-N-EtFOSA-M	95		10 - 150	12/19/23 20:29	12/23/23 07:12	1
d7-N-MeFOSE-M	103		10 - 150	12/19/23 20:29	12/23/23 07:12	1
d9-N-EtFOSE-M	100		10 - 150	12/19/23 20:29	12/23/23 07:12	1
M2-4:2 FTS	112		25 - 150	12/19/23 20:29	12/23/23 07:12	1
M2-6:2 FTS	121		25 - 150	12/19/23 20:29	12/23/23 07:12	1
M2-8:2 FTS	148		25 - 150	12/19/23 20:29	12/23/23 07:12	1
13C3 HFPO-DA	102		25 - 150	12/19/23 20:29	12/23/23 07:12	1

Lab Sample ID: LCS 320-728935/2-A
Matrix: Water
Analysis Batch: 729693

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 728935

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	160	144		ng/L		90	60 - 135
Perfluoropentanoic acid (PFPeA)	160	156		ng/L		97	60 - 135
Perfluorohexanoic acid (PFHxA)	160	159		ng/L		100	60 - 135
Perfluoroheptanoic acid (PFHpA)	160	125		ng/L		78	60 - 135
Perfluorooctanoic acid (PFOA)	160	151		ng/L		94	60 - 135
Perfluorononanoic acid (PFNA)	160	157		ng/L		98	60 - 135
Perfluorodecanoic acid (PFDA)	160	141		ng/L		88	60 - 135
Perfluoroundecanoic acid (PFUnA)	160	149		ng/L		93	60 - 135
Perfluorododecanoic acid (PFDoA)	160	147		ng/L		92	60 - 135
Perfluorotridecanoic acid (PFTrDA)	160	141		ng/L		88	60 - 135
Perfluorotetradecanoic acid (PFTeA)	160	147		ng/L		92	60 - 135
Perfluorobutanesulfonic acid (PFBS)	142	117		ng/L		82	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	150	136		ng/L		91	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	146	133		ng/L		91	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	153	132		ng/L		86	60 - 135
Perfluorooctanesulfonic acid (PFOS)	149	132		ng/L		89	60 - 135
Perfluorononanesulfonic acid (PFNS)	154	131		ng/L		85	60 - 135
Perfluorodecanesulfonic acid (PFDS)	154	141		ng/L		91	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	155	148		ng/L		95	60 - 135

Eurofins Sacramento

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-728935/2-A
Matrix: Water
Analysis Batch: 729693

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 728935

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	160	140		ng/L		87	60 - 135
NEtFOSA	160	144		ng/L		90	60 - 135
NMeFOSA	160	154		ng/L		97	60 - 135
NMeFOSAA	160	138		ng/L		86	60 - 135
NEtFOSAA	160	162		ng/L		101	60 - 135
NMeFOSE	160	143		ng/L		89	60 - 135
NEtFOSE	160	153		ng/L		96	60 - 135
4:2 FTS	150	135		ng/L		90	60 - 135
6:2 FTS	152	154		ng/L		101	60 - 135
8:2 FTS	154	143		ng/L		93	60 - 135
4,8-Dioxa-3H-perfluoronanoic acid (ADONA)	151	105		ng/L		69	60 - 135
HFPO-DA (GenX)	160	140		ng/L		87	60 - 135
9Cl-PF3ONS	149	135		ng/L		91	60 - 135
11Cl-PF3OUdS	151	136		ng/L		90	60 - 135

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	93		25 - 150
13C5 PFPeA	97		25 - 150
13C2 PFHxA	108		25 - 150
13C4 PFHpA	123		25 - 150
13C4 PFOA	111		25 - 150
13C5 PFNA	128		25 - 150
13C2 PFDA	133		25 - 150
13C2 PFUnA	123		25 - 150
13C2 PFDoA	138		25 - 150
13C2 PFTeDA	123		25 - 150
13C3 PFBS	111		25 - 150
18O2 PFHxS	112		25 - 150
13C4 PFOS	140		25 - 150
13C8 FOSA	126		10 - 150
d3-NMeFOSAA	137		25 - 150
d5-NEtFOSAA	130		25 - 150
d-N-MeFOSA-M	120		10 - 150
d-N-EtFOSA-M	123		10 - 150
d7-N-MeFOSE-M	112		10 - 150
d9-N-EtFOSE-M	111		10 - 150
M2-4:2 FTS	115		25 - 150
M2-6:2 FTS	126		25 - 150
M2-8:2 FTS	160	*5+	25 - 150
13C3 HFPO-DA	114		25 - 150

QC Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 500-747160/1
Matrix: Water
Analysis Batch: 747160

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		5.0	1.9	mg/L			12/18/23 13:19	1

Lab Sample ID: LCS 500-747160/2
Matrix: Water
Analysis Batch: 747160

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	200	177		mg/L		88	80 - 120

Lab Sample ID: MB 500-747392/1
Matrix: Water
Analysis Batch: 747392

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		5.0	1.9	mg/L			12/19/23 16:26	1

Lab Sample ID: LCS 500-747392/2
Matrix: Water
Analysis Batch: 747392

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	200	192		mg/L		96	80 - 120

QC Association Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

LCMS

Prep Batch: 728421

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-108053-8	Bio B 20231212	Total/NA	Solid	SHAKE	
320-108053-9	Bio A 22-20231212	Total/NA	Solid	SHAKE	
MB 320-728421/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-728421/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
320-108053-9 MS	Bio A 22-20231212	Total/NA	Solid	SHAKE	
320-108053-9 MSD	Bio A 22-20231212	Total/NA	Solid	SHAKE	

Analysis Batch: 728467

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-108053-8	Bio B 20231212	Total/NA	Solid	537 (modified)	728421
320-108053-9	Bio A 22-20231212	Total/NA	Solid	537 (modified)	728421
MB 320-728421/1-A	Method Blank	Total/NA	Solid	537 (modified)	728421
LCS 320-728421/2-A	Lab Control Sample	Total/NA	Solid	537 (modified)	728421
320-108053-9 MS	Bio A 22-20231212	Total/NA	Solid	537 (modified)	728421
320-108053-9 MSD	Bio A 22-20231212	Total/NA	Solid	537 (modified)	728421

Prep Batch: 728815

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-108053-1	Inf 02-20231211	Total/NA	Water	3535	
320-108053-1 - DL	Inf 02-20231211	Total/NA	Water	3535	
320-108053-2	Inf 07-20231211	Total/NA	Water	3535	
320-108053-2 - DL	Inf 07-20231211	Total/NA	Water	3535	
320-108053-3	Inf 08-20231211	Total/NA	Water	3535	
320-108053-3 - DL	Inf 08-20231211	Total/NA	Water	3535	
320-108053-4 - DL	Inf 11-20231211	Total/NA	Water	3535	
320-108053-4	Inf 11-20231211	Total/NA	Water	3535	
320-108053-5	Inf 18-20231211	Total/NA	Water	3535	

Prep Batch: 728935

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-108053-6	Inf-Comp 20231211	Total/NA	Water	3535	
320-108053-7	Eff 20231212	Total/NA	Water	3535	
320-108053-10	EB01-20231212	Total/NA	Water	3535	
MB 320-728935/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-728935/2-A	Lab Control Sample	Total/NA	Water	3535	

Analysis Batch: 729672

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-108053-1	Inf 02-20231211	Total/NA	Water	537 (modified)	728815
320-108053-1 - DL	Inf 02-20231211	Total/NA	Water	537 (modified)	728815
320-108053-2	Inf 07-20231211	Total/NA	Water	537 (modified)	728815
320-108053-2 - DL	Inf 07-20231211	Total/NA	Water	537 (modified)	728815
320-108053-3	Inf 08-20231211	Total/NA	Water	537 (modified)	728815
320-108053-3 - DL	Inf 08-20231211	Total/NA	Water	537 (modified)	728815
320-108053-4	Inf 11-20231211	Total/NA	Water	537 (modified)	728815
320-108053-4 - DL	Inf 11-20231211	Total/NA	Water	537 (modified)	728815
320-108053-5	Inf 18-20231211	Total/NA	Water	537 (modified)	728815

Analysis Batch: 729693

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-108053-6	Inf-Comp 20231211	Total/NA	Water	537 (modified)	728935

Eurofins Sacramento

QC Association Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-108053-1

LCMS (Continued)

Analysis Batch: 729693 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-108053-7	Eff 20231212	Total/NA	Water	537 (modified)	728935
320-108053-10	EB01-20231212	Total/NA	Water	537 (modified)	728935
MB 320-728935/1-A	Method Blank	Total/NA	Water	537 (modified)	728935
LCS 320-728935/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	728935

General Chemistry

Analysis Batch: 727869

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-108053-8	Bio B 20231212	Total/NA	Solid	D 2216	
320-108053-9	Bio A 22-20231212	Total/NA	Solid	D 2216	

Analysis Batch: 747160

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-108053-1	Inf 02-20231211	Total/NA	Water	SM 2540D	
320-108053-2	Inf 07-20231211	Total/NA	Water	SM 2540D	
320-108053-3	Inf 08-20231211	Total/NA	Water	SM 2540D	
320-108053-4	Inf 11-20231211	Total/NA	Water	SM 2540D	
320-108053-5	Inf 18-20231211	Total/NA	Water	SM 2540D	
320-108053-6	Inf-Comp 20231211	Total/NA	Water	SM 2540D	
MB 500-747160/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 500-747160/2	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 747392

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-108053-7	Eff 20231212	Total/NA	Water	SM 2540D	
MB 500-747392/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 500-747392/2	Lab Control Sample	Total/NA	Water	SM 2540D	

Lab Chronicle

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Inf 02-20231211

Lab Sample ID: 320-108053-1

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			273.6 mL	10.0 mL	728815	12/19/23 12:42	M1G	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	729672	12/23/23 02:18	D1R	EET SAC
Total/NA	Prep	3535	DL		273.6 mL	10.0 mL	728815	12/19/23 12:42	M1G	EET SAC
Total/NA	Analysis	537 (modified)	DL	20	1 mL	1 mL	729672	12/23/23 03:26	D1R	EET SAC
Total/NA	Analysis	SM 2540D		1	60 mL	500 mL	747160	12/18/23 14:26	SO	EET CHI

Completed: 12/18/23 14:30 ¹

Client Sample ID: Inf 07-20231211

Lab Sample ID: 320-108053-2

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			275.1 mL	10.0 mL	728815	12/19/23 12:42	M1G	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	729672	12/23/23 02:29	D1R	EET SAC
Total/NA	Prep	3535	DL		275.1 mL	10.0 mL	728815	12/19/23 12:42	M1G	EET SAC
Total/NA	Analysis	537 (modified)	DL	20	1 mL	1 mL	729672	12/23/23 03:59	D1R	EET SAC
Total/NA	Analysis	SM 2540D		1	50 mL	500 mL	747160	12/18/23 14:30	SO	EET CHI

Completed: 12/18/23 14:33 ¹

Client Sample ID: Inf 08-20231211

Lab Sample ID: 320-108053-3

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			263.7 mL	10.0 mL	728815	12/19/23 12:42	M1G	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	729672	12/23/23 02:40	D1R	EET SAC
Total/NA	Prep	3535	DL		263.7 mL	10.0 mL	728815	12/19/23 12:42	M1G	EET SAC
Total/NA	Analysis	537 (modified)	DL	20	1 mL	1 mL	729672	12/23/23 04:11	D1R	EET SAC
Total/NA	Analysis	SM 2540D		1	60 mL	500 mL	747160	12/18/23 14:33	SO	EET CHI

Completed: 12/18/23 14:37 ¹

Client Sample ID: Inf 11-20231211

Lab Sample ID: 320-108053-4

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			266.4 mL	10.0 mL	728815	12/19/23 12:42	M1G	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	729672	12/23/23 02:51	D1R	EET SAC
Total/NA	Prep	3535	DL		266.4 mL	10.0 mL	728815	12/19/23 12:42	M1G	EET SAC
Total/NA	Analysis	537 (modified)	DL	20	1 mL	1 mL	729672	12/23/23 04:22	D1R	EET SAC
Total/NA	Analysis	SM 2540D		1	50 mL	500 mL	747160	12/18/23 14:37	SO	EET CHI

Completed: 12/18/23 14:40 ¹

Lab Chronicle

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Inf 18-20231211

Lab Sample ID: 320-108053-5

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			281 mL	10.0 mL	728815	12/19/23 12:42	M1G	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	729672	12/23/23 03:03	D1R	EET SAC
Total/NA	Analysis	SM 2540D		1	60 mL	500 mL	747160	12/18/23 14:40	SO	EET CHI
								Completed: 12/18/23 14:44 ¹		

Client Sample ID: Inf-Comp 20231211

Lab Sample ID: 320-108053-6

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			264.4 mL	10.0 mL	728935	12/19/23 20:29	ERR	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	729693	12/23/23 08:31	C1P	EET SAC
Total/NA	Analysis	SM 2540D		1	50 mL	500 mL	747160	12/18/23 14:44	SO	EET CHI
								Completed: 12/18/23 14:48 ¹		

Client Sample ID: Eff 20231212

Lab Sample ID: 320-108053-7

Date Collected: 12/12/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			261.5 mL	10.0 mL	728935	12/19/23 20:29	ERR	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	729693	12/23/23 10:02	C1P	EET SAC
Total/NA	Analysis	SM 2540D		1	500 mL	500 mL	747392	12/19/23 16:56	SO	EET CHI
								Completed: 12/19/23 16:59 ¹		

Client Sample ID: Bio B 20231212

Lab Sample ID: 320-108053-8

Date Collected: 12/12/23 13:11

Matrix: Solid

Date Received: 12/14/23 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			727869	12/15/23 11:00	CFR	EET SAC

Client Sample ID: Bio B 20231212

Lab Sample ID: 320-108053-8

Date Collected: 12/12/23 13:11

Matrix: Solid

Date Received: 12/14/23 09:15

Percent Solids: 6.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.54 g	10.0 mL	728421	12/17/23 19:57	AM	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	728467	12/18/23 13:56	AP1	EET SAC

Client Sample ID: Bio A 22-20231212

Lab Sample ID: 320-108053-9

Date Collected: 12/12/23 14:10

Matrix: Solid

Date Received: 12/14/23 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			727869	12/15/23 11:00	CFR	EET SAC

Eurofins Sacramento

Lab Chronicle

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Bio A 22-20231212

Lab Sample ID: 320-108053-9

Date Collected: 12/12/23 14:10

Matrix: Solid

Date Received: 12/14/23 09:15

Percent Solids: 24.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.76 g	10.0 mL	728421	12/17/23 19:57	AM	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	728467	12/18/23 14:07	AP1	EET SAC

Client Sample ID: EB01-20231212

Lab Sample ID: 320-108053-10

Date Collected: 12/12/23 13:45

Matrix: Water

Date Received: 12/14/23 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			290.8 mL	10.0 mL	728935	12/19/23 20:29	ERR	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	729693	12/23/23 10:13	C1P	EET SAC

¹ This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Laboratory: Eurofins Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4040	01-29-24
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
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids
Wisconsin	State	998204680	08-31-24
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
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids

Laboratory: Eurofins Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999580010	08-31-24



Method Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-108053-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	EET SAC
D 2216	Percent Moisture	ASTM	EET SAC
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CHI
3535	Solid-Phase Extraction (SPE)	SW846	EET SAC
SHAKE	Shake Extraction with Ultrasonic Bath Extraction	SW846	EET SAC

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

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 CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

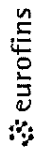
Job ID: 320-108053-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-108053-1	Inf 02-20231211	Water	12/11/23 23:59	12/14/23 09:15
320-108053-2	Inf 07-20231211	Water	12/11/23 23:59	12/14/23 09:15
320-108053-3	Inf 08-20231211	Water	12/11/23 23:59	12/14/23 09:15
320-108053-4	Inf 11-20231211	Water	12/11/23 23:59	12/14/23 09:15
320-108053-5	Inf 18-20231211	Water	12/11/23 23:59	12/14/23 09:15
320-108053-6	Inf-Comp 20231211	Water	12/11/23 23:59	12/14/23 09:15
320-108053-7	Eff 20231212	Water	12/12/23 23:59	12/14/23 09:15
320-108053-8	Bio B 20231212	Solid	12/12/23 13:11	12/14/23 09:15
320-108053-9	Bio A 22-20231212	Solid	12/12/23 14:10	12/14/23 09:15
320-108053-10	EB01-20231212	Water	12/12/23 13:45	12/14/23 09:15

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

send results to m.keurson@trccompanies.com
 Mike Ursin
 TRC
 999 Fournier Dr Suite 101
 Madison, WI 53717

Chain of Custody Record



Environment Testing

Client Information
 Client Contact: ~~Mike Ursin~~ Mary Powe's
 Phone: 608
 Company: ~~TRC~~ ~~Madison Metropolitan Sewerage Dist~~
 Address: 1610 Moorland Rd
 City: Madison
 State, Zip: WI 53713
 Phone: 608 222-1201
 Email:
 Project Name: Phase 3 PFAS testing
 Site: MMSD

Sampler: Jenny Faust
 Lab P.M.I.: Julie Maas
 Phone: 608
 E-Mail: juliem@madsewer.org
 PWSID:
 Due Date Requested:
 TAT Requested (days): 14 Days
 Compliance Project: Yes No
 PO #: 220422
 WQ #:
 Project #:
 SSO #:

Analysis Requested
 320-108053 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (In-water, suspended, or semi-solid)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Number of Containers	Special Instructions/Note:
Inf 02 - 20231211	12/11/23	23:54	C	WW		N	N	7	Follow EPA 19-01 (WI PFAS expectations)
Inf 07 - 20231211			C	WW		N	N	7	See vis procedure for particulates in aqueous samples
Inf 08 - 20231211			C	WW		N	N	7	
Inf 1 - 20231211			C	WW		N	N	7	
Inf 18 - 20231211			C	WW		N	N	7	
Inf Temp 20231211			C	WW		N	N	3	
Eff 20231212	12/12/23		C	WW		N	N	7	
B 0 B 20231212	12/12/23	13:11	G	S		N	N	1	
B 0 A 22 20231212	12/12/23	14:10	G	S		N	N	1	
E601-20231212	12/12/23	12:45	G	W		N	N	2	

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological
 Deliverable Requested: I, II, III, IV Other (specify)

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:

Empty Kit Relinquished by: _____ Date: _____
 Relinquished by: _____ Date/Time: 2/13/23 08:00 Company: MMSD
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: Yes No
 Custody Seal No. 2275454, 2275455, 2275452, 2275453
 Cooler Temperature(s) °C and Other Remarks: 0.7°C, 17°C

JF
 12/11/23





Environment Testing

Sacramento Sample Receiving Notes (SSRN)

Loc 320
108053

Tracking # 6570 6545 7448

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 <u>L06</u> Corr Factor: (+/-) <u>NA</u> °C	Notes _____
Ice <input checked="" type="checkbox"/> Wet _____ Gel _____ Other _____	_____
Cooler Custody Seal <u>2275454, 2275455</u>	_____
Cooler ID _____	_____
Temp Observed <u>0.7</u> °C Corrected <u>0.7</u> °C	_____
From Temp Blank <input type="checkbox"/> Sample <input checked="" type="checkbox"/>	_____
Opening/Processing The Shipment Yes No NA	_____
Cooler compromised/tampered with? <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	_____
Cooler Temperature is acceptable? <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	_____
Frozen samples show signs of thaw? <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	_____
Initials <u>DM</u> Date <u>12/14/23</u>	_____
Unpacking/Labeling The Samples Yes No NA	_____
Containers are not broken or leaking? <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Trizma Lot #(s) _____
Samples compromised/tampered with? <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	_____
COC is complete w/o discrepancies? <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Ammonium _____
Sample custody seal? <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	Acetate Lot #(s) _____
Sample containers have legible labels? <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	_____
Sample date/times are provided? <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	_____
Appropriate containers are used? <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	_____
Sample bottles are completely filled? <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	_____
Sample preservatives verified? <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	_____
Is the Field Sampler's name on COC? <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	_____
Samples w/o discrepancies? <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	_____
Zero headspace?* <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	_____
Alkalinity has no headspace? <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Login Completion Yes No NA
Perchlorate has headspace? <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Receipt Temperature on COC? <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
(Methods 314 331 6850)	NCM Filled? <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>
Multiphasic samples are not present? <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Samples received within hold time? <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Log Release checked in TALS? <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")	Initials <u>S</u> Date <u>12/14/23</u>
Initials <u>SP</u> Date <u>12/14/23</u>	<u>WR3 157</u>



Environment Testing

Sacramento Sample Receiving Notes (SSRN)

Tracking # 6570 6545 74 37

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 L060 Corr Factor (+/-) NA °C
 Ice Wet _____ Gel _____ Other _____
 Cooler Custody Seal 2275452, 2275453
 Cooler ID _____
 Temp Observed 1.7 °C Corrected 1.7 °C
 From Temp Blank Sample

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cooler Temperature is acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Frozen samples show signs of thaw?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Initials DM Date 12/14/23

Unpacking/Labeling The Samples	Yes	No	NA
Containers are not broken or leaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
COC is complete w/o discrepancies	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample custody seal?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample containers have legible labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample date/times are provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate containers are used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample bottles are completely filled?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample preservatives verified?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is the Field Sampler's name on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Zero headspace?*	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Alkalinity has no headspace?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Perchlorate has headspace? (Methods 314 331 6850)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Multiphasic samples are not present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials af Date 12/19/23

Notes _____

Trizma Lot #(s) _____

Ammonium
Acetate Lot #(s) _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NCM Filed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Samples received within hold time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Log Release checked in TALS?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Initials SO Date 12/11/23

WR3 1517

Eurofins Sacramento

880 Riverside Parkway
 West Sacramento, CA 95605
 Phone 916-373-5600 Fax 916-372 1059

Chain of Custody Record



Environment Testing

Client Information (Sub Contract Lab)		Sampler	Lab PM Smith, Micah		Carrier Tracking No(s)	COC No 320-326471 1	
Client Contact Shipping/Receiving		Phone	E-Mail Micah Smith@et eurofinsus.com		State of Origin Wisconsin	Page Page 1 of 1	
Company Eurofins Environment Testing North Centr			Accreditations Required (See note) NELAP Oregon, State Wisconsin			Job # 320-108053 1	
Address 2417 Bond Street,		Due Date Requested 1/8/2024		Analysis Requested			
City University Park		TAT Requested (days):					
State, Zip IL, 60484		PO #		Total Number of containers 2640D			
Phone 708-534-5200(Tel) 708-534-5211(Fax)		WO #					
Email		Project # 32021779					
Project Name PFAS Sampling		SSOW#		Field Filtered Sample (Yes or No) Perform MSMSD (Yes or No)			
Site							
320-108053 COC							
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)	Special Instructions/Note:	
				Preservation Code:			
Inf 02-20231211 (320-108053-1)		12/11/23	23 59 Central		Water	X	1
Inf 07-20231211 (320 108053-2)		12/11/23	23 59 Central		Water	X	1
Inf 08 20231211 (320-108053-3)		12/11/23	23 59 Central		Water	X	1
Inf 11-20231211 (320-108053-4)		12/11/23	23 59 Central		Water	X	1
Inf 18-20231211 (320-108053-5)		12/11/23	23 59 Central		Water	X	1
Inf-Comp 20231211 (320 108053-6)		12/11/23	23 59 Central		Water	X	1
Eff 20231212 (320 108053-7)		12/12/23	23 59 Central		Water	X	1
Note Since laboratory accreditations are subject to change, Eurofins Environment Testing Northern California, 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 Northern California LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northern California, 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 Northern California, LLC.							
Possible Hazard Identification				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
Unconfirmed				<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> 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 <i>D. Morgan</i>		Date/Time 12/14/23 1630	Company EETSQC	Received by <i>Ami</i>		Date/Time 12/15/23 1000	Company <i>ETA</i>
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 0.0 → 0.1			



Login Sample Receipt Checklist

Client: Madison Metropolitan Sewerage District

Job Number: 320-108053-1

Login Number: 108053

List Source: Eurofins Sacramento

List Number: 1

Creator: Morazzini, Dominic S

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	Refer to SSRN
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.	N/A	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	N/A	
Cooler Temperature is recorded.	N/A	
COC is present.	N/A	
COC is filled out in ink and legible.	N/A	
COC is filled out with all pertinent information.	N/A	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	N/A	
Samples are received within Holding Time (excluding tests with immediate HTs)	N/A	
Sample containers have legible labels.	N/A	
Containers are not broken or leaking.	N/A	
Sample collection date/times are provided.	N/A	
Appropriate sample containers are used.	N/A	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	N/A	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Madison Metropolitan Sewerage District

Job Number: 320-108053-1

Login Number: 108053

List Number: 2

Creator: Scott, Sherri L

List Source: Eurofins Chicago

List Creation: 12/15/23 04:01 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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	-0.1
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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	



Appendix B: Data Quality and Usability Reviews

January 2023

Data Quality and Usability Review – January 2023

Data Reviewer: Kristen Morin

Peer Reviewer: Jeff Ramey

Date: 4/19/2023

Madison Metropolitan Sewerage District (MMSD) collected influent and effluent samples at the Nine Springs wastewater treatment plant on January 16 and 17, 2023 in conjunction with an additional characterization study conducted by TRC. Samples were analyzed for the standard list of Wisconsin's 33 per- and polyfluoroalkyl substances (PFAS) and total suspended solids (TSS) by Pace Analytical Services, LLC (Pace), in Minneapolis, Minnesota. The laboratory analytical results were reported in laboratory sample delivery group (SDG) 10640247.

Samples included in this review are listed below:

- Influent 20230116
- Effluent 20230117

Each sample was analyzed for the following constituents:

Analyte Group	Method
PFAS (33 Analytes)*	Laboratory standard operating procedure (SOP) using Isotope Dilution/WI Method Criteria
Total Suspended Solids (TSS)	Standard Method (SM) 2540D

Notes:

- * The laboratory does not hold NELAC/TNI accreditation for PFAS. However the laboratory does hold Wisconsin Department of Natural Resources accreditation for PFAS.

TRC performed a limited validation of the laboratory data to assess data usability. The following sections summarize the data validation procedure and the results of the validation.

Data Usability Review Procedure

The analytical data were reviewed using the USEPA Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537 (EPA 910-R-18-001), November 2018, USEPA National Functional Guidelines for High Resolution Superfund Methods Data Review (EPA 542-R-20-007), November 2020, and Wisconsin PFAS Aqueous (Non-Potable Water) and Non-Aqueous Matrices Method Expectations, Document # EA-19-0001, WDNR, December 2019 as guidance for data review. EPA 910-R-18-001 applies to method 537 and drinking water matrices only but the guidance can be applied in part or in whole to evaluate data in non-drinking water matrices. The following items were specifically included in the evaluation of the data:

- Data completeness;
- Sample receipt, as noted in the cover page or case narrative;
- Technical holding times for analyses;
- Quantitation limits (QLs) compared to the ranges of QLs suggested in the Sampling and Analysis Blueprint (SAB) of 2-5 ng/L and 1-5 ug/kg per individual PFAS, as appropriate;

- Data for method blanks, equipment blanks, and field blanks. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Field and equipment blanks are used to assess potential contamination arising from field procedures;
- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCSs and/or LCSDs are used to assess the accuracy and precision of the analytical method using a clean matrix;
- Percent recoveries for matrix spike (MS) and matrix spike duplicate (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Percent recoveries for isotopically labeled surrogates (also referred to as extracted internal standards by Pace). Percent recoveries are calculated for each surrogate and used to assess the accuracy of the extraction procedure and bias due to sample matrix effects;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;
- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and
- Overall usability of the data.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

Review Summary

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose except as noted below. A summary of the data quality review, including non-conformances, and issues identified in this evaluation are noted below.

- The reviewed PFAS and TSS data will be utilized for the purposes of an additional characterization.
- Data are usable for the purposes of the additional characterization with the exception of the nondetect results for NMeFOSA and NEtFOSA in sample Effluent 20230117 which were rejected due to significantly low isotopically labeled surrogate recoveries; this issue has a major impact on the data usability.
- The issues noted in the QA/QC sample summary below have a minor impact on the data usability.

QA/QC Sample Summary

- The data package was found to be complete as received from the laboratory. However, the following issue were noted:

- The effluent sample was missing from the original chain-of-custody (COC); a revised COC was provided to include this sample.
- The laboratory noted that the collection date and time listed on the sample labels for the influent sample did not match the collection date and time listed on the COC. The laboratory logged in the collection date and time for the influent sample according to the COC.
- The cooler temperature upon receipt at the laboratory was within the acceptance criteria (< 10°C).
 - Samples were not shipped to the laboratory until one to two days after collection. The samples were stored in coolers, on ice, at the site until delivery to the laboratory. No validation actions were required on this basis since the samples were kept in coolers, on ice, prior to delivery to the laboratory and were received at acceptable temperatures by the laboratory.
- All samples were extracted and/or prepared and analyzed within the holding time with one exception. Sample Influent 20230116 was extracted for PFAS two days outside of the 28-day holding time. Therefore, the positive and nondetect results for all PFAS were qualified as estimated (J/UJ) in sample Influent 20230116; the positive result for PFBS was subsequently qualified as nondetect (U) at the reported concentration due to method blank contamination (see bullet below); thus, the overall qualification was UJ for PFBS in this sample.
- A method blank was analyzed with each analytical batch for PFAS and TSS. Target analytes were not detected in the method blanks except as noted below.
 - PFOA was detected in the method blank associated with sample Effluent 20230117 at a concentration of 1.5 J ng/L. No validation actions were taken on this basis since the result for PFOA was >10x the blank concentration in sample Effluent 20230117.
 - PFBS was detected in the method blank associated with sample Influent 20230116 at a concentration of 0.78 J ng/L. The positive result for PFBS was qualified as a nondetect (U) at the reported concentration in sample Influent 20230116 since the result was > the QL and < 10x the blank concentration; this result was further qualified as estimated (UJ) due to a holding time exceedance.
- No field blank samples were collected with this sample set.
- The LCS/LCSD percent recoveries (%Rs) and relative percent differences (RPDs), where applicable, for all analytes were within the laboratory's acceptance limits.
- MS/MSD analyses were not performed on a sample from this data set.
- The following table summarizes the isotopically labeled surrogate %Rs that were outside of criteria, the associated samples, and the validation actions.

Sample ID	Isotopically Labeled Surrogate	%R	%R Acceptance Limits	Action
Influent 20230116	13C26:2FTS	168	25-150	The positive results for 6:2 FTS and MeFOSAA in sample Influent 20230116 were already qualified as estimated (J) due to detection < the QL and a holding time exceedance. No further action was required on this basis.
	d3-MeFOSAA	22		
	13C2-PFDoA	23		The nondetect results for PFTrDA and PFDoA were qualified as estimated (UJ) in sample Influent 20230116.

Sample ID	Isotopically Labeled Surrogate	%R	%R Acceptance Limits	Action
Influent 20230116	d7-NMeFOSE	7	10-150	The positive result for NMeFOSE in sample Influent 20230116 was qualified as estimated (J). Low bias was not applied to the result for NMeFOSE based on the significantly low %R (<10%) since the result was also qualified as estimated (J) due to a holding time exceedance.
	d9-NEtFOSE	176		No validation actions were required on this basis since NEtFOSE was not detected in this sample.
Effluent 20230117	d3-NMeFOSA	6	10-150	The nondetect results for NMeFOSA and NEtFOSA were rejected (R) in sample Effluent 20230117 due to significantly low (<10%) recoveries.
	d5-NEtFOSA	6		

It should be noted that several other surrogate %Rs were outside of the acceptance limits in method blanks and LCS/LCSDs. No validation actions were required on this basis so these issues are not summarized.

- A field duplicate pair was not collected with this sample set.
- Laboratory duplicate analyses were not performed on a sample from this data set.
- The laboratory was contacted during this review and stated that no samples required centrifugation or decanting prior to extraction.
- The QLs met or were below the ranges of QLs suggested in the SAB of 2-5 ng/L for individual PFAS.
- The limit of quantitation (LOQ) for TSS in sample Influent 20230116 was 1.43x higher than the associated method blank likely due to a reduced volume used in the sample analysis. There is no adverse impact on the data usability due to this issue since TSS was detected above the LOQ in this sample. No validation action was required on this basis.
- Based on a discussion with the laboratory during this review, due to a recent change in the laboratory's reporting system, the laboratory no longer flags PFAS results with an "I" when the ion transition ratio did not meet the acceptance limits; therefore, it is unknown if any ion transition ratios did not meet the acceptance limits for the samples collected in January 2023. No validation actions were taken on this basis.

ANALYTICAL RESULTS

Project: MMSD PFAS

Pace Project No.: 10640247

Sample: Influent 20230116 **Lab ID: 10640247001** Collected: 01/16/23 23:59 Received: 01/19/23 08:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
11CI-PF3OUdS	<0.57	UJ ng/L	1.9	0.57	1	02/15/23 08:18	02/21/23 00:19	763051-92-9	H2
4:2 FTS	<0.48	UJ ng/L	1.9	0.48	1	02/15/23 08:18	02/21/23 00:19	757124-72-4	H2
6:2 FTS	1.6J	J ng/L	1.9	0.69	1	02/15/23 08:18	02/21/23 00:19	27619-97-2	H2
8:2 FTS	<0.51	UJ ng/L	2.0	0.51	1	02/15/23 08:18	02/21/23 00:19	39108-34-4	H2
9CI-PF3ONS	<0.48	UJ ng/L	1.9	0.48	1	02/15/23 08:18	02/21/23 00:19	756426-58-1	H2
ADONA	<0.94	UJ ng/L	1.9	0.94	1	02/15/23 08:18	02/21/23 00:19	919005-14-4	H2
HFPO-DA	<0.50	UJ ng/L	2.0	0.50	1	02/15/23 08:18	02/21/23 00:19	13252-13-6	H2
NEtFOSAA	0.86J	J ng/L	2.0	0.83	1	02/15/23 08:18	02/21/23 00:19	2991-50-6	H2
NEtFOSA	<0.59	UJ ng/L	2.0	0.59	1	02/15/23 08:18	02/21/23 00:19	4151-50-2	H2
NEtFOSE	<0.91	UJ ng/L	2.0	0.91	1	02/15/23 08:18	02/21/23 00:19	1691-99-2	H2
NMeFOSAA	0.74J	J ng/L	2.0	0.71	1	02/15/23 08:18	02/21/23 00:19	2355-31-9	H2
NMeFOSA	<0.56	UJ ng/L	2.0	0.56	1	02/15/23 08:18	02/21/23 00:19	31506-32-8	H2
NMeFOSE	11.0	J ng/L	2.0	0.53	1	02/15/23 08:18	02/21/23 00:19	24448-09-7	H2
Perfluorobutanesulfonic acid	<5.9	UJ ng/L	1.8	0.49	1	02/15/23 08:18	02/21/23 00:19	375-73-5	B,H2
Perfluorodecanoic acid	<0.62	UJ ng/L	2.0	0.62	1	02/15/23 08:18	02/21/23 00:19	335-76-2	H2
Perfluorohexanoic acid	6.7	J ng/L	2.0	0.93	1	02/15/23 08:18	02/21/23 00:19	307-24-4	H2
PFBA	7.9	J ng/L	2.0	0.51	1	02/15/23 08:18	02/21/23 00:19	375-22-4	H2
PFDS	<0.65	UJ ng/L	2.0	0.65	1	02/15/23 08:18	02/21/23 00:19	335-77-3	H2
PFDoS	<0.60	UJ ng/L	2.0	0.60	1	02/15/23 08:18	02/21/23 00:19	79780-39-5	H2
PFHpS	<0.68	UJ ng/L	1.9	0.68	1	02/15/23 08:18	02/21/23 00:19	375-92-8	H2
PFNS	<0.60	UJ ng/L	2.0	0.60	1	02/15/23 08:18	02/21/23 00:19	68259-12-1	H2
PFOSA	<0.73	UJ ng/L	2.0	0.73	1	02/15/23 08:18	02/21/23 00:19	754-91-6	H2
PFPeA	4.9	J ng/L	2.0	0.84	1	02/15/23 08:18	02/21/23 00:19	2706-90-3	H2
PFPeS	0.66J	J ng/L	1.9	0.61	1	02/15/23 08:18	02/21/23 00:19	2706-91-4	H2
Perfluorododecanoic acid	<0.49	UJ ng/L	2.0	0.49	1	02/15/23 08:18	02/21/23 00:19	307-55-1	H2
Perfluoroheptanoic acid	1.7J	J ng/L	2.0	0.70	1	02/15/23 08:18	02/21/23 00:19	375-85-9	H2
Perfluorohexanesulfonic acid	8.2	J ng/L	1.9	0.54	1	02/15/23 08:18	02/21/23 00:19	355-46-4	H2
Perfluorononanoic acid	<0.81	UJ ng/L	2.0	0.81	1	02/15/23 08:18	02/21/23 00:19	375-95-1	H2
Perfluorooctanesulfonic acid	6.5	J ng/L	1.9	0.68	1	02/15/23 08:18	02/21/23 00:19	1763-23-1	H2
Perfluorooctanoic acid	4.2	J ng/L	2.0	0.88	1	02/15/23 08:18	02/21/23 00:19	335-67-1	H2
Perfluorotetradecanoic acid	<0.61	UJ ng/L	2.0	0.61	1	02/15/23 08:18	02/21/23 00:19	376-06-7	H2
Perfluorotridecanoic acid	<0.63	UJ ng/L	2.0	0.63	1	02/15/23 08:18	02/21/23 00:19	72629-94-8	H2
Perfluoroundecanoic acid	<0.50	UJ ng/L	2.0	0.50	1	02/15/23 08:18	02/21/23 00:19	2058-94-8	H2
Surrogates									
13C4-PFBA (S)	71	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
13C5-PFPeA (S)	79	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
13C3-PFBS (S)	84	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
13C24:2FTS (S)	128	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
13C3HFPO-DA (S)	67	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
13C4-PFHpA (S)	83	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
13C3-PFHxS (S)	88	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
13C26:2FTS (S)	168	%	25-150		1	02/15/23 08:18	02/21/23 00:19		S0
13C8-PFOA (S)	77	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
13C8-PFOS (S)	39	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
13C9-PFNA (S)	69	%	25-150		1	02/15/23 08:18	02/21/23 00:19		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: MMSD PFAS
Pace Project No.: 10640247

Sample: Influent 20230116 Lab ID: 10640247001 Collected: 01/16/23 23:59 Received: 01/19/23 08:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
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WI ID NPW Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178
Pace Analytical Services - Minneapolis

Surrogates

13C6-PFDA (S)	45	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
13C28:2FTS (S)	88	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
d3-MeFOSAA (S)	22	%	25-150		1	02/15/23 08:18	02/21/23 00:19		S0
13C7-PFUdA (S)	33	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
13C8-PFOA (S)	41	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
d5-EtFOSAA (S)	29	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
13C2-PFDoA (S)	23	%	25-150		1	02/15/23 08:18	02/21/23 00:19		S0
d3-NMeFOSA (S)	32	%	10-150		1	02/15/23 08:18	02/21/23 00:19		
d7-NMeFOSE (S)	7	%	10-150		1	02/15/23 08:18	02/21/23 00:19		S0
13C2-PFTA (S)	38	%	25-150		1	02/15/23 08:18	02/21/23 00:19		
d9-NEtFOSE (S)	176	%	10-150		1	02/15/23 08:18	02/21/23 00:19		S0
d5-NEtFOSA (S)	23	%	10-150		1	02/15/23 08:18	02/21/23 00:19		
13C5-PFHxA (S)	76	%	25-150		1	02/15/23 08:18	02/21/23 00:19		

2540D Total Suspended Solids Analytical Method: SM 2540D
Pace Analytical Services - Minneapolis

Total Suspended Solids	202	mg/L	14.3	7.1	1		01/23/23 16:23		
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Sample: Effluent 20230117 Lab ID: 10640247002 Collected: 01/17/23 23:59 Received: 01/19/23 08:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
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WI ID NPW Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178
Pace Analytical Services - Minneapolis

11CI-PF3OUdS	<0.58	ng/L	2.0	0.58	1	02/01/23 14:18	02/06/23 11:26	763051-92-9	N2
4:2 FTS	<0.48	ng/L	1.9	0.48	1	02/01/23 14:18	02/06/23 11:26	757124-72-4	N2
6:2 FTS	1.2J	ng/L	2.0	0.70	1	02/01/23 14:18	02/06/23 11:26	27619-97-2	N2
8:2 FTS	<0.52	ng/L	2.0	0.52	1	02/01/23 14:18	02/06/23 11:26	39108-34-4	N2
9CI-PF3ONS	<0.49	ng/L	1.9	0.49	1	02/01/23 14:18	02/06/23 11:26	756426-58-1	N2
ADONA	<0.95	ng/L	2.0	0.95	1	02/01/23 14:18	02/06/23 11:26	919005-14-4	N2
HFPO-DA	<0.51	ng/L	2.1	0.51	1	02/01/23 14:18	02/06/23 11:26	13252-13-6	N2
NEtFOSAA	<0.85	ng/L	2.1	0.85	1	02/01/23 14:18	02/06/23 11:26	2991-50-6	N2
NEtFOSA	R <0.60	ng/L	2.1	0.60	1	02/01/23 14:18	02/06/23 11:26	4151-50-2	N2
NEtFOSE	<0.92	ng/L	2.1	0.92	1	02/01/23 14:18	02/06/23 11:26	1691-99-2	N2
NMeFOSAA	0.91J	ng/L	2.1	0.72	1	02/01/23 14:18	02/06/23 11:26	2355-31-9	N2
NMeFOSA	R <0.57	ng/L	2.1	0.57	1	02/01/23 14:18	02/06/23 11:26	31506-32-8	N2
NMeFOSE	<0.54	ng/L	2.1	0.54	1	02/01/23 14:18	02/06/23 11:26	24448-09-7	N2
Perfluorobutanesulfonic acid	3.0	ng/L	1.8	0.50	1	02/01/23 14:18	02/06/23 11:26	375-73-5	N2
Perfluorodecanoic acid	0.86J	ng/L	2.1	0.63	1	02/01/23 14:18	02/06/23 11:26	335-76-2	N2
Perfluorohexanoic acid	15.0	ng/L	2.1	0.94	1	02/01/23 14:18	02/06/23 11:26	307-24-4	N2
PFBA	8.4	ng/L	2.1	0.52	1	02/01/23 14:18	02/06/23 11:26	375-22-4	N2
PFDS	<0.67	ng/L	2.0	0.67	1	02/01/23 14:18	02/06/23 11:26	335-77-3	N2

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: MMSD PFAS

Pace Project No.: 10640247

Sample: Effluent 20230117 Lab ID: 10640247002 Collected: 01/17/23 23:59 Received: 01/19/23 08:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
PFDoS	<0.61	ng/L	2.0	0.61	1	02/01/23 14:18	02/06/23 11:26	79780-39-5	N2
PFHpS	<0.69	ng/L	2.0	0.69	1	02/01/23 14:18	02/06/23 11:26	375-92-8	N2
PFNS	<0.61	ng/L	2.0	0.61	1	02/01/23 14:18	02/06/23 11:26	68259-12-1	N2
PFOSA	<0.74	ng/L	2.1	0.74	1	02/01/23 14:18	02/06/23 11:26	754-91-6	N2
PFPeA	17.1	ng/L	2.1	0.85	1	02/01/23 14:18	02/06/23 11:26	2706-90-3	N2
PFPeS	0.63J	ng/L	2.0	0.62	1	02/01/23 14:18	02/06/23 11:26	2706-91-4	N2
Perfluorododecanoic acid	<0.50	ng/L	2.1	0.50	1	02/01/23 14:18	02/06/23 11:26	307-55-1	N2
Perfluoroheptanoic acid	2.1	ng/L	2.1	0.72	1	02/01/23 14:18	02/06/23 11:26	375-85-9	N2
Perfluorohexanesulfonic acid	7.2	ng/L	1.9	0.55	1	02/01/23 14:18	02/06/23 11:26	355-46-4	N2
Perfluorononanoic acid	<0.82	ng/L	2.1	0.82	1	02/01/23 14:18	02/06/23 11:26	375-95-1	N2
Perfluorooctanesulfonic acid	4.1	ng/L	1.9	0.69	1	02/01/23 14:18	02/06/23 11:26	1763-23-1	N2
Perfluorooctanoic acid	16.8	ng/L	2.1	0.89	1	02/01/23 14:18	02/06/23 11:26	335-67-1	N2
Perfluorotetradecanoic acid	<0.62	ng/L	2.1	0.62	1	02/01/23 14:18	02/06/23 11:26	376-06-7	N2
Perfluorotridecanoic acid	<0.65	ng/L	2.1	0.65	1	02/01/23 14:18	02/06/23 11:26	72629-94-8	N2
Perfluoroundecanoic acid	<0.50	ng/L	2.1	0.50	1	02/01/23 14:18	02/06/23 11:26	2058-94-8	N2
Surrogates									
13C4-PFBA (S)	69	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C5-PFPeA (S)	83	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C3-PFBS (S)	81	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C24:2FTS (S)	125	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C3HFPO-DA (S)	83	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C4-PFHpA (S)	82	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C3-PFHxS (S)	82	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C26:2FTS (S)	130	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C8-PFOA (S)	84	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C8-PFOS (S)	79	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C9-PFNA (S)	77	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C6-PFDA (S)	89	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C28:2FTS (S)	121	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
d3-MeFOSAA (S)	78	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C7-PFUDa (S)	84	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C8-PFOSA (S)	54	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
d5-EtFOSAA (S)	67	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
13C2-PFDoA (S)	73	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
d3-NMeFOSA (S)	6	%	10-150		1	02/01/23 14:18	02/06/23 11:26		S0
d7-NMeFOSE (S)	32	%	10-150		1	02/01/23 14:18	02/06/23 11:26		
13C2-PFTA (S)	53	%	25-150		1	02/01/23 14:18	02/06/23 11:26		
d9-NEtFOSE (S)	27	%	10-150		1	02/01/23 14:18	02/06/23 11:26		
d5-NEtFOSA (S)	6	%	10-150		1	02/01/23 14:18	02/06/23 11:26		S0
13C5-PFHxA (S)	83	%	25-150		1	02/01/23 14:18	02/06/23 11:26		

2540D Total Suspended Solids

Analytical Method: SM 2540D

Pace Analytical Services - Minneapolis

Total Suspended Solids	<5.0	mg/L	10.0	5.0	1		01/24/23 12:14		
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REPORT OF LABORATORY ANALYSIS

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February 2023

Data Quality and Usability Review – February 2023

Data Reviewer: Kristen Morin

Peer Reviewer: Jeff Ramey

Date: 4/19/2023

Madison Metropolitan Sewerage District (MMSD) collected influent and effluent samples at the Nine Springs wastewater treatment plant on February 13 and 14, 2023 in conjunction with an additional characterization study conducted by TRC. Samples were analyzed for the standard list of Wisconsin's 33 per- and polyfluoroalkyl substances (PFAS) and total suspended solids (TSS) by Pace Analytical Services, LLC (Pace), in Minneapolis, Minnesota. The laboratory analytical results were reported in laboratory sample delivery group (SDG) 10643312 (revised 4/15/23).

Samples included in this review are listed below:

- Influent 20230213
- Effluent 20230214

Each sample was analyzed for the following constituents:

Analyte Group	Method
PFAS (33 Analytes)*	Laboratory standard operating procedure (SOP) using Isotope Dilution/WI Method Criteria
Total Suspended Solids (TSS)	Standard Method (SM) 2540D

Notes:

- * The laboratory does not hold NELAC/TNI accreditation for PFAS. However the laboratory does hold Wisconsin Department of Natural Resources accreditation for PFAS.

TRC performed a limited validation of the laboratory data to assess data usability. The following sections summarize the data validation procedure and the results of the validation.

Data Usability Review Procedure

The analytical data were reviewed using the USEPA Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537 (EPA 910-R-18-001), November 2018, USEPA National Functional Guidelines for High Resolution Superfund Methods Data Review (EPA 542-R-20-007), November 2020, and Wisconsin PFAS Aqueous (Non-Potable Water) and Non-Aqueous Matrices Method Expectations, Document # EA-19-0001, WDNR, December 2019 as guidance for data review. EPA 910-R-18-001 applies to method 537 and drinking water matrices only but the guidance can be applied in part or in whole to evaluate data in non-drinking water matrices. The following items were specifically included in the evaluation of the data:

- Data completeness;
- Sample receipt, as noted in the cover page or case narrative;
- Technical holding times for analyses;
- Quantitation limits (QLs) compared to the ranges of QLs suggested in the Sampling and Analysis Blueprint (SAB) of 2-5 ng/L and 1-5 ug/kg per individual PFAS, as appropriate;

- Data for method blanks, equipment blanks, and field blanks. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Field and equipment blanks are used to assess potential contamination arising from field procedures;
- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCSs and/or LCSDs are used to assess the accuracy and precision of the analytical method using a clean matrix;
- Percent recoveries for matrix spike (MS) and matrix spike duplicate (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Percent recoveries for isotopically labeled surrogates (also referred to as extracted internal standards by Pace). Percent recoveries are calculated for each surrogate and used to assess the accuracy of the extraction procedure and bias due to sample matrix effects;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;
- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and
- Overall usability of the data.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

Review Summary

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances, and issues identified in this evaluation are noted below.

- The reviewed PFAS and TSS data will be utilized for the purposes of an additional characterization.
- Data are usable for the purposes of the additional characterization.
- The issues noted in the QA/QC sample summary below have a minor impact on the data usability.

QA/QC Sample Summary

- The revised data package was found to be complete as received from the laboratory.
- The cooler temperature upon receipt at the laboratory was within the acceptance criteria (< 10°C).
 - Samples were not shipped to the laboratory until one to two days after collection. The samples were stored in coolers, on ice, at the site until delivery to the laboratory. No validation actions were required on this basis since the samples were kept in coolers,

on ice, prior to delivery to the laboratory and were received at acceptable temperatures by the laboratory.

- All samples were extracted and/or prepared and analyzed within the holding time with one exception. Sample Influent 20230213 was extracted for PFAS two days outside of the 28-day holding time. Therefore, the positive and nondetect results for all PFAS were qualified as estimated (J/UJ) in sample Influent 20230213.
- A method blank was analyzed with each analytical batch for PFAS and TSS. Target analytes were not detected in the method blanks except as noted below.
 - PFBS was detected in the method blank associated with sample Effluent 20230214 at a concentration of 0.76 J ng/L. The positive result for PFBS was qualified as a nondetect (U) at the reported concentration in sample Effluent 20230214 since the result was > the QL and < 10x the blank concentration. However, this result was also qualified as estimated (J+) with a potential high bias due to a high MS and LCSD recoveries; thus, the overall qualification for PFBS was UJ at the reported concentration in this sample.
- No field blank samples were collected with this sample set.
- The LCS/LCSD percent recoveries (%Rs) and relative percent differences (RPDs), where applicable, for all analytes were within the laboratory's acceptance limits except as noted below.
 - PFBS (166%) and PFOA (161%) recovered above the acceptance limits (50-150%) in the LCSD associated with sample Effluent 20230214. Therefore, the positive results for PFBS and PFOA were qualified as estimated (J+) with a potential high bias in sample Effluent 20230214. However, the positive result for PFBS in this sample was also qualified as an estimated nondetect (UJ) at the reported concentration due to method blank contamination and high MS recovery; thus, the overall qualification was UJ at the reported concentration for PFBS in this sample.
- MS analysis was performed on sample Effluent 20230214. The %Rs for all target PFAS except 6:2 FTS and PFOSA were above the acceptance limits (50-150%), ranging from 153-220 %R. Qualification is not required on this basis for nondetect results or when the parent sample result was >4x the spike value (i.e., PFHxA and PFPeA). Therefore, the positive results for target PFAS, except 6:2 FTS, PFHxA, PFPeA, and PFOSA, in sample Effluent 20230214 were qualified as estimated (J+) with a potential high bias. However, select positive results were also qualified as estimated (J) due to detection < the LOQ; therefore, the overall qualification was J+ for those results. Further, the positive result for PFBS in this sample was also qualified as nondetect at the reported concentration due to method blank contamination; thus, the overall qualification was UJ at the reported concentration for PFBS in this sample.
- The following table summarizes the isotopically labeled surrogate %Rs that were outside of criteria, the associated samples, and the validation actions.

Sample ID	Isotopically Labeled Surrogate	%R	%R Acceptance Limits	Action
Influent 20230213	13C26:2FTS	161	25-150	The positive result for 6:2 FTS and NMeFOSE in sample Influent 20230213 were qualified as estimated (J). Low bias was not applied to the result for NMeFOSE based on the significantly low %R (<10%) since the result was also qualified as estimated (J) due to a holding time exceedance.
	d7-NMeFOSE	7	10-150	

- A field duplicate pair was not collected with this sample set.
- Laboratory duplicate analyses were not performed on a sample from this data set.
- The laboratory was contacted during this review and stated that no samples required centrifugation or decanting prior to extraction.
- The QLs met or were below the ranges of QLs suggested in the SAB of 2-5 ng/L for individual PFAS.
- The limit of quantitation (LOQ) for TSS in sample Influent 2023213 was 1.43x higher than the associated method blank likely due to a reduced volume used in the sample analysis. There is no adverse impact on the data usability due to this issue since TSS was detected above the LOQ in this sample. No validation action was required on this basis.
- Based on a discussion with the laboratory during this review, due to a recent change in the laboratory's reporting system, the laboratory no longer flags PFAS results with an "I" when the ion transition ratio did not meet the acceptance limits; therefore, it is unknown if any ion transition ratios did not meet the acceptance limits for the samples collected in February 2023. No validation actions were taken on this basis.

ANALYTICAL RESULTS

Project: MMSD PFAS

Pace Project No.: 10643312

23:59

Sample: Influent 20230213 Lab ID: 10643312001 Collected: 02/13/23 00:00 Received: 02/16/23 08:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID NPW Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis									
11CI-PF3OUdS	<0.55	UJ ng/L	1.9	0.55	1	03/15/23 11:40	03/20/23 12:29	763051-92-9	H2,N2
4:2 FTS	<0.46	UJ ng/L	1.9	0.46	1	03/15/23 11:40	03/20/23 12:29	757124-72-4	H2,N2
6:2 FTS	19.1	J ng/L	1.9	0.67	1	03/15/23 11:40	03/20/23 12:29	27619-97-2	H2,N2
8:2 FTS	<0.50	UJ ng/L	1.9	0.50	1	03/15/23 11:40	03/20/23 12:29	39108-34-4	H2,N2
9CI-PF3ONS	<0.47	UJ ng/L	1.9	0.47	1	03/15/23 11:40	03/20/23 12:29	756426-58-1	H2,N2
ADONA	<0.91	UJ ng/L	1.9	0.91	1	03/15/23 11:40	03/20/23 12:29	919005-14-4	H2,N2
HFPO-DA	<0.49	UJ ng/L	2.0	0.49	1	03/15/23 11:40	03/20/23 12:29	13252-13-6	H2,N2
NEtFOSAA	2.1	J ng/L	2.0	0.81	1	03/15/23 11:40	03/20/23 12:29	2991-50-6	H2,N2
NEtFOSA	<0.57	UJ ng/L	2.0	0.57	1	03/15/23 11:40	03/20/23 12:29	4151-50-2	H2,N2
NEtFOSE	<0.89	UJ ng/L	2.0	0.89	1	03/15/23 11:40	03/20/23 12:29	1691-99-2	H2,N2
NMeFOSAA	1.3	J ng/L	2.0	0.69	1	03/15/23 11:40	03/20/23 12:29	2355-31-9	H2,N2
NMeFOSA	<0.55	UJ ng/L	2.0	0.55	1	03/15/23 11:40	03/20/23 12:29	31506-32-8	H2,N2
NMeFOSE	18.9	J ng/L	2.0	0.52	1	03/15/23 11:40	03/20/23 12:29	24448-09-7	H2,N2
Perfluorobutanesulfonic acid	6.5	J ng/L	1.8	0.48	1	03/15/23 11:40	03/20/23 12:29	375-73-5	H2,N2
Perfluorodecanoic acid	<0.61	UJ ng/L	2.0	0.61	1	03/15/23 11:40	03/20/23 12:29	335-76-2	H2,N2
Perfluorohexanoic acid	10.2	J ng/L	2.0	0.91	1	03/15/23 11:40	03/20/23 12:29	307-24-4	H2,N2
PFBA	9.0	J ng/L	2.0	0.50	1	03/15/23 11:40	03/20/23 12:29	375-22-4	H2,N2
PFDS	1.9	J ng/L	1.9	0.64	1	03/15/23 11:40	03/20/23 12:29	335-77-3	H2,N2
PFDoS	<0.59	UJ ng/L	1.9	0.59	1	03/15/23 11:40	03/20/23 12:29	79780-39-5	H2,N2
PFHpS	<0.67	UJ ng/L	1.9	0.67	1	03/15/23 11:40	03/20/23 12:29	375-92-8	H2,N2
PFNS	<0.58	UJ ng/L	1.9	0.58	1	03/15/23 11:40	03/20/23 12:29	68259-12-1	H2,N2
PFOSA	<0.71	UJ ng/L	2.0	0.71	1	03/15/23 11:40	03/20/23 12:29	754-91-6	H2,N2
PFPeA	7.3	J ng/L	2.0	0.82	1	03/15/23 11:40	03/20/23 12:29	2706-90-3	H2,N2
PFPeS	1.3	J ng/L	1.9	0.60	1	03/15/23 11:40	03/20/23 12:29	2706-91-4	H2,N2
Perfluorododecanoic acid	<0.48	UJ ng/L	2.0	0.48	1	03/15/23 11:40	03/20/23 12:29	307-55-1	H2,N2
Perfluoroheptanoic acid	2.7	J ng/L	2.0	0.69	1	03/15/23 11:40	03/20/23 12:29	375-85-9	H2,N2
Perfluorohexanesulfonic acid	9.4	J ng/L	1.8	0.53	1	03/15/23 11:40	03/20/23 12:29	355-46-4	H2,N2
Perfluorononanoic acid	<0.79	UJ ng/L	2.0	0.79	1	03/15/23 11:40	03/20/23 12:29	375-95-1	H2,N2
Perfluorooctanesulfonic acid	7.9	J ng/L	1.8	0.66	1	03/15/23 11:40	03/20/23 12:29	1763-23-1	H2,N2
Perfluorooctanoic acid	6.3	J ng/L	2.0	0.86	1	03/15/23 11:40	03/20/23 12:29	335-67-1	H2,N2
Perfluorotetradecanoic acid	<0.60	UJ ng/L	2.0	0.60	1	03/15/23 11:40	03/20/23 12:29	376-06-7	H2,N2
Perfluorotridecanoic acid	<0.62	UJ ng/L	2.0	0.62	1	03/15/23 11:40	03/20/23 12:29	72629-94-8	H2,N2
Perfluoroundecanoic acid	<0.48	UJ ng/L	2.0	0.48	1	03/15/23 11:40	03/20/23 12:29	2058-94-8	H2,N2
Surrogates									
13C4-PFBA (S)	45	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
13C5-PFPeA (S)	55	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
13C3-PFBS (S)	60	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
13C24:2FTS (S)	108	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
13C3HFPO-DA (S)	63	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
13C4-PFHpA (S)	66	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
13C3-PFHxS (S)	64	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
13C26:2FTS (S)	161	%	25-150		1	03/15/23 11:40	03/20/23 12:29		S0
13C8-PFOA (S)	60	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
13C8-PFOS (S)	30	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
13C9-PFNA (S)	55	%	25-150		1	03/15/23 11:40	03/20/23 12:29		

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ANALYTICAL RESULTS

Project: MMSD PFAS

Pace Project No.: 10643312

23:59

Sample: Influent 20230213 Lab ID: 10643312001 Collected: 02/13/23 ~~00:00~~ Received: 02/16/23 08:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
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WI ID NPW

Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178
Pace Analytical Services - Minneapolis

Surrogates

13C6-PFDA (S)	42	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
13C28:2FTS (S)	111	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
d3-MeFOSAA (S)	25	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
13C7-PFUdA (S)	38	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
13C8-PFOA (S)	46	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
d5-EtFOSAA (S)	33	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
13C2-PFDoA (S)	29	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
d3-NMeFOSA (S)	30	%	10-150		1	03/15/23 11:40	03/20/23 12:29		
d7-NMeFOSE (S)	7	%	10-150		1	03/15/23 11:40	03/20/23 12:29		S0
13C2-PFTA (S)	48	%	25-150		1	03/15/23 11:40	03/20/23 12:29		
d9-NEtFOSE (S)	10	%	10-150		1	03/15/23 11:40	03/20/23 12:29		
d5-NEtFOSA (S)	20	%	10-150		1	03/15/23 11:40	03/20/23 12:29		
13C5-PFHxA (S)	59	%	25-150		1	03/15/23 11:40	03/20/23 12:29		

2540D Total Suspended Solids

Analytical Method: SM 2540D
Pace Analytical Services - Minneapolis

Total Suspended Solids	236	mg/L	14.3	7.1	1		02/20/23 12:21		
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23:59

Sample: Effluent 20230214 Lab ID: 10643312002 Collected: 02/14/23 ~~00:00~~ Received: 02/16/23 08:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
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WI ID NPW

Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178
Pace Analytical Services - Minneapolis

11CI-PF3OUdS	<0.52	ng/L	1.8	0.52	1	03/08/23 17:17	03/10/23 20:11	763051-92-9	M1,N2
4:2 FTS	<0.44	ng/L	1.7	0.44	1	03/08/23 17:17	03/10/23 20:11	757124-72-4	M1,N2
6:2 FTS	28.0	ng/L	1.8	0.63	1	03/08/23 17:17	03/10/23 20:11	27619-97-2	N2
8:2 FTS	<0.47	ng/L	1.8	0.47	1	03/08/23 17:17	03/10/23 20:11	39108-34-4	M1,N2
9CI-PF3ONS	<0.44	ng/L	1.7	0.44	1	03/08/23 17:17	03/10/23 20:11	756426-58-1	M1,N2
ADONA	<0.86	ng/L	1.8	0.86	1	03/08/23 17:17	03/10/23 20:11	919005-14-4	M1,N2
HFPO-DA	<0.46	ng/L	1.9	0.46	1	03/08/23 17:17	03/10/23 20:11	13252-13-6	M1,N2
NEtFOSAA	1.2J- J	ng/L	1.9	0.76	1	03/08/23 17:17	03/10/23 20:11	2991-50-6	M1,N2
NEtFOSA	<0.54	ng/L	1.9	0.54	1	03/08/23 17:17	03/10/23 20:11	4151-50-2	M1,N2
NEtFOSE	<0.83	ng/L	1.9	0.83	1	03/08/23 17:17	03/10/23 20:11	1691-99-2	M1,N2
NMeFOSAA	2.1 J+	ng/L	1.9	0.65	1	03/08/23 17:17	03/10/23 20:11	2355-31-9	M1,N2
NMeFOSA	<0.52	ng/L	1.9	0.52	1	03/08/23 17:17	03/10/23 20:11	31506-32-8	M1,N2
NMeFOSE	<0.49	ng/L	1.9	0.49	1	03/08/23 17:17	03/10/23 20:11	24448-09-7	M1,N2
Perfluorobutanesulfonic acid	<4.5 UJ	ng/L	1.7	0.45	1	03/08/23 17:17	03/10/23 20:11	375-73-5	B,L1, M1,N2
Perfluorodecanoic acid	0.81J- J	ng/L	1.9	0.57	1	03/08/23 17:17	03/10/23 20:11	335-76-2	M1,N2
Perfluorohexanoic acid	30.7	ng/L	1.9	0.85	1	03/08/23 17:17	03/10/23 20:11	307-24-4	M1,N2
PFBA	10.9 J+	ng/L	1.9	0.47	1	03/08/23 17:17	03/10/23 20:11	375-22-4	M1,N2
PFDS	<0.60	ng/L	1.8	0.60	1	03/08/23 17:17	03/10/23 20:11	335-77-3	M1,N2

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ANALYTICAL RESULTS

Project: MMSD PFAS

Pace Project No.: 10643312

23:59

Sample: Effluent 20230214 Lab ID: 10643312002 Collected: 02/14/23 ~~00:00~~ Received: 02/16/23 08:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WI ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Pace Analytical Services - Minneapolis									
PFDoS	<0.55	ng/L	1.8	0.55	1	03/08/23 17:17	03/10/23 20:11	79780-39-5	M1,N2
PFHpS	<0.62	ng/L	1.8	0.62	1	03/08/23 17:17	03/10/23 20:11	375-92-8	M1,N2
PFNS	<0.55	ng/L	1.8	0.55	1	03/08/23 17:17	03/10/23 20:11	68259-12-1	M1,N2
PFOSA	2.6	ng/L	1.9	0.67	1	03/08/23 17:17	03/10/23 20:11	754-91-6	N2
PFPeA	27.1	ng/L	1.9	0.77	1	03/08/23 17:17	03/10/23 20:11	2706-90-3	M1,N2
PFPeS	0.71J- J	ng/L	1.8	0.56	1	03/08/23 17:17	03/10/23 20:11	2706-91-4	M1,N2
Perfluorododecanoic acid	<0.45	ng/L	1.9	0.45	1	03/08/23 17:17	03/10/23 20:11	307-55-1	M1,N2
Perfluoroheptanoic acid	2.8 J+	ng/L	1.9	0.64	1	03/08/23 17:17	03/10/23 20:11	375-85-9	M1,N2
Perfluorohexanesulfonic acid	7.7 J+	ng/L	1.7	0.50	1	03/08/23 17:17	03/10/23 20:11	355-46-4	M1,N2
Perfluorononanoic acid	<0.74	ng/L	1.9	0.74	1	03/08/23 17:17	03/10/23 20:11	375-95-1	M1,N2
Perfluorooctanesulfonic acid	5.6 J+	ng/L	1.7	0.62	1	03/08/23 17:17	03/10/23 20:11	1763-23-1	M1,N2
Perfluorooctanoic acid	8.6 J+	ng/L	1.9	0.80	1	03/08/23 17:17	03/10/23 20:11	335-67-1	L1,M1,N2
Perfluorotetradecanoic acid	<0.56	ng/L	1.9	0.56	1	03/08/23 17:17	03/10/23 20:11	376-06-7	M1,N2
Perfluorotridecanoic acid	<0.58	ng/L	1.9	0.58	1	03/08/23 17:17	03/10/23 20:11	72629-94-8	M1,N2
Perfluoroundecanoic acid	<0.45	ng/L	1.9	0.45	1	03/08/23 17:17	03/10/23 20:11	2058-94-8	M1,N2
Surrogates									
13C4-PFBA (S)	63	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C5-PFPeA (S)	67	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C3-PFBS (S)	75	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C24:2FTS (S)	131	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C3HFPO-DA (S)	71	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C4-PFHpA (S)	82	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C3-PFHxS (S)	74	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C26:2FTS (S)	126	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C8-PFOA (S)	75	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C8-PFOS (S)	75	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C9-PFNA (S)	75	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C6-PFDA (S)	75	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C28:2FTS (S)	115	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
d3-MeFOSAA (S)	79	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C7-PFUdA (S)	83	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C8-PFOSA (S)	54	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
d5-EtFOSAA (S)	76	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C2-PFDoA (S)	86	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
d3-NMeFOSA (S)	37	%	10-150		1	03/08/23 17:17	03/10/23 20:11		
d7-NMeFOSE (S)	67	%	10-150		1	03/08/23 17:17	03/10/23 20:11		
13C2-PFTA (S)	65	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
d9-NEtFOSE (S)	54	%	10-150		1	03/08/23 17:17	03/10/23 20:11		
d5-NEtFOSA (S)	35	%	10-150		1	03/08/23 17:17	03/10/23 20:11		
13C2PFHxDA (S)	71	%	25-150		1	03/08/23 17:17	03/10/23 20:11		
13C5-PFHxA (S)	73	%	25-150		1	03/08/23 17:17	03/10/23 20:11		

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ANALYTICAL RESULTS

Project: MMSD PFAS

Pace Project No.: 10643312

23:59

Sample: Effluent 20230214 **Lab ID: 10643312002** Collected: 02/14/23 00:00 Received: 02/16/23 08:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
2540D Total Suspended Solids									
Analytical Method: SM 2540D Pace Analytical Services - Minneapolis									
Total Suspended Solids	<5.0	mg/L	10.0	5.0	1		02/21/23 16:46		

REPORT OF LABORATORY ANALYSIS

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March 2023

Data Quality and Usability Review – March 2023

Data Reviewer: Kristen Morin

Peer Reviewer: Jeff Ramey

Date: 5/30/2023, Revised 7/17/2023

Madison Metropolitan Sewerage District (MMSD) collected influent, effluent, and biosolids samples at the Nine Springs wastewater treatment plant on March 20 and 21, 2023 in conjunction with an additional characterization study conducted by TRC. Samples were analyzed for the standard list of Wisconsin's 33 per- and polyfluoroalkyl substances (PFAS) and total oxidizable precursor (TOP) assay PFAS by Eurofins in West Sacramento, California and total suspended solids (TSS) by Eurofins in Denver, Colorado. The laboratory analytical results were reported in laboratory SDGs 320-98088-1 (Revision 3, dated 7/14/23) (TOP assay only) and 320-98088-2 (Revision 1, dated 5/10/23) (PFAS and TSS).

Samples included in this review are listed below:

- Inf-02-20230320
- Inf-07-20230320
- Inf-08-20230320
- Inf-11-20230320
- Inf-18-20230320
- Inf-Comp-20230320
- Eff-20230321
- BioA-22-20230321
- BioB-20230321
- EB01-20230321

Each sample was analyzed for one or more of the following constituents:

Analyte Group	Method
PFAS (33 Analytes)	Modified EPA Method 537 and laboratory standard operating procedure (SOP) using Isotope Dilution/WI Method Criteria
PFAS TOP Assay (33 Analytes)	Laboratory SOP using Isotope Dilution/WI Method Criteria
Total Suspended Solids (TSS)	Standard Method (SM) 2540D
Total Solids*	ASTM D 2216*

Notes:

* The laboratory does not hold NELAP accreditation for total solids.

TRC performed a limited validation of the laboratory data to assess data usability. The following sections summarize the data validation procedure and the results of the validation.

Data Usability Review Procedure

The analytical data were reviewed using the USEPA Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537 (EPA 910-R-18-001), November 2018, USEPA National Functional Guidelines for High Resolution Superfund Methods Data Review (EPA 542-R-20-007), November 2020, and Wisconsin PFAS Aqueous (Non-Potable Water) and Non-Aqueous Matrices Method Expectations, Document # EA-19-0001, WDNR, December 2019 as guidance for data review. EPA 910-R-18-001 applies to method 537 and drinking water matrices only but the guidance can be applied in part or in whole to evaluate data

in non-drinking water matrices. The following items were specifically included in the evaluation of the data:

- Data completeness;
- Sample receipt, as noted in the cover page or case narrative;
- Technical holding times for analyses;
- Quantitation limits (QLs) compared to the ranges of QLs suggested in the Sampling and Analysis Blueprint (SAB) of 2-5 ng/L and 1-5 ug/kg per individual PFAS, as appropriate;
- Data for method blanks, equipment blanks, and field blanks. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Field and equipment blanks are used to assess potential contamination arising from field procedures;
- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCSs and/or LCSDs are used to assess the accuracy and precision of the analytical method using a clean matrix;
- Percent recoveries for matrix spike (MS) and matrix spike duplicate (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Percent recoveries for isotopically labeled surrogates. Percent recoveries are calculated for each surrogate and used to assess the accuracy of the extraction procedure and bias due to sample matrix effects;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;
- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and
- Overall usability of the data.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

Review Summary

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances, and issues identified in this evaluation are noted below.

- The reviewed PFAS and TSS data will be utilized for the purposes of an additional characterization.
- Data are usable for the purposes of the additional characterization.
- The issues noted in the QA/QC sample summary below have a minor impact on the data usability.

QA/QC Sample Summary

- The revised data packages were found to be complete as received from the laboratory.
- The cooler temperature upon receipt at the laboratory was within the acceptance criteria (< 10°C).
 - Select samples were not shipped to the laboratory until one to two days after collection. The samples were stored in coolers, on ice, at the site until delivery to the laboratory. No validation actions were required on this basis since the samples were kept in coolers, on ice, prior to delivery to the laboratory and were received at acceptable temperatures by the laboratory.
- A method blank was analyzed with each analytical batch for PFAS (total and TOP assay) and TSS. The following table summarizes the compounds detected in the method blanks, the associated samples, and the validation actions.

Blank ID	Compound	Blank Concentration	Action
MB 320-663937/1-A (pre-TOP assay)	PFBA	0.998 J µg/Kg	The positive pre-TOP Assay results for PFBA in samples BioA-22-20230321 and BioB-20230321 were qualified as nondetect (U) at the reported concentration since the results were > the QL and < 10x the blank concentration when adjusted for sample-specific factors.
Associated samples: Initial extraction: BioA-22-20230321, BioB-20230321			
MB 320-663938/1-A (post-TOP assay)	PFBA	1.24 µg/Kg	No validation actions were required for post-TOP Assay result for PFBA in sample BioA-22-20230321 since the result was > the QL and > 10x the blank concentration when adjusted for sample-specific factors. The positive post-TOP Assay result for PFBA in sample BioB-20230321 was qualified as nondetect (U) at the reported concentration since the result was > the QL and < 10x the blank concentration when adjusted for sample-specific factors.
Associated samples: BioA-22-20230321, BioB-20230321			

- One equipment blank (EB01-20230321) was collected and analyzed for total PFAS; no target PFAS were detected in the equipment blank.
- All samples were extracted and/or prepared and analyzed within the holding time.
- The LCS and LCSD relative percent differences (RPDs), where applicable, were within the laboratory's acceptance limits. The LCS and LCSD percent recoveries (%Rs) for all analytes were within the laboratory's acceptance limits except as noted in the table below.

LCS/LCSD ID	Compound	LCS/LCSD %Rs	LCS/LCSD %R Limits	Validation Actions
LCS 320-667343/2-A/ LCSD 320-667343/3-A (pre-TOP assay)	NETFOSA	76/-	78-168	The nondetect pre-TOP assay results for NETFOSA were qualified as estimated (UJ) in the re-extracted analyses of the associated samples.

LCS/LCSD ID	Compound	LCS/LCSD %Rs	LCS/LCSD %R Limits	Validation Actions
Associated samples: <u>Re-Extraction:</u> Inf-02-20230320, Inf-07-20230320, Inf-08-20230320, Inf-11-20230320, Inf-18-20230320, Eff-20230321				
LCS 320-663937/2-A/ LCSD 320-663937/3-A (pre-TOP assay)	NETFOSA	40/37	47-161	No validation actions were required on this basis since NETFOSA and NMeFOSA were reported from the re-extracted pre-TOP Assay analysis of the associated samples which had acceptable LCS/LCSD %Rs.
	NMeFOSA	47/48	63-148	
Associated samples: <u>Initial Extraction:</u> BioA-22-20230321, BioB-20230321				
LCS 320-663935/2-A/ LCSD 320-663935/3-A (post-TOP assay)	PFBA	181/172	93-153	The laboratory stated in the case narrative that the enhanced post-TOP assay LCS/LCSD %Rs for the listed compounds (also known as perfluoroalkyl carboxylic acids [PFCAs]) were due to a recent increase in the number of precursor analytes (i.e., non-target compounds) included in the laboratory's spiking solution which transform to PFCAs during the TOP Assay procedure (i.e., the results are consistent with the expected oxidation of the precursor analytes). Although the %Rs for the listed PFCAs were above the laboratory's acceptance criteria, the post-TOP LCS/LCSD %Rs were still considered to be in control as a result of the additional precursors added to the spiking solution. It should also be noted that the laboratory stated in the case narrative that zero %R of precursor analytes (i.e., ADONA, 4:2 FTS, 6:2 FTS, 8:2 FTS, FOSA, NMeFOSAA, NETFOSAA, NETFOSA, NMeFOSA, NMeFOSE, and NETFOSE) is also expected for the same reason stated above; 0-0.5 %R was observed for the listed precursors. No validation actions were taken on this basis.
	PFPeA	176/164	85-145	
	PFHxA	208/209	81-141	
	PFHpA	185/189	104-171	
	PFNA	158/151	66-126	
	PFDA	141/140	65-125	
Associated samples: Inf-02-20230320, Inf-07-20230320, Inf-08-20230320, Inf-11-20230320, Inf-18-20230320, Eff-20230321				
LCS 320-663938/2-A/ LCSD 320-663938/3-A (post-TOP assay)	PFHxA	169/-	92-152	
Associated samples: BioA-22-20230321, BioB-20230321				
-: Met criteria				

- MS/MSD analyses were not performed on a sample from this data set.
- The reverse surrogate (M2-4:2 FTS) was within the laboratory's acceptance limits (0-10%) in the post-TOP assay analyses. The following table summarizes the remaining isotopically labeled surrogate %Rs that were outside of the laboratory's acceptance limits, the associated samples, and the validation actions.

Sample ID	Surrogate	%R	%R Acceptance Limits	Action*
Inf-11-20230320 (total PFAS)	13C2 PFTeDA	24	25-150	The nondetect result for total PFTeA was qualified as estimated (UJ) in sample Inf-11-20230320.
Inf-02-20230320 (pre-TOP assay; initial extraction)	M2-6:2 FTS	183	25-150	No validation actions were required on this basis since 6:2 FTS was not detected in the initial extraction for the pre-TOP Assay analysis of these samples.
Inf-07-20230320 (pre-TOP assay; initial extraction)		181		
Inf-08-20230320 (pre-TOP assay; initial extraction)		184		
Inf-11-20230320 (pre-TOP assay; initial extraction)		185		
Inf-18-20230320 (pre-TOP assay; initial extraction)		193		

Sample ID	Surrogate	%R	%R Acceptance Limits	Action*
BioA-22-20230321 (total PFAS)	M2-6:2 FTS	163	25-150	The positive results for total 6:2 FTS and 8:2 FTS were qualified as estimated (J) in sample BioA-22-20230321.
	M2-8:2 FTS	168		
BioB-20230321 (total PFAS)	13C4 PFBA	20	25-150	The nondetect result for total PFBA was qualified as estimated (UJ) in sample BioB-20230321.
BioA-22-20230321 (pre-TOP assay; initial extraction)	M2-6:2 FTS	152	25-150	No validation actions were required on this basis since 6:2 FTS was not detected in the initial extraction pre-TOP Assay analysis of these samples.
BioB-20230321 (pre-TOP assay; initial extraction)		154		

* Note that select results were also qualified as estimated (J) by the laboratory due to detection between the method detection limit (MDL) and QL.

- It should be noted that the surrogate 13C2 10:2 FTS was not consistently reported in the samples and quality control samples; however, this surrogate is not used to quantitate any target compounds so there is no adverse impact on the data usability due to this issue and the laboratory was not contacted.
- A field duplicate pair was not collected with this sample set.
- Laboratory duplicate analysis was performed on sample Eff-20230321 for TSS. All criteria were met.
- The laboratory noted the following observations in the case narratives. No validation actions were taken on this basis.
 - During the solid phase extraction process, the following total PFAS samples contained non-settable particulates which clogged the solid phase extraction column: Inf-02-20230320, Inf-07-20230320, Inf-08-20230320, Inf-11-20230320, Inf-18-20230320, and Inf-Comp-20230320. The lab also stated that approximately 65% of the sample container was filtered through the solid phase extraction (SPE) column at which point the SPE column became clogged. The remainder of the unfiltered sample was retained in the original sample bottle. The SPE column along with the particulates that clogged it were then extracted using the elution solvent. The laboratory confirmed during this review that the samples were spiked with EIS prior to filtration through the SPE column; thus, no validation actions were taken on this basis.
 - Sample Eff-20230321 contained floating particulates in the total PFAS sample bottle prior to extraction. The laboratory stated that the full sample passed through the SPE column for total PFAS.
 - Samples Inf-02-20230320, Inf-07-20230320, Inf-08-20230320, Inf-11-20230320, Inf-18-20230320, Inf-Comp-20230320, and Eff-20230321 were light yellow prior to extraction and were light yellow after extraction/final volume for total PFAS.
 - Samples BioA-22-20230321 and BioB-20230321 were yellow in color following extraction for total PFAS.
 - Samples Inf-02-20230320, Inf-07-20230320, Inf-08-20230320, Inf-11-20230320, and Inf-18-20230320 were observed to have floating particulates present in the pre- and post-TOP Assay sample bottles. The laboratory stated that the full sample passed through the SPE column for pre- and post-TOP Assay.

- Select sample QLs were outside of the ranges of QLs suggested in the SAB of 2-5 ng/L and 1-5 ug/kg per individual PFAS due to sample volume and/or low total solids.
- The reporting limits (RLs) for TSS in all influent samples were 3.25x higher than the associated method blank due to a reduced volume (80 mL versus the typical 250 mL) used in the sample analysis. There is no adverse impact on the data usability due to this issue since TSS was detected above the RL in these samples. No validation action was required on this basis.
- No dilutions were performed on the samples in this data set.
- The results for the following PFAS in the samples listed below were flagged with an “I” by the laboratory indicating that the ion transition ratio did not meet the acceptance limits; thus, the positive results for the PFAS in the samples listed below were qualified as estimated (J).
 - Total PFHxS in samples Inf-02-20230320 and BioA-22-20230321;
 - Total PFDA* and total PFHxS in sample Inf-08-20230320;
 - Total PFHxA and total PFHxS in sample Inf-11-20230320;
 - Total PFDA* in sample Inf-Comp-20230320;
 - Total PFHxA and PFOS in sample BioB-20230321;
 - Pre-TOP assay PFHxS* in sample Inf-08-20230320; and
 - Pre-TOP assay PFHxA*, pre-TOP assay PFHxS*, and pre-TOP assay total PFCA summary value for PFHxA* in sample Inf-11-20230320.
- * These results were also qualified as estimated (J) by the laboratory due to detection < the QL.
- The percent moisture for the biosolids samples was high (>70% moisture). The laboratory was contacted during this validation review regarding this issue and stated that the biosolids samples were agitated and then immediately aliquoted for extraction after agitation, indicating that a representative sample was extracted for PFAS analysis. No validation actions were taken on this basis.
- The Qualified Form 1s were updated in July 2023 based on Revision 3 of SDG 320-98088-1 to remove the Treatment Difference and Total Summary results from the TOP Assay analyses. No other changes were made in July 2023 to this data set.

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: Inf-02-20230320

Lab Sample ID: 320-98088-1

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	5.1		4.6	2.2	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluoropentanoic acid (PFPA)	4.0		1.8	0.45	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorohexanoic acid (PFHxA)	4.8		1.8	0.53	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluoroheptanoic acid (PFHpA)	1.7	J	1.8	0.23	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorooctanoic acid (PFOA)	3.6		1.8	0.77	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorononanoic acid (PFNA)	0.43	J	1.8	0.25	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorodecanoic acid (PFDA)	0.43	J	1.8	0.28	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.67	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorobutanesulfonic acid (PFBS)	3.9		1.8	0.18	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluoropentanesulfonic acid (PFPeS)	0.34	J	1.8	0.27	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorohexanesulfonic acid (PFHxS)	5.0	I J	1.8	0.52	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorooctanesulfonic acid (PFOS)	5.5		1.8	0.49	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.34	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.88	ng/L		03/28/23 13:24	03/30/23 06:08	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.89	ng/L		03/28/23 13:24	03/30/23 06:08	1
NEtFOSA	ND		1.8	0.79	ng/L		03/28/23 13:24	03/30/23 06:08	1
NMeFOSA	ND		1.8	0.39	ng/L		03/28/23 13:24	03/30/23 06:08	1
NMeFOSAA	ND		4.6	1.1	ng/L		03/28/23 13:24	03/30/23 06:08	1
NEtFOSAA	ND		4.6	1.2	ng/L		03/28/23 13:24	03/30/23 06:08	1
NMeFOSE	ND		3.6	1.3	ng/L		03/28/23 13:24	03/30/23 06:08	1
NEtFOSE	ND		1.8	0.77	ng/L		03/28/23 13:24	03/30/23 06:08	1
4:2 FTS	ND		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 06:08	1
6:2 FTS	ND		4.6	2.3	ng/L		03/28/23 13:24	03/30/23 06:08	1
8:2 FTS	ND		1.8	0.42	ng/L		03/28/23 13:24	03/30/23 06:08	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		03/28/23 13:24	03/30/23 06:08	1
HFPO-DA (GenX)	ND		3.6	1.4	ng/L		03/28/23 13:24	03/30/23 06:08	1
9CI-PF3ONS	ND		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 06:08	1
11CI-PF3OUdS	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 06:08	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	52		25 - 150				03/28/23 13:24	03/30/23 06:08	1
13C5 PFPeA	68		25 - 150				03/28/23 13:24	03/30/23 06:08	1
13C2 PFHxA	72		25 - 150				03/28/23 13:24	03/30/23 06:08	1
13C4 PFHpA	67		25 - 150				03/28/23 13:24	03/30/23 06:08	1
13C4 PFOA	70		25 - 150				03/28/23 13:24	03/30/23 06:08	1
13C5 PFNA	66		25 - 150				03/28/23 13:24	03/30/23 06:08	1
13C2 PFDA	60		25 - 150				03/28/23 13:24	03/30/23 06:08	1
13C2 PFUnA	52		25 - 150				03/28/23 13:24	03/30/23 06:08	1
13C2 PFDoA	42		25 - 150				03/28/23 13:24	03/30/23 06:08	1
13C2 PFTeDA	34		25 - 150				03/28/23 13:24	03/30/23 06:08	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: Inf-02-20230320

Lab Sample ID: 320-98088-1

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	64		25 - 150	03/28/23 13:24	03/30/23 06:08	1
18O2 PFHxS	65		25 - 150	03/28/23 13:24	03/30/23 06:08	1
13C4 PFOS	59		25 - 150	03/28/23 13:24	03/30/23 06:08	1
13C8 FOSA	51		10 - 150	03/28/23 13:24	03/30/23 06:08	1
d3-NMeFOSAA	43		25 - 150	03/28/23 13:24	03/30/23 06:08	1
d5-NEtFOSAA	45		25 - 150	03/28/23 13:24	03/30/23 06:08	1
d-N-MeFOSA-M	24		10 - 150	03/28/23 13:24	03/30/23 06:08	1
d-N-EtFOSA-M	40		10 - 150	03/28/23 13:24	03/30/23 06:08	1
d7-N-MeFOSE-M	24		10 - 150	03/28/23 13:24	03/30/23 06:08	1
d9-N-EtFOSE-M	40		10 - 150	03/28/23 13:24	03/30/23 06:08	1
M2-4:2 FTS	93		25 - 150	03/28/23 13:24	03/30/23 06:08	1
M2-6:2 FTS	148		25 - 150	03/28/23 13:24	03/30/23 06:08	1
M2-8:2 FTS	105		25 - 150	03/28/23 13:24	03/30/23 06:08	1
13C3 HFPO-DA	64		25 - 150	03/28/23 13:24	03/30/23 06:08	1
13C2 10:2 FTS	59		25 - 150	03/28/23 13:24	03/30/23 06:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	220		13	3.4	mg/L			03/27/23 18:56	1

Client Sample ID: Inf-07-20230320

Lab Sample ID: 320-98088-2

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	17		4.5	2.2	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluoropentanoic acid (PFPA)	9.9		1.8	0.44	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluorohexanoic acid (PFHxA)	15		1.8	0.52	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluoroheptanoic acid (PFHpA)	3.8		1.8	0.23	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluorooctanoic acid (PFOA)	11		1.8	0.77	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluorononanoic acid (PFNA)	0.69	J	1.8	0.24	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluorodecanoic acid (PFDA)	0.61	J	1.8	0.28	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.99	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.66	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluorobutanesulfonic acid (PFBS)	6.6		1.8	0.18	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluoropentanesulfonic acid (PFPeS)	1.1	J	1.8	0.27	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluorohexanesulfonic acid (PFHxS)	15		1.8	0.51	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluorooctanesulfonic acid (PFOS)	8.7		1.8	0.49	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.33	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 06:19	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.88	ng/L		03/28/23 13:24	03/30/23 06:19	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: Inf-07-20230320

Lab Sample ID: 320-98088-2

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.88	ng/L		03/28/23 13:24	03/30/23 06:19	1
NEtFOSA	ND		1.8	0.79	ng/L		03/28/23 13:24	03/30/23 06:19	1
NMeFOSA	ND		1.8	0.39	ng/L		03/28/23 13:24	03/30/23 06:19	1
NMeFOSAA	1.5	J	4.5	1.1	ng/L		03/28/23 13:24	03/30/23 06:19	1
NEtFOSAA	ND		4.5	1.2	ng/L		03/28/23 13:24	03/30/23 06:19	1
NMeFOSE	ND		3.6	1.3	ng/L		03/28/23 13:24	03/30/23 06:19	1
NEtFOSE	ND		1.8	0.77	ng/L		03/28/23 13:24	03/30/23 06:19	1
4:2 FTS	ND		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 06:19	1
6:2 FTS	ND		4.5	2.3	ng/L		03/28/23 13:24	03/30/23 06:19	1
8:2 FTS	ND		1.8	0.42	ng/L		03/28/23 13:24	03/30/23 06:19	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		03/28/23 13:24	03/30/23 06:19	1
HFPO-DA (GenX)	ND		3.6	1.4	ng/L		03/28/23 13:24	03/30/23 06:19	1
9Cl-PF3ONS	ND		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 06:19	1
11Cl-PF3OUdS	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 06:19	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFBA	54		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C5 PFPeA	70		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C2 PFHxA	72		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C4 PFHpA	67		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C4 PFOA	67		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C5 PFNA	64		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C2 PFDA	60		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C2 PFUnA	53		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C2 PFDoA	40		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C2 PFTeDA	30		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C3 PFBS	63		25 - 150				03/28/23 13:24	03/30/23 06:19	1
18O2 PFHxS	59		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C4 PFOS	55		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C8 FOSA	54		10 - 150				03/28/23 13:24	03/30/23 06:19	1
d3-NMeFOSAA	44		25 - 150				03/28/23 13:24	03/30/23 06:19	1
d5-NEtFOSAA	48		25 - 150				03/28/23 13:24	03/30/23 06:19	1
d-N-MeFOSA-M	25		10 - 150				03/28/23 13:24	03/30/23 06:19	1
d-N-EtFOSA-M	38		10 - 150				03/28/23 13:24	03/30/23 06:19	1
d7-N-MeFOSE-M	26		10 - 150				03/28/23 13:24	03/30/23 06:19	1
d9-N-EtFOSE-M	41		10 - 150				03/28/23 13:24	03/30/23 06:19	1
M2-4:2 FTS	93		25 - 150				03/28/23 13:24	03/30/23 06:19	1
M2-6:2 FTS	134		25 - 150				03/28/23 13:24	03/30/23 06:19	1
M2-8:2 FTS	94		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C3 HFPO-DA	57		25 - 150				03/28/23 13:24	03/30/23 06:19	1
13C2 10:2 FTS	59		25 - 150				03/28/23 13:24	03/30/23 06:19	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	190		13	3.4	mg/L			03/27/23 18:56	1

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: Inf-08-20230320

Lab Sample ID: 320-98088-3

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	4.0	J	4.5	2.2	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluoropentanoic acid (PFPA)	11		1.8	0.44	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorohexanoic acid (PFHxA)	6.3		1.8	0.53	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluoroheptanoic acid (PFHpA)	0.98	J	1.8	0.23	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorooctanoic acid (PFOA)	1.9		1.8	0.77	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorodecanoic acid (PFDA)	0.50	J I J	1.8	0.28	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.66	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorobutanesulfonic acid (PFBS)	1.6	J	1.8	0.18	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluoropentanesulfonic acid (PFPeS)	0.27	J	1.8	0.27	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorohexanesulfonic acid (PFHxS)	4.6	I J	1.8	0.52	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorooctanesulfonic acid (PFOS)	3.5		1.8	0.49	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.34	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.88	ng/L		03/28/23 13:24	03/30/23 06:29	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.89	ng/L		03/28/23 13:24	03/30/23 06:29	1
NEtFOSA	ND		1.8	0.79	ng/L		03/28/23 13:24	03/30/23 06:29	1
NMeFOSA	ND		1.8	0.39	ng/L		03/28/23 13:24	03/30/23 06:29	1
NMeFOSAA	ND		4.5	1.1	ng/L		03/28/23 13:24	03/30/23 06:29	1
NEtFOSAA	ND		4.5	1.2	ng/L		03/28/23 13:24	03/30/23 06:29	1
NMeFOSE	2.3	J	3.6	1.3	ng/L		03/28/23 13:24	03/30/23 06:29	1
NEtFOSE	ND		1.8	0.77	ng/L		03/28/23 13:24	03/30/23 06:29	1
4:2 FTS	ND		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 06:29	1
6:2 FTS	ND		4.5	2.3	ng/L		03/28/23 13:24	03/30/23 06:29	1
8:2 FTS	ND		1.8	0.42	ng/L		03/28/23 13:24	03/30/23 06:29	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		03/28/23 13:24	03/30/23 06:29	1
HFPO-DA (GenX)	ND		3.6	1.4	ng/L		03/28/23 13:24	03/30/23 06:29	1
9CI-PF3ONS	ND		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 06:29	1
11CI-PF3OUdS	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 06:29	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	55		25 - 150				03/28/23 13:24	03/30/23 06:29	1
13C5 PFPeA	72		25 - 150				03/28/23 13:24	03/30/23 06:29	1
13C2 PFHxA	78		25 - 150				03/28/23 13:24	03/30/23 06:29	1
13C4 PFHpA	71		25 - 150				03/28/23 13:24	03/30/23 06:29	1
13C4 PFOA	73		25 - 150				03/28/23 13:24	03/30/23 06:29	1
13C5 PFNA	69		25 - 150				03/28/23 13:24	03/30/23 06:29	1
13C2 PFDA	62		25 - 150				03/28/23 13:24	03/30/23 06:29	1
13C2 PFUnA	53		25 - 150				03/28/23 13:24	03/30/23 06:29	1
13C2 PFDoA	41		25 - 150				03/28/23 13:24	03/30/23 06:29	1
13C2 PFTeDA	28		25 - 150				03/28/23 13:24	03/30/23 06:29	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: Inf-08-20230320

Lab Sample ID: 320-98088-3

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	67		25 - 150	03/28/23 13:24	03/30/23 06:29	1
18O2 PFHxS	63		25 - 150	03/28/23 13:24	03/30/23 06:29	1
13C4 PFOS	58		25 - 150	03/28/23 13:24	03/30/23 06:29	1
13C8 FOSA	57		10 - 150	03/28/23 13:24	03/30/23 06:29	1
d3-NMeFOSAA	44		25 - 150	03/28/23 13:24	03/30/23 06:29	1
d5-NEtFOSAA	49		25 - 150	03/28/23 13:24	03/30/23 06:29	1
d-N-MeFOSA-M	25		10 - 150	03/28/23 13:24	03/30/23 06:29	1
d-N-EtFOSA-M	40		10 - 150	03/28/23 13:24	03/30/23 06:29	1
d7-N-MeFOSE-M	26		10 - 150	03/28/23 13:24	03/30/23 06:29	1
d9-N-EtFOSE-M	43		10 - 150	03/28/23 13:24	03/30/23 06:29	1
M2-4:2 FTS	110		25 - 150	03/28/23 13:24	03/30/23 06:29	1
M2-6:2 FTS	147		25 - 150	03/28/23 13:24	03/30/23 06:29	1
M2-8:2 FTS	105		25 - 150	03/28/23 13:24	03/30/23 06:29	1
13C3 HFPO-DA	65		25 - 150	03/28/23 13:24	03/30/23 06:29	1
13C2 10:2 FTS	57		25 - 150	03/28/23 13:24	03/30/23 06:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	190		13	3.4	mg/L			03/27/23 18:56	1

Client Sample ID: Inf-11-20230320

Lab Sample ID: 320-98088-4

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	2.2	J	4.5	2.2	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluoropentanoic acid (PFPA)	2.1		1.8	0.44	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorohexanoic acid (PFHxA)	3.7	I J	1.8	0.53	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluoroheptanoic acid (PFHpA)	0.90	J	1.8	0.23	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorooctanoic acid (PFOA)	2.1		1.8	0.77	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorononanoic acid (PFNA)	0.33	J	1.8	0.24	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorodecanoic acid (PFDA)	0.34	J	1.8	0.28	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorotetradecanoic acid (PFTeA)	ND	UJ	1.8	0.66	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorobutanesulfonic acid (PFBS)	1.5	J	1.8	0.18	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.8	0.27	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorohexanesulfonic acid (PFHxS)	3.7	I J	1.8	0.52	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.49	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.34	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.88	ng/L		03/28/23 13:24	03/30/23 06:39	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.89	ng/L		03/28/23 13:24	03/30/23 06:39	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: Inf-11-20230320

Lab Sample ID: 320-98088-4

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSA	ND		1.8	0.79	ng/L		03/28/23 13:24	03/30/23 06:39	1
NMeFOSA	ND		1.8	0.39	ng/L		03/28/23 13:24	03/30/23 06:39	1
NMeFOSAA	ND		4.5	1.1	ng/L		03/28/23 13:24	03/30/23 06:39	1
NEtFOSAA	ND		4.5	1.2	ng/L		03/28/23 13:24	03/30/23 06:39	1
NMeFOSE	2.4	J	3.6	1.3	ng/L		03/28/23 13:24	03/30/23 06:39	1
NEtFOSE	ND		1.8	0.77	ng/L		03/28/23 13:24	03/30/23 06:39	1
4:2 FTS	ND		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 06:39	1
6:2 FTS	ND		4.5	2.3	ng/L		03/28/23 13:24	03/30/23 06:39	1
8:2 FTS	ND		1.8	0.42	ng/L		03/28/23 13:24	03/30/23 06:39	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		03/28/23 13:24	03/30/23 06:39	1
HFPO-DA (GenX)	ND		3.6	1.4	ng/L		03/28/23 13:24	03/30/23 06:39	1
9Cl-PF3ONS	ND		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 06:39	1
11Cl-PF3OUdS	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 06:39	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	52		25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C5 PFPeA	67		25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C2 PFHxA	70		25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C4 PFHpA	67		25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C4 PFOA	69		25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C5 PFNA	63		25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C2 PFDA	54		25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C2 PFUnA	46		25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C2 PFDoA	35		25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C2 PFTeDA	24	*5-	25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C3 PFBS	64		25 - 150				03/28/23 13:24	03/30/23 06:39	1
18O2 PFHxS	62		25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C4 PFOS	58		25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C8 FOSA	44		10 - 150				03/28/23 13:24	03/30/23 06:39	1
d3-NMeFOSAA	28		25 - 150				03/28/23 13:24	03/30/23 06:39	1
d5-NEtFOSAA	37		25 - 150				03/28/23 13:24	03/30/23 06:39	1
d-N-MeFOSA-M	23		10 - 150				03/28/23 13:24	03/30/23 06:39	1
d-N-EtFOSA-M	30		10 - 150				03/28/23 13:24	03/30/23 06:39	1
d7-N-MeFOSE-M	22		10 - 150				03/28/23 13:24	03/30/23 06:39	1
d9-N-EtFOSE-M	32		10 - 150				03/28/23 13:24	03/30/23 06:39	1
M2-4:2 FTS	112		25 - 150				03/28/23 13:24	03/30/23 06:39	1
M2-6:2 FTS	141		25 - 150				03/28/23 13:24	03/30/23 06:39	1
M2-8:2 FTS	93		25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C3 HFPO-DA	61		25 - 150				03/28/23 13:24	03/30/23 06:39	1
13C2 10:2 FTS	50		25 - 150				03/28/23 13:24	03/30/23 06:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	200		13	3.4	mg/L			03/27/23 18:56	1

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: Inf-18-20230320

Lab Sample ID: 320-98088-5

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	13		4.4	2.1	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluoropentanoic acid (PFPA)	7.6		1.8	0.44	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorohexanoic acid (PFHxA)	9.2		1.8	0.51	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluoroheptanoic acid (PFHpA)	3.4		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorooctanoic acid (PFOA)	10		1.8	0.75	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorononanoic acid (PFNA)	0.59	J	1.8	0.24	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorodecanoic acid (PFDA)	0.61	J	1.8	0.28	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.98	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorobutanesulfonic acid (PFBS)	6.6		1.8	0.18	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluoropentanesulfonic acid (PFPeS)	1.9		1.8	0.27	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorohexanesulfonic acid (PFHxS)	21		1.8	0.51	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluoroheptanesulfonic acid (PFHpS)	0.61	J	1.8	0.17	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorooctanesulfonic acid (PFOS)	9.9		1.8	0.48	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.33	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.28	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.86	ng/L		03/28/23 13:24	03/30/23 06:49	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.87	ng/L		03/28/23 13:24	03/30/23 06:49	1
NEtFOSA	ND		1.8	0.77	ng/L		03/28/23 13:24	03/30/23 06:49	1
NMeFOSA	ND		1.8	0.38	ng/L		03/28/23 13:24	03/30/23 06:49	1
NMeFOSAA	ND		4.4	1.1	ng/L		03/28/23 13:24	03/30/23 06:49	1
NEtFOSAA	ND		4.4	1.2	ng/L		03/28/23 13:24	03/30/23 06:49	1
NMeFOSE	1.7	J	3.6	1.2	ng/L		03/28/23 13:24	03/30/23 06:49	1
NEtFOSE	ND		1.8	0.75	ng/L		03/28/23 13:24	03/30/23 06:49	1
4:2 FTS	ND		1.8	0.21	ng/L		03/28/23 13:24	03/30/23 06:49	1
6:2 FTS	3.3	J	4.4	2.2	ng/L		03/28/23 13:24	03/30/23 06:49	1
8:2 FTS	ND		1.8	0.41	ng/L		03/28/23 13:24	03/30/23 06:49	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		03/28/23 13:24	03/30/23 06:49	1
HFPO-DA (GenX)	ND		3.6	1.3	ng/L		03/28/23 13:24	03/30/23 06:49	1
9CI-PF3ONS	ND		1.8	0.21	ng/L		03/28/23 13:24	03/30/23 06:49	1
11CI-PF3OUdS	ND		1.8	0.28	ng/L		03/28/23 13:24	03/30/23 06:49	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	54		25 - 150				03/28/23 13:24	03/30/23 06:49	1
13C5 PFPeA	65		25 - 150				03/28/23 13:24	03/30/23 06:49	1
13C2 PFHxA	65		25 - 150				03/28/23 13:24	03/30/23 06:49	1
13C4 PFHpA	63		25 - 150				03/28/23 13:24	03/30/23 06:49	1
13C4 PFOA	67		25 - 150				03/28/23 13:24	03/30/23 06:49	1
13C5 PFNA	61		25 - 150				03/28/23 13:24	03/30/23 06:49	1
13C2 PFDA	57		25 - 150				03/28/23 13:24	03/30/23 06:49	1
13C2 PFUnA	50		25 - 150				03/28/23 13:24	03/30/23 06:49	1
13C2 PFDoA	39		25 - 150				03/28/23 13:24	03/30/23 06:49	1
13C2 PFTeDA	30		25 - 150				03/28/23 13:24	03/30/23 06:49	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: Inf-18-20230320

Lab Sample ID: 320-98088-5

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	59		25 - 150	03/28/23 13:24	03/30/23 06:49	1
18O2 PFHxS	58		25 - 150	03/28/23 13:24	03/30/23 06:49	1
13C4 PFOS	54		25 - 150	03/28/23 13:24	03/30/23 06:49	1
13C8 FOSA	47		10 - 150	03/28/23 13:24	03/30/23 06:49	1
d3-NMeFOSAA	38		25 - 150	03/28/23 13:24	03/30/23 06:49	1
d5-NEtFOSAA	46		25 - 150	03/28/23 13:24	03/30/23 06:49	1
d-N-MeFOSA-M	23		10 - 150	03/28/23 13:24	03/30/23 06:49	1
d-N-EtFOSA-M	34		10 - 150	03/28/23 13:24	03/30/23 06:49	1
d7-N-MeFOSE-M	22		10 - 150	03/28/23 13:24	03/30/23 06:49	1
d9-N-EtFOSE-M	38		10 - 150	03/28/23 13:24	03/30/23 06:49	1
M2-4:2 FTS	77		25 - 150	03/28/23 13:24	03/30/23 06:49	1
M2-6:2 FTS	137		25 - 150	03/28/23 13:24	03/30/23 06:49	1
M2-8:2 FTS	99		25 - 150	03/28/23 13:24	03/30/23 06:49	1
13C3 HFPO-DA	58		25 - 150	03/28/23 13:24	03/30/23 06:49	1
13C2 10:2 FTS	55		25 - 150	03/28/23 13:24	03/30/23 06:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	200		13	3.4	mg/L			03/27/23 18:56	1

Client Sample ID: Inf-Comp-20230320

Lab Sample ID: 320-98088-6

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	8.8		4.5	2.1	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluoropentanoic acid (PFPA)	6.7		1.8	0.44	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluorohexanoic acid (PFHxA)	8.4		1.8	0.52	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluoroheptanoic acid (PFHpA)	2.2		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluorooctanoic acid (PFOA)	6.0		1.8	0.76	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluorononanoic acid (PFNA)	0.47	J	1.8	0.24	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluorodecanoic acid (PFDA)	0.70	J-I J	1.8	0.28	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.98	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluorobutanesulfonic acid (PFBS)	4.3		1.8	0.18	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluoropentanesulfonic acid (PFPeS)	0.64	J	1.8	0.27	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluorohexanesulfonic acid (PFHxS)	9.6		1.8	0.51	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluorooctanesulfonic acid (PFOS)	6.3		1.8	0.48	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.33	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 06:59	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.87	ng/L		03/28/23 13:24	03/30/23 06:59	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: Inf-Comp-20230320

Lab Sample ID: 320-98088-6

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.88	ng/L		03/28/23 13:24	03/30/23 06:59	1
NEtFOSA	ND		1.8	0.78	ng/L		03/28/23 13:24	03/30/23 06:59	1
NMeFOSA	ND		1.8	0.39	ng/L		03/28/23 13:24	03/30/23 06:59	1
NMeFOSAA	ND		4.5	1.1	ng/L		03/28/23 13:24	03/30/23 06:59	1
NEtFOSAA	ND		4.5	1.2	ng/L		03/28/23 13:24	03/30/23 06:59	1
NMeFOSE	ND		3.6	1.3	ng/L		03/28/23 13:24	03/30/23 06:59	1
NEtFOSE	ND		1.8	0.76	ng/L		03/28/23 13:24	03/30/23 06:59	1
4:2 FTS	ND		1.8	0.21	ng/L		03/28/23 13:24	03/30/23 06:59	1
6:2 FTS	ND		4.5	2.2	ng/L		03/28/23 13:24	03/30/23 06:59	1
8:2 FTS	ND		1.8	0.41	ng/L		03/28/23 13:24	03/30/23 06:59	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		03/28/23 13:24	03/30/23 06:59	1
HFPO-DA (GenX)	ND		3.6	1.3	ng/L		03/28/23 13:24	03/30/23 06:59	1
9Cl-PF3ONS	ND		1.8	0.21	ng/L		03/28/23 13:24	03/30/23 06:59	1
11Cl-PF3OUdS	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 06:59	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	50		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C5 PFPeA	65		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C2 PFHxA	67		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C4 PFHpA	63		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C4 PFOA	66		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C5 PFNA	62		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C2 PFDA	57		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C2 PFUnA	49		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C2 PFDoA	38		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C2 PFTeDA	29		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C3 PFBS	59		25 - 150				03/28/23 13:24	03/30/23 06:59	1
18O2 PFHxS	59		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C4 PFOS	56		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C8 FOSA	47		10 - 150				03/28/23 13:24	03/30/23 06:59	1
d3-NMeFOSAA	36		25 - 150				03/28/23 13:24	03/30/23 06:59	1
d5-NEtFOSAA	45		25 - 150				03/28/23 13:24	03/30/23 06:59	1
d-N-MeFOSA-M	23		10 - 150				03/28/23 13:24	03/30/23 06:59	1
d-N-EtFOSA-M	35		10 - 150				03/28/23 13:24	03/30/23 06:59	1
d7-N-MeFOSE-M	23		10 - 150				03/28/23 13:24	03/30/23 06:59	1
d9-N-EtFOSE-M	39		10 - 150				03/28/23 13:24	03/30/23 06:59	1
M2-4:2 FTS	88		25 - 150				03/28/23 13:24	03/30/23 06:59	1
M2-6:2 FTS	138		25 - 150				03/28/23 13:24	03/30/23 06:59	1
M2-8:2 FTS	95		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C3 HFPO-DA	60		25 - 150				03/28/23 13:24	03/30/23 06:59	1
13C2 10:2 FTS	53		25 - 150				03/28/23 13:24	03/30/23 06:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	230		13	3.4	mg/L			03/27/23 18:56	1

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: Eff-20230321

Lab Sample ID: 320-98088-7

Date Collected: 03/21/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	9.4		4.6	2.2	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluoropentanoic acid (PFPA)	12		1.8	0.45	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorohexanoic acid (PFHxA)	21		1.8	0.53	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluoroheptanoic acid (PFHpA)	3.0		1.8	0.23	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorooctanoic acid (PFOA)	9.3		1.8	0.78	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorononanoic acid (PFNA)	0.75	J	1.8	0.25	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorodecanoic acid (PFDA)	0.99	J	1.8	0.28	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.67	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorobutanesulfonic acid (PFBS)	4.3		1.8	0.18	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluoropentanesulfonic acid (PFPeS)	0.71	J	1.8	0.27	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorohexanesulfonic acid (PFHxS)	9.6		1.8	0.52	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluoroheptanesulfonic acid (PFHpS)	0.22	J	1.8	0.17	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorooctanesulfonic acid (PFOS)	5.5		1.8	0.49	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.34	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.89	ng/L		03/28/23 13:24	03/30/23 07:09	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.90	ng/L		03/28/23 13:24	03/30/23 07:09	1
NEtFOSA	ND		1.8	0.80	ng/L		03/28/23 13:24	03/30/23 07:09	1
NMeFOSA	ND		1.8	0.39	ng/L		03/28/23 13:24	03/30/23 07:09	1
NMeFOSAA	1.7	J	4.6	1.1	ng/L		03/28/23 13:24	03/30/23 07:09	1
NEtFOSAA	ND		4.6	1.2	ng/L		03/28/23 13:24	03/30/23 07:09	1
NMeFOSE	ND		3.7	1.3	ng/L		03/28/23 13:24	03/30/23 07:09	1
NEtFOSE	ND		1.8	0.78	ng/L		03/28/23 13:24	03/30/23 07:09	1
4:2 FTS	ND		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 07:09	1
6:2 FTS	3.1	J	4.6	2.3	ng/L		03/28/23 13:24	03/30/23 07:09	1
8:2 FTS	ND		1.8	0.42	ng/L		03/28/23 13:24	03/30/23 07:09	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.37	ng/L		03/28/23 13:24	03/30/23 07:09	1
HFPO-DA (GenX)	ND		3.7	1.4	ng/L		03/28/23 13:24	03/30/23 07:09	1
9CI-PF3ONS	ND		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 07:09	1
11CI-PF3OUdS	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 07:09	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	84		25 - 150				03/28/23 13:24	03/30/23 07:09	1
13C5 PFPeA	104		25 - 150				03/28/23 13:24	03/30/23 07:09	1
13C2 PFHxA	113		25 - 150				03/28/23 13:24	03/30/23 07:09	1
13C4 PFHpA	106		25 - 150				03/28/23 13:24	03/30/23 07:09	1
13C4 PFOA	107		25 - 150				03/28/23 13:24	03/30/23 07:09	1
13C5 PFNA	103		25 - 150				03/28/23 13:24	03/30/23 07:09	1
13C2 PFDA	108		25 - 150				03/28/23 13:24	03/30/23 07:09	1
13C2 PFUnA	107		25 - 150				03/28/23 13:24	03/30/23 07:09	1
13C2 PFDoA	89		25 - 150				03/28/23 13:24	03/30/23 07:09	1
13C2 PFTeDA	61		25 - 150				03/28/23 13:24	03/30/23 07:09	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: Eff-20230321

Lab Sample ID: 320-98088-7

Date Collected: 03/21/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	98		25 - 150	03/28/23 13:24	03/30/23 07:09	1
18O2 PFHxS	97		25 - 150	03/28/23 13:24	03/30/23 07:09	1
13C4 PFOS	94		25 - 150	03/28/23 13:24	03/30/23 07:09	1
13C8 FOSA	107		10 - 150	03/28/23 13:24	03/30/23 07:09	1
d3-NMeFOSAA	112		25 - 150	03/28/23 13:24	03/30/23 07:09	1
d5-NEtFOSAA	121		25 - 150	03/28/23 13:24	03/30/23 07:09	1
d-N-MeFOSA-M	89		10 - 150	03/28/23 13:24	03/30/23 07:09	1
d-N-EtFOSA-M	86		10 - 150	03/28/23 13:24	03/30/23 07:09	1
d7-N-MeFOSE-M	79		10 - 150	03/28/23 13:24	03/30/23 07:09	1
d9-N-EtFOSE-M	77		10 - 150	03/28/23 13:24	03/30/23 07:09	1
M2-4:2 FTS	143		25 - 150	03/28/23 13:24	03/30/23 07:09	1
M2-6:2 FTS	141		25 - 150	03/28/23 13:24	03/30/23 07:09	1
M2-8:2 FTS	139		25 - 150	03/28/23 13:24	03/30/23 07:09	1
13C3 HFPO-DA	95		25 - 150	03/28/23 13:24	03/30/23 07:09	1
13C2 10:2 FTS	114		25 - 150	03/28/23 13:24	03/30/23 07:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	2.0	J	4.0	1.1	mg/L			03/27/23 18:56	1

Client Sample ID: BioA-22-20230321

Lab Sample ID: 320-98088-8

Date Collected: 03/21/23 14:00

Matrix: Solid

Date Received: 03/23/23 09:40

Percent Solids: 23.2

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1.9		0.84	0.19	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluoropentanoic acid (PFPA)	3.9		0.84	0.17	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluorohexanoic acid (PFHxA)	10		0.84	0.13	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluoroheptanoic acid (PFHpA)	0.54	J	0.84	0.16	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluorooctanoic acid (PFOA)	6.1		0.84	0.22	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluorononanoic acid (PFNA)	0.83	J	0.84	0.093	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluorodecanoic acid (PFDA)	9.8		0.84	0.20	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluoroundecanoic acid (PFUnA)	1.8		0.84	0.18	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluorododecanoic acid (PFDoA)	3.1		0.84	0.13	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluorotridecanoic acid (PFTrDA)	0.53	J	0.84	0.089	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluorotetradecanoic acid (PFTeA)	0.72	J	0.84	0.16	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluorobutanesulfonic acid (PFBS)	0.20	J	0.84	0.16	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.84	0.16	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluorohexanesulfonic acid (PFHxS)	1.5	I J	0.84	0.12	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.84	0.21	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluorooctanesulfonic acid (PFOS)	11		0.84	0.18	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluorononanesulfonic acid (PFNS)	ND		0.84	0.12	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: BioA-22-20230321

Lab Sample ID: 320-98088-8

Date Collected: 03/21/23 14:00

Matrix: Solid

Date Received: 03/23/23 09:40

Percent Solids: 23.2

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanesulfonic acid (PFDS)	ND		0.84	0.22	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.84	0.20	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Perfluorooctanesulfonamide (FOSA)	1.3		0.84	0.14	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
NEtFOSA	ND		0.84	0.20	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
NMeFOSA	ND		0.84	0.21	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
NMeFOSAA	21		0.84	0.097	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
NEtFOSAA	7.9		0.84	0.20	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
NMeFOSE	17		0.84	0.20	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
NEtFOSE	3.3		0.84	0.12	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
4:2 FTS	ND		0.84	0.22	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
6:2 FTS	0.49	J--J	0.84	0.11	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
8:2 FTS	0.86	J	0.84	0.15	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.84	0.16	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
HFPO-DA (GenX)	ND		0.84	0.17	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
9Cl-PF3ONS	ND		0.84	0.15	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
11Cl-PF3OUdS	ND		0.84	0.13	ug/Kg	☼	03/28/23 21:34	03/30/23 17:11	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	33		25 - 150				03/28/23 21:34	03/30/23 17:11	1
13C5 PFPeA	77		25 - 150				03/28/23 21:34	03/30/23 17:11	1
13C2 PFHxA	78		25 - 150				03/28/23 21:34	03/30/23 17:11	1
13C4 PFHpA	81		25 - 150				03/28/23 21:34	03/30/23 17:11	1
13C4 PFOA	78		25 - 150				03/28/23 21:34	03/30/23 17:11	1
13C5 PFNA	80		25 - 150				03/28/23 21:34	03/30/23 17:11	1
13C2 PFDA	77		25 - 150				03/28/23 21:34	03/30/23 17:11	1
13C2 PFUnA	60		25 - 150				03/28/23 21:34	03/30/23 17:11	1
13C2 PFDoA	36		25 - 150				03/28/23 21:34	03/30/23 17:11	1
13C2 PFTeDA	27		25 - 150				03/28/23 21:34	03/30/23 17:11	1
13C3 PFBS	77		25 - 150				03/28/23 21:34	03/30/23 17:11	1
18O2 PFHxS	83		25 - 150				03/28/23 21:34	03/30/23 17:11	1
13C4 PFOS	75		25 - 150				03/28/23 21:34	03/30/23 17:11	1
13C8 FOSA	63		10 - 150				03/28/23 21:34	03/30/23 17:11	1
d3-NMeFOSAA	60		25 - 150				03/28/23 21:34	03/30/23 17:11	1
d5-NEtFOSAA	55		25 - 150				03/28/23 21:34	03/30/23 17:11	1
d-N-MeFOSA-M	21		10 - 150				03/28/23 21:34	03/30/23 17:11	1
d-N-EtFOSA-M	11		10 - 150				03/28/23 21:34	03/30/23 17:11	1
d7-N-MeFOSE-M	22		10 - 150				03/28/23 21:34	03/30/23 17:11	1
d9-N-EtFOSE-M	11		10 - 150				03/28/23 21:34	03/30/23 17:11	1
M2-4:2 FTS	125		25 - 150				03/28/23 21:34	03/30/23 17:11	1
M2-6:2 FTS	163	*5+	25 - 150				03/28/23 21:34	03/30/23 17:11	1
M2-8:2 FTS	168	*5+	25 - 150				03/28/23 21:34	03/30/23 17:11	1
13C3 HFPO-DA	72		25 - 150				03/28/23 21:34	03/30/23 17:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	76.8		0.1	0.1	%			03/24/23 14:55	1
Percent Solids (ASTM D 2216)	23.2		0.1	0.1	%			03/24/23 14:55	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: BioB-20230321

Lab Sample ID: 320-98088-9

Date Collected: 03/21/23 14:21

Matrix: Solid

Date Received: 03/23/23 09:40

Percent Solids: 6.0

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	UJ	3.3	0.75	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
Perfluoropentanoic acid (PFPA)	ND		3.3	0.67	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
Perfluorohexanoic acid (PFHxA)	4.5	I J	3.3	0.50	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
Perfluoroheptanoic acid (PFHpA)	ND		3.3	0.62	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
Perfluorooctanoic acid (PFOA)	1.3	J	3.3	0.86	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
Perfluorononanoic acid (PFNA)	0.44	J	3.3	0.36	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
Perfluorodecanoic acid (PFDA)	3.1	J	3.3	0.78	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
Perfluoroundecanoic acid (PFUnA)	1.0	J	3.3	0.68	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
Perfluorododecanoic acid (PFDoA)	1.4	J	3.3	0.49	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
Perfluorotridecanoic acid (PFTTrDA)	ND		3.3	0.34	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
Perfluorotetradecanoic acid (PFTeA)	ND		3.3	0.60	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
Perfluorobutanesulfonic acid (PFBS)	ND		3.3	0.62	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.3	0.60	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
Perfluorohexanesulfonic acid (PFHxS)	ND		3.3	0.47	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.3	0.80	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
Perfluorooctanesulfonic acid (PFOS)	9.7	I J	3.3	0.70	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
Perfluorononanesulfonic acid (PFNS)	ND		3.3	0.47	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
Perfluorodecanesulfonic acid (PFDS)	0.87	J	3.3	0.85	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.3	0.77	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
Perfluorooctanesulfonamide (FOSA)	0.84	J	3.3	0.54	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
NEtFOSA	ND		3.3	0.77	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
NMeFOSA	ND		3.3	0.80	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
NMeFOSAA	11		3.3	0.37	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
NEtFOSAA	4.8		3.3	0.78	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
NMeFOSE	6.2		3.3	0.77	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
NEtFOSE	1.8	J	3.3	0.46	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
4:2 FTS	ND		3.3	0.83	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
6:2 FTS	1.3	J	3.3	0.44	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
8:2 FTS	0.83	J	3.3	0.57	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.3	0.63	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
HFPO-DA (GenX)	ND		3.3	0.67	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
9Cl-PF3ONS	ND		3.3	0.57	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1
11Cl-PF3OUdS	ND		3.3	0.50	ug/Kg	✱	03/28/23 21:34	03/31/23 18:53	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	20	*5-	25 - 150	03/28/23 21:34	03/31/23 18:53	1
13C5 PFPeA	60		25 - 150	03/28/23 21:34	03/31/23 18:53	1
13C2 PFHxA	84		25 - 150	03/28/23 21:34	03/31/23 18:53	1
13C4 PFHpA	97		25 - 150	03/28/23 21:34	03/31/23 18:53	1
13C4 PFOA	89		25 - 150	03/28/23 21:34	03/31/23 18:53	1
13C5 PFNA	99		25 - 150	03/28/23 21:34	03/31/23 18:53	1
13C2 PFDA	96		25 - 150	03/28/23 21:34	03/31/23 18:53	1
13C2 PFUnA	96		25 - 150	03/28/23 21:34	03/31/23 18:53	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: BioB-20230321

Lab Sample ID: 320-98088-9

Date Collected: 03/21/23 14:21

Matrix: Solid

Date Received: 03/23/23 09:40

Percent Solids: 6.0

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDoA	58		25 - 150	03/28/23 21:34	03/31/23 18:53	1
13C2 PFTeDA	29		25 - 150	03/28/23 21:34	03/31/23 18:53	1
13C3 PFBS	62		25 - 150	03/28/23 21:34	03/31/23 18:53	1
18O2 PFHxS	86		25 - 150	03/28/23 21:34	03/31/23 18:53	1
13C4 PFOS	95		25 - 150	03/28/23 21:34	03/31/23 18:53	1
13C8 FOSA	105		10 - 150	03/28/23 21:34	03/31/23 18:53	1
d3-NMeFOSAA	72		25 - 150	03/28/23 21:34	03/31/23 18:53	1
d5-NEtFOSAA	84		25 - 150	03/28/23 21:34	03/31/23 18:53	1
d-N-MeFOSA-M	58		10 - 150	03/28/23 21:34	03/31/23 18:53	1
d-N-EtFOSA-M	57		10 - 150	03/28/23 21:34	03/31/23 18:53	1
d7-N-MeFOSE-M	32		10 - 150	03/28/23 21:34	03/31/23 18:53	1
d9-N-EtFOSE-M	33		10 - 150	03/28/23 21:34	03/31/23 18:53	1
M2-4:2 FTS	82		25 - 150	03/28/23 21:34	03/31/23 18:53	1
M2-6:2 FTS	134		25 - 150	03/28/23 21:34	03/31/23 18:53	1
M2-8:2 FTS	93		25 - 150	03/28/23 21:34	03/31/23 18:53	1
13C3 HFPO-DA	94		25 - 150	03/28/23 21:34	03/31/23 18:53	1
13C2 10:2 FTS	106		25 - 150	03/28/23 21:34	03/31/23 18:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	94.0		0.1	0.1	%			03/24/23 14:55	1
Percent Solids (ASTM D 2216)	6.0		0.1	0.1	%			03/24/23 14:55	1

Client Sample ID: EB01-20230321

Lab Sample ID: 320-98088-10

Date Collected: 03/21/23 13:40

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.6	2.2	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluoropentanoic acid (PFPA)	ND		1.8	0.45	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.53	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.23	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.78	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.25	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.67	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.8	0.27	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.52	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.49	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.34	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 07:19	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.89	ng/L		03/28/23 13:24	03/30/23 07:19	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-2

Client Sample ID: EB01-20230321

Lab Sample ID: 320-98088-10

Date Collected: 03/21/23 13:40

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.90	ng/L		03/28/23 13:24	03/30/23 07:19	1
NEtFOSA	ND		1.8	0.80	ng/L		03/28/23 13:24	03/30/23 07:19	1
NMeFOSA	ND		1.8	0.39	ng/L		03/28/23 13:24	03/30/23 07:19	1
NMeFOSAA	ND		4.6	1.1	ng/L		03/28/23 13:24	03/30/23 07:19	1
NEtFOSAA	ND		4.6	1.2	ng/L		03/28/23 13:24	03/30/23 07:19	1
NMeFOSE	ND		3.7	1.3	ng/L		03/28/23 13:24	03/30/23 07:19	1
NEtFOSE	ND		1.8	0.78	ng/L		03/28/23 13:24	03/30/23 07:19	1
4:2 FTS	ND		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 07:19	1
6:2 FTS	ND		4.6	2.3	ng/L		03/28/23 13:24	03/30/23 07:19	1
8:2 FTS	ND		1.8	0.42	ng/L		03/28/23 13:24	03/30/23 07:19	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.37	ng/L		03/28/23 13:24	03/30/23 07:19	1
HFPO-DA (GenX)	ND		3.7	1.4	ng/L		03/28/23 13:24	03/30/23 07:19	1
9Cl-PF3ONS	ND		1.8	0.22	ng/L		03/28/23 13:24	03/30/23 07:19	1
11Cl-PF3OUdS	ND		1.8	0.29	ng/L		03/28/23 13:24	03/30/23 07:19	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFBA	101		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C5 PFPeA	107		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C2 PFHxA	105		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C4 PFHpA	103		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C4 PFOA	101		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C5 PFNA	99		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C2 PFDA	107		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C2 PFUnA	107		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C2 PFDoA	97		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C2 PFTeDA	92		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C3 PFBS	96		25 - 150				03/28/23 13:24	03/30/23 07:19	1
18O2 PFHxS	98		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C4 PFOS	97		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C8 FOSA	106		10 - 150				03/28/23 13:24	03/30/23 07:19	1
d3-NMeFOSAA	112		25 - 150				03/28/23 13:24	03/30/23 07:19	1
d5-NEtFOSAA	116		25 - 150				03/28/23 13:24	03/30/23 07:19	1
d-N-MeFOSA-M	94		10 - 150				03/28/23 13:24	03/30/23 07:19	1
d-N-EtFOSA-M	92		10 - 150				03/28/23 13:24	03/30/23 07:19	1
d7-N-MeFOSE-M	89		10 - 150				03/28/23 13:24	03/30/23 07:19	1
d9-N-EtFOSE-M	94		10 - 150				03/28/23 13:24	03/30/23 07:19	1
M2-4:2 FTS	110		25 - 150				03/28/23 13:24	03/30/23 07:19	1
M2-6:2 FTS	109		25 - 150				03/28/23 13:24	03/30/23 07:19	1
M2-8:2 FTS	130		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C3 HFPO-DA	97		25 - 150				03/28/23 13:24	03/30/23 07:19	1
13C2 10:2 FTS	115		25 - 150				03/28/23 13:24	03/30/23 07:19	1

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-02-20230320

Lab Sample ID: 320-98088-1

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		13	6.0	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluoropentanoic acid (PFPA)	3.9	J	5.0	1.2	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorohexanoic acid (PFHxA)	5.2		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluoroheptanoic acid (PFHpA)	1.3	J	5.0	0.63	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorooctanoic acid (PFOA)	3.2	J	5.0	2.1	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorodecanoic acid (PFDA)	ND		5.0	0.78	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorobutanesulfonic acid (PFBS)	3.0	J	5.0	0.50	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorohexanesulfonic acid (PFHxS)	4.2	J	5.0	0.43	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorooctanesulfonic acid (PFOS)	4.0	J	5.0	0.80	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		03/28/23 21:54	04/10/23 16:40	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		03/28/23 21:54	04/10/23 16:40	1
NMeFOSAA	ND		13	3.0	ng/L		03/28/23 21:54	04/10/23 16:40	1
NEtFOSAA	ND		13	3.3	ng/L		03/28/23 21:54	04/10/23 16:40	1
4:2 FTS	ND		5.0	0.60	ng/L		03/28/23 21:54	04/10/23 16:40	1
6:2 FTS	ND		13	6.3	ng/L		03/28/23 21:54	04/10/23 16:40	1
8:2 FTS	ND		5.0	1.2	ng/L		03/28/23 21:54	04/10/23 16:40	1
NMeFOSE	ND		10	3.5	ng/L		03/28/23 21:54	04/10/23 16:40	1
NEtFOSE	ND		5.0	2.2	ng/L		03/28/23 21:54	04/10/23 16:40	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		03/28/23 21:54	04/10/23 16:40	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		03/28/23 21:54	04/10/23 16:40	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		03/28/23 21:54	04/10/23 16:40	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		03/28/23 21:54	04/10/23 16:40	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	90		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C4 PFBA	91		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C5 PFPeA	104		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C2 PFHxA	106		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C4 PFHpA	124		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C4 PFOA	117		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C5 PFNA	114		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C2 PFDA	111		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C2 PFUnA	98		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C2 PFDoA	82		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C2 PFTeDA	64		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C3 PFBS	94		25 - 150	03/28/23 21:54	04/10/23 16:40	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-02-20230320

Lab Sample ID: 320-98088-1

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	102		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C4 PFOS	93		25 - 150	03/28/23 21:54	04/10/23 16:40	1
d3-NMeFOSAA	88		25 - 150	03/28/23 21:54	04/10/23 16:40	1
d5-NEtFOSAA	95		25 - 150	03/28/23 21:54	04/10/23 16:40	1
M2-4:2 FTS	125		25 - 150	03/28/23 21:54	04/10/23 16:40	1
M2-6:2 FTS	183	*5+	25 - 150	03/28/23 21:54	04/10/23 16:40	1
M2-8:2 FTS	133		25 - 150	03/28/23 21:54	04/10/23 16:40	1
d7-N-MeFOSE-M	58		25 - 150	03/28/23 21:54	04/10/23 16:40	1
d9-N-EtFOSE-M	56		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C3 HFPO-DA	126		25 - 150	03/28/23 21:54	04/10/23 16:40	1
13C2 10:2 FTS	113		25 - 150	03/28/23 21:54	04/10/23 16:40	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSA	ND	*-- UJ	5.0	2.2	ng/L		04/12/23 20:59	04/13/23 23:59	1
NMeFOSA	ND		5.0	1.1	ng/L		04/12/23 20:59	04/13/23 23:59	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d-N-MeFOSA-M	35		25 - 150	04/12/23 20:59	04/13/23 23:59	1
d-N-EtFOSA-M	42		25 - 150	04/12/23 20:59	04/13/23 23:59	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	24	**	13	6.0	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluoropentanoic acid (PFPA)	19	**	5.0	1.2	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorohexanoic acid (PFHxA)	17	**	5.0	1.4	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluoroheptanoic acid (PFHpA)	6.1	**	5.0	0.63	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorooctanoic acid (PFOA)	6.2		5.0	2.1	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorononanoic acid (PFNA)	1.1	J **	5.0	0.68	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorodecanoic acid (PFDA)	0.89	J **	5.0	0.78	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorotridecanoic acid (PFTTrDA)	ND		5.0	3.2	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorobutanesulfonic acid (PFBS)	2.9	J	5.0	0.50	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorohexanesulfonic acid (PFHxS)	3.8	J	5.0	0.43	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.0	0.80	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		03/28/23 22:07	04/10/23 18:22	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		03/28/23 22:07	04/10/23 18:22	1
NMeFOSAA	ND		13	3.0	ng/L		03/28/23 22:07	04/10/23 18:22	1
NEtFOSAA	ND		13	3.3	ng/L		03/28/23 22:07	04/10/23 18:22	1
4:2 FTS	ND		5.0	0.60	ng/L		03/28/23 22:07	04/10/23 18:22	1
6:2 FTS	ND		13	6.3	ng/L		03/28/23 22:07	04/10/23 18:22	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-02-20230320

Lab Sample ID: 320-98088-1

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
8:2 FTS	ND		5.0	1.2	ng/L		03/28/23 22:07	04/10/23 18:22	1
NEtFOSA	ND		5.0	2.2	ng/L		03/28/23 22:07	04/10/23 18:22	1
NMeFOSA	ND		5.0	1.1	ng/L		03/28/23 22:07	04/10/23 18:22	1
NMeFOSE	ND		10	3.5	ng/L		03/28/23 22:07	04/10/23 18:22	1
NEtFOSE	ND		5.0	2.2	ng/L		03/28/23 22:07	04/10/23 18:22	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		03/28/23 22:07	04/10/23 18:22	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		03/28/23 22:07	04/10/23 18:22	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		03/28/23 22:07	04/10/23 18:22	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		03/28/23 22:07	04/10/23 18:22	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	93		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C4 PFBA	109		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C5 PFPeA	110		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C2 PFHxA	109		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C4 PFHpA	117		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C4 PFOA	108		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C5 PFNA	108		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C2 PFDA	106		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C2 PFUnA	99		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C2 PFDoA	105		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C2 PFTeDA	115		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C3 PFBS	100		25 - 150	03/28/23 22:07	04/10/23 18:22	1
18O2 PFHxS	106		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C4 PFOS	92		25 - 150	03/28/23 22:07	04/10/23 18:22	1
d3-NMeFOSAA	98		25 - 150	03/28/23 22:07	04/10/23 18:22	1
d5-NEtFOSAA	100		25 - 150	03/28/23 22:07	04/10/23 18:22	1
M2-4:2 FTS	0		0 - 10	03/28/23 22:07	04/10/23 18:22	1
M2-6:2 FTS	98		25 - 150	03/28/23 22:07	04/10/23 18:22	1
M2-8:2 FTS	95		25 - 150	03/28/23 22:07	04/10/23 18:22	1
d-N-MeFOSA-M	63		25 - 150	03/28/23 22:07	04/10/23 18:22	1
d-N-EtFOSA-M	55		25 - 150	03/28/23 22:07	04/10/23 18:22	1
d7-N-MeFOSE-M	54		25 - 150	03/28/23 22:07	04/10/23 18:22	1
d9-N-EtFOSE-M	48		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C3 HFPO-DA	128		25 - 150	03/28/23 22:07	04/10/23 18:22	1
13C2 10:2 FTS	117		25 - 150	03/28/23 22:07	04/10/23 18:22	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

- 1
- 2
- 3
- 4
- 5
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Client Sample ID: Inf-07-20230320

Lab Sample ID: 320-98088-2

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	14		13	6.0	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluoropentanoic acid (PFPA)	8.0		5.0	1.2	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorohexanoic acid (PFHxA)	16		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluoroheptanoic acid (PFHpA)	3.4	J	5.0	0.63	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorooctanoic acid (PFOA)	8.7		5.0	2.1	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorodecanoic acid (PFDA)	ND		5.0	0.78	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorobutanesulfonic acid (PFBS)	6.3		5.0	0.50	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluoropentanesulfonic acid (PFPeS)	1.0	J	5.0	0.75	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorohexanesulfonic acid (PFHxS)	14		5.0	0.43	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorooctanesulfonic acid (PFOS)	8.5		5.0	0.80	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		03/28/23 21:54	04/10/23 16:50	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		03/28/23 21:54	04/10/23 16:50	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-07-20230320

Lab Sample ID: 320-98088-2

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NMeFOSAA	ND		13	3.0	ng/L		03/28/23 21:54	04/10/23 16:50	1
NEtFOSAA	ND		13	3.3	ng/L		03/28/23 21:54	04/10/23 16:50	1
4:2 FTS	ND		5.0	0.60	ng/L		03/28/23 21:54	04/10/23 16:50	1
6:2 FTS	ND		13	6.3	ng/L		03/28/23 21:54	04/10/23 16:50	1
8:2 FTS	ND		5.0	1.2	ng/L		03/28/23 21:54	04/10/23 16:50	1
NMeFOSE	ND		10	3.5	ng/L		03/28/23 21:54	04/10/23 16:50	1
NEtFOSE	ND		5.0	2.2	ng/L		03/28/23 21:54	04/10/23 16:50	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		03/28/23 21:54	04/10/23 16:50	1
9CI-PF3ONS	ND		5.0	0.60	ng/L		03/28/23 21:54	04/10/23 16:50	1
11CI-PF3OUdS	ND		5.0	0.80	ng/L		03/28/23 21:54	04/10/23 16:50	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		03/28/23 21:54	04/10/23 16:50	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	78		25 - 150	03/28/23 21:54	04/10/23 16:50	1
13C4 PFBA	85		25 - 150	03/28/23 21:54	04/10/23 16:50	1
13C5 PFPeA	103		25 - 150	03/28/23 21:54	04/10/23 16:50	1
13C2 PFHxA	98		25 - 150	03/28/23 21:54	04/10/23 16:50	1
13C4 PFHpA	115		25 - 150	03/28/23 21:54	04/10/23 16:50	1
13C4 PFOA	114		25 - 150	03/28/23 21:54	04/10/23 16:50	1
13C5 PFNA	110		25 - 150	03/28/23 21:54	04/10/23 16:50	1
13C2 PFDA	108		25 - 150	03/28/23 21:54	04/10/23 16:50	1
13C2 PFUnA	88		25 - 150	03/28/23 21:54	04/10/23 16:50	1
13C2 PFDoA	67		25 - 150	03/28/23 21:54	04/10/23 16:50	1
13C2 PFTeDA	55		25 - 150	03/28/23 21:54	04/10/23 16:50	1
13C3 PFBS	92		25 - 150	03/28/23 21:54	04/10/23 16:50	1
18O2 PFHxS	97		25 - 150	03/28/23 21:54	04/10/23 16:50	1
13C4 PFOS	87		25 - 150	03/28/23 21:54	04/10/23 16:50	1
d3-NMeFOSAA	72		25 - 150	03/28/23 21:54	04/10/23 16:50	1
d5-NEtFOSAA	77		25 - 150	03/28/23 21:54	04/10/23 16:50	1
M2-4:2 FTS	116		25 - 150	03/28/23 21:54	04/10/23 16:50	1
M2-6:2 FTS	181	*5+	25 - 150	03/28/23 21:54	04/10/23 16:50	1
M2-8:2 FTS	123		25 - 150	03/28/23 21:54	04/10/23 16:50	1
d7-N-MeFOSE-M	52		25 - 150	03/28/23 21:54	04/10/23 16:50	1
d9-N-EtFOSE-M	57		25 - 150	03/28/23 21:54	04/10/23 16:50	1
13C3 HFPO-DA	121		25 - 150	03/28/23 21:54	04/10/23 16:50	1
13C2 10:2 FTS	91		25 - 150	03/28/23 21:54	04/10/23 16:50	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSA	ND	*-- UJ	5.0	2.2	ng/L		04/12/23 20:59	04/14/23 00:10	1
NMeFOSA	ND		5.0	1.1	ng/L		04/12/23 20:59	04/14/23 00:10	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
d-N-MeFOSA-M	36		25 - 150	04/12/23 20:59	04/14/23 00:10	1			
d-N-EtFOSA-M	42		25 - 150	04/12/23 20:59	04/14/23 00:10	1			

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	52	*+	13	6.0	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluoropentanoic acid (PFPA)	36	*+	5.0	1.2	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorohexanoic acid (PFHxA)	35	*+	5.0	1.4	ng/L		03/28/23 22:07	04/10/23 18:32	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-07-20230320

Lab Sample ID: 320-98088-2

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	10	*±	5.0	0.63	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorooctanoic acid (PFOA)	13		5.0	2.1	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorononanoic acid (PFNA)	2.0	J *±	5.0	0.68	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorodecanoic acid (PFDA)	1.5	J *±	5.0	0.78	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorobutanesulfonic acid (PFBS)	5.8		5.0	0.50	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluoropentanesulfonic acid (PFPeS)	0.96	J	5.0	0.75	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorohexanesulfonic acid (PFHxS)	11		5.0	0.43	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorooctanesulfonic acid (PFOS)	5.4		5.0	0.80	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		03/28/23 22:07	04/10/23 18:32	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		03/28/23 22:07	04/10/23 18:32	1
NMeFOSAA	ND		13	3.0	ng/L		03/28/23 22:07	04/10/23 18:32	1
NEtFOSAA	ND		13	3.3	ng/L		03/28/23 22:07	04/10/23 18:32	1
4:2 FTS	ND		5.0	0.60	ng/L		03/28/23 22:07	04/10/23 18:32	1
6:2 FTS	ND		13	6.3	ng/L		03/28/23 22:07	04/10/23 18:32	1
8:2 FTS	ND		5.0	1.2	ng/L		03/28/23 22:07	04/10/23 18:32	1
NEtFOSA	ND		5.0	2.2	ng/L		03/28/23 22:07	04/10/23 18:32	1
NMeFOSA	ND		5.0	1.1	ng/L		03/28/23 22:07	04/10/23 18:32	1
NMeFOSE	ND		10	3.5	ng/L		03/28/23 22:07	04/10/23 18:32	1
NEtFOSE	ND		5.0	2.2	ng/L		03/28/23 22:07	04/10/23 18:32	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		03/28/23 22:07	04/10/23 18:32	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		03/28/23 22:07	04/10/23 18:32	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		03/28/23 22:07	04/10/23 18:32	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		03/28/23 22:07	04/10/23 18:32	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	96		25 - 150	03/28/23 22:07	04/10/23 18:32	1
13C4 PFBA	109		25 - 150	03/28/23 22:07	04/10/23 18:32	1
13C5 PFPeA	113		25 - 150	03/28/23 22:07	04/10/23 18:32	1
13C2 PFHxA	110		25 - 150	03/28/23 22:07	04/10/23 18:32	1
13C4 PFHpA	123		25 - 150	03/28/23 22:07	04/10/23 18:32	1
13C4 PFOA	114		25 - 150	03/28/23 22:07	04/10/23 18:32	1
13C5 PFNA	114		25 - 150	03/28/23 22:07	04/10/23 18:32	1
13C2 PFDA	112		25 - 150	03/28/23 22:07	04/10/23 18:32	1
13C2 PFUnA	106		25 - 150	03/28/23 22:07	04/10/23 18:32	1
13C2 PFDoA	118		25 - 150	03/28/23 22:07	04/10/23 18:32	1
13C2 PFTeDA	122		25 - 150	03/28/23 22:07	04/10/23 18:32	1
13C3 PFBS	107		25 - 150	03/28/23 22:07	04/10/23 18:32	1
18O2 PFHxS	112		25 - 150	03/28/23 22:07	04/10/23 18:32	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-07-20230320

Lab Sample ID: 320-98088-2

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFOS	103		25 - 150	03/28/23 22:07	04/10/23 18:32	1
d3-NMeFOSAA	102		25 - 150	03/28/23 22:07	04/10/23 18:32	1
d5-NEtFOSAA	106		25 - 150	03/28/23 22:07	04/10/23 18:32	1
M2-4:2 FTS	0		0 - 10	03/28/23 22:07	04/10/23 18:32	1
M2-6:2 FTS	103		25 - 150	03/28/23 22:07	04/10/23 18:32	1
M2-8:2 FTS	98		25 - 150	03/28/23 22:07	04/10/23 18:32	1
d-N-MeFOSA-M	85		25 - 150	03/28/23 22:07	04/10/23 18:32	1
d-N-EtFOSA-M	79		25 - 150	03/28/23 22:07	04/10/23 18:32	1
d7-N-MeFOSE-M	85		25 - 150	03/28/23 22:07	04/10/23 18:32	1
d9-N-EtFOSE-M	81		25 - 150	03/28/23 22:07	04/10/23 18:32	1
13C3 HFPO-DA	133		25 - 150	03/28/23 22:07	04/10/23 18:32	1
13C2 10:2 FTS	121		25 - 150	03/28/23 22:07	04/10/23 18:32	1

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-08-20230320

Lab Sample ID: 320-98088-3

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		13	6.0	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluoropentanoic acid (PFPA)	8.6		5.0	1.2	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorohexanoic acid (PFHxA)	6.3		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluoroheptanoic acid (PFHpA)	0.92	J	5.0	0.63	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorooctanoic acid (PFOA)	ND		5.0	2.1	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorodecanoic acid (PFDA)	ND		5.0	0.78	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorobutanesulfonic acid (PFBS)	1.4	J	5.0	0.50	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorohexanesulfonic acid (PFHxS)	2.3	+J J	5.0	0.43	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.0	0.80	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		03/28/23 21:54	04/10/23 17:01	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		03/28/23 21:54	04/10/23 17:01	1
NMeFOSAA	ND		13	3.0	ng/L		03/28/23 21:54	04/10/23 17:01	1
NEtFOSAA	ND		13	3.3	ng/L		03/28/23 21:54	04/10/23 17:01	1
4:2 FTS	ND		5.0	0.60	ng/L		03/28/23 21:54	04/10/23 17:01	1
6:2 FTS	ND		13	6.3	ng/L		03/28/23 21:54	04/10/23 17:01	1
8:2 FTS	ND		5.0	1.2	ng/L		03/28/23 21:54	04/10/23 17:01	1
NMeFOSE	ND		10	3.5	ng/L		03/28/23 21:54	04/10/23 17:01	1
NEtFOSE	ND		5.0	2.2	ng/L		03/28/23 21:54	04/10/23 17:01	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		03/28/23 21:54	04/10/23 17:01	1
9CI-PF3ONS	ND		5.0	0.60	ng/L		03/28/23 21:54	04/10/23 17:01	1
11CI-PF3OUdS	ND		5.0	0.80	ng/L		03/28/23 21:54	04/10/23 17:01	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		03/28/23 21:54	04/10/23 17:01	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	77		25 - 150	03/28/23 21:54	04/10/23 17:01	1
13C4 PFBA	86		25 - 150	03/28/23 21:54	04/10/23 17:01	1
13C5 PFPeA	102		25 - 150	03/28/23 21:54	04/10/23 17:01	1
13C2 PFHxA	104		25 - 150	03/28/23 21:54	04/10/23 17:01	1
13C4 PFHpA	118		25 - 150	03/28/23 21:54	04/10/23 17:01	1
13C4 PFOA	115		25 - 150	03/28/23 21:54	04/10/23 17:01	1
13C5 PFNA	111		25 - 150	03/28/23 21:54	04/10/23 17:01	1
13C2 PFDA	109		25 - 150	03/28/23 21:54	04/10/23 17:01	1
13C2 PFUnA	93		25 - 150	03/28/23 21:54	04/10/23 17:01	1
13C2 PFDoA	67		25 - 150	03/28/23 21:54	04/10/23 17:01	1
13C2 PFTrDA	46		25 - 150	03/28/23 21:54	04/10/23 17:01	1
13C3 PFBS	92		25 - 150	03/28/23 21:54	04/10/23 17:01	1
18O2 PFHxS	96		25 - 150	03/28/23 21:54	04/10/23 17:01	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-08-20230320

Lab Sample ID: 320-98088-3

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	82		25 - 150	03/28/23 21:54	04/10/23 17:01	1
d3-NMeFOSAA	76		25 - 150	03/28/23 21:54	04/10/23 17:01	1
d5-NEtFOSAA	87		25 - 150	03/28/23 21:54	04/10/23 17:01	1
M2-4:2 FTS	122		25 - 150	03/28/23 21:54	04/10/23 17:01	1
M2-6:2 FTS	184	*5+	25 - 150	03/28/23 21:54	04/10/23 17:01	1
M2-8:2 FTS	122		25 - 150	03/28/23 21:54	04/10/23 17:01	1
d7-N-MeFOSE-M	53		25 - 150	03/28/23 21:54	04/10/23 17:01	1
d9-N-EtFOSE-M	52		25 - 150	03/28/23 21:54	04/10/23 17:01	1
13C3 HFPO-DA	120		25 - 150	03/28/23 21:54	04/10/23 17:01	1
13C2 10:2 FTS	91		25 - 150	03/28/23 21:54	04/10/23 17:01	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSA	ND	UJ	5.0	2.2	ng/L		04/12/23 20:59	04/14/23 00:22	1
NMeFOSA	ND		5.0	1.1	ng/L		04/12/23 20:59	04/14/23 00:22	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d-N-MeFOSA-M	36		25 - 150	04/12/23 20:59	04/14/23 00:22	1
d-N-EtFOSA-M	43		25 - 150	04/12/23 20:59	04/14/23 00:22	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	39	**	13	6.0	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluoropentanoic acid (PFPA)	41	**	5.0	1.2	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorohexanoic acid (PFHxA)	25	**	5.0	1.4	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluoroheptanoic acid (PFHpA)	10	**	5.0	0.63	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorooctanoic acid (PFOA)	8.3		5.0	2.1	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorononanoic acid (PFNA)	2.8	J **	5.0	0.68	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorodecanoic acid (PFDA)	2.2	J **	5.0	0.78	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorotridecanoic acid (PFTTrDA)	ND		5.0	3.2	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorotetradecanoic acid (PFTTeA)	0.74	J	5.0	0.73	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorobutanesulfonic acid (PFBS)	1.7	J	5.0	0.50	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorohexanesulfonic acid (PFHxS)	2.4	J	5.0	0.43	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorooctanesulfonic acid (PFOS)	1.8	J	5.0	0.80	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		03/28/23 22:07	04/10/23 18:42	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		03/28/23 22:07	04/10/23 18:42	1
NMeFOSAA	ND		13	3.0	ng/L		03/28/23 22:07	04/10/23 18:42	1
NEtFOSAA	ND		13	3.3	ng/L		03/28/23 22:07	04/10/23 18:42	1
4:2 FTS	ND		5.0	0.60	ng/L		03/28/23 22:07	04/10/23 18:42	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-08-20230320

Lab Sample ID: 320-98088-3

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 FTS	ND		13	6.3	ng/L		03/28/23 22:07	04/10/23 18:42	1
8:2 FTS	ND		5.0	1.2	ng/L		03/28/23 22:07	04/10/23 18:42	1
NEtFOSA	ND		5.0	2.2	ng/L		03/28/23 22:07	04/10/23 18:42	1
NMeFOSA	ND		5.0	1.1	ng/L		03/28/23 22:07	04/10/23 18:42	1
NMeFOSE	ND		10	3.5	ng/L		03/28/23 22:07	04/10/23 18:42	1
NEtFOSE	ND		5.0	2.2	ng/L		03/28/23 22:07	04/10/23 18:42	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		03/28/23 22:07	04/10/23 18:42	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		03/28/23 22:07	04/10/23 18:42	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		03/28/23 22:07	04/10/23 18:42	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		03/28/23 22:07	04/10/23 18:42	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	97		25 - 150	03/28/23 22:07	04/10/23 18:42	1
13C4 PFBA	109		25 - 150	03/28/23 22:07	04/10/23 18:42	1
13C5 PFPeA	115		25 - 150	03/28/23 22:07	04/10/23 18:42	1
13C2 PFHxA	107		25 - 150	03/28/23 22:07	04/10/23 18:42	1
13C4 PFHpA	121		25 - 150	03/28/23 22:07	04/10/23 18:42	1
13C4 PFOA	116		25 - 150	03/28/23 22:07	04/10/23 18:42	1
13C5 PFNA	115		25 - 150	03/28/23 22:07	04/10/23 18:42	1
13C2 PFDA	108		25 - 150	03/28/23 22:07	04/10/23 18:42	1
13C2 PFUnA	106		25 - 150	03/28/23 22:07	04/10/23 18:42	1
13C2 PFDoA	112		25 - 150	03/28/23 22:07	04/10/23 18:42	1
13C2 PFTeDA	120		25 - 150	03/28/23 22:07	04/10/23 18:42	1
13C3 PFBS	108		25 - 150	03/28/23 22:07	04/10/23 18:42	1
18O2 PFHxS	113		25 - 150	03/28/23 22:07	04/10/23 18:42	1
13C4 PFOS	103		25 - 150	03/28/23 22:07	04/10/23 18:42	1
d3-NMeFOSAA	103		25 - 150	03/28/23 22:07	04/10/23 18:42	1
d5-NEtFOSAA	110		25 - 150	03/28/23 22:07	04/10/23 18:42	1
M2-4:2 FTS	0		0 - 10	03/28/23 22:07	04/10/23 18:42	1
M2-6:2 FTS	97		25 - 150	03/28/23 22:07	04/10/23 18:42	1
M2-8:2 FTS	89		25 - 150	03/28/23 22:07	04/10/23 18:42	1
d-N-MeFOSA-M	55		25 - 150	03/28/23 22:07	04/10/23 18:42	1
d-N-EtFOSA-M	47		25 - 150	03/28/23 22:07	04/10/23 18:42	1
d7-N-MeFOSE-M	46		25 - 150	03/28/23 22:07	04/10/23 18:42	1
d9-N-EtFOSE-M	43		25 - 150	03/28/23 22:07	04/10/23 18:42	1
13C3 HFPO-DA	128		25 - 150	03/28/23 22:07	04/10/23 18:42	1
13C2 10:2 FTS	113		25 - 150	03/28/23 22:07	04/10/23 18:42	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

- 1
- 2
- 3
- 4
- 5
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Client Sample ID: Inf-11-20230320

Lab Sample ID: 320-98088-4

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		13	6.0	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluoropentanoic acid (PFPA)	2.5	J	5.0	1.2	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluorohexanoic acid (PFHxA)	3.8	JI J	5.0	1.4	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluoroheptanoic acid (PFHpA)	ND		5.0	0.63	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluorooctanoic acid (PFOA)	2.3	J	5.0	2.1	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluorodecanoic acid (PFDA)	ND		5.0	0.78	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluorotridecanoic acid (PFTTrDA)	ND		5.0	3.2	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluorobutanesulfonic acid (PFBS)	1.4	J	5.0	0.50	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluorohexanesulfonic acid (PFHxS)	2.1	JI J	5.0	0.43	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluorooctanesulfonic acid (PFOS)	3.6	J	5.0	0.80	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		03/28/23 21:54	04/10/23 17:11	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		03/28/23 21:54	04/10/23 17:11	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-11-20230320

Lab Sample ID: 320-98088-4

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NMeFOSAA	ND		13	3.0	ng/L		03/28/23 21:54	04/10/23 17:11	1
NEtFOSAA	ND		13	3.3	ng/L		03/28/23 21:54	04/10/23 17:11	1
4:2 FTS	ND		5.0	0.60	ng/L		03/28/23 21:54	04/10/23 17:11	1
6:2 FTS	ND		13	6.3	ng/L		03/28/23 21:54	04/10/23 17:11	1
8:2 FTS	ND		5.0	1.2	ng/L		03/28/23 21:54	04/10/23 17:11	1
NMeFOSE	ND		10	3.5	ng/L		03/28/23 21:54	04/10/23 17:11	1
NEtFOSE	ND		5.0	2.2	ng/L		03/28/23 21:54	04/10/23 17:11	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		03/28/23 21:54	04/10/23 17:11	1
9CI-PF3ONS	ND		5.0	0.60	ng/L		03/28/23 21:54	04/10/23 17:11	1
11CI-PF3OUdS	ND		5.0	0.80	ng/L		03/28/23 21:54	04/10/23 17:11	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		03/28/23 21:54	04/10/23 17:11	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	73		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C4 PFBA	85		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C5 PFPeA	102		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C2 PFHxA	104		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C4 PFHpA	121		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C4 PFOA	114		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C5 PFNA	113		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C2 PFDA	105		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C2 PFUnA	85		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C2 PFDoA	56		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C2 PFTeDA	36		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C3 PFBS	90		25 - 150	03/28/23 21:54	04/10/23 17:11	1
18O2 PFHxS	97		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C4 PFOS	84		25 - 150	03/28/23 21:54	04/10/23 17:11	1
d3-NMeFOSAA	66		25 - 150	03/28/23 21:54	04/10/23 17:11	1
d5-NEtFOSAA	71		25 - 150	03/28/23 21:54	04/10/23 17:11	1
M2-4:2 FTS	137		25 - 150	03/28/23 21:54	04/10/23 17:11	1
M2-6:2 FTS	185	*5+	25 - 150	03/28/23 21:54	04/10/23 17:11	1
M2-8:2 FTS	115		25 - 150	03/28/23 21:54	04/10/23 17:11	1
d7-N-MeFOSE-M	49		25 - 150	03/28/23 21:54	04/10/23 17:11	1
d9-N-EtFOSE-M	51		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C3 HFPO-DA	125		25 - 150	03/28/23 21:54	04/10/23 17:11	1
13C2 10:2 FTS	71		25 - 150	03/28/23 21:54	04/10/23 17:11	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSA	ND	*5- UJ	5.0	2.2	ng/L		04/12/23 20:59	04/14/23 00:33	1
NMeFOSA	ND		5.0	1.1	ng/L		04/12/23 20:59	04/14/23 00:33	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d-N-MeFOSA-M	36		25 - 150	04/12/23 20:59	04/14/23 00:33	1
d-N-EtFOSA-M	39		25 - 150	04/12/23 20:59	04/14/23 00:33	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	40	*5+	13	6.0	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluoropentanoic acid (PFPA)	38	*5+	5.0	1.2	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorohexanoic acid (PFHxA)	23	*5+	5.0	1.4	ng/L		03/28/23 22:07	04/10/23 18:52	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-11-20230320

Lab Sample ID: 320-98088-4

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	10	*±	5.0	0.63	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorooctanoic acid (PFOA)	9.8		5.0	2.1	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorononanoic acid (PFNA)	2.6	J *±	5.0	0.68	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorodecanoic acid (PFDA)	1.9	J *±	5.0	0.78	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorobutanesulfonic acid (PFBS)	1.7	J	5.0	0.50	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorohexanesulfonic acid (PFHxS)	1.9	J	5.0	0.43	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorooctanesulfonic acid (PFOS)	1.9	J	5.0	0.80	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		03/28/23 22:07	04/10/23 18:52	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		03/28/23 22:07	04/10/23 18:52	1
NMeFOSAA	ND		13	3.0	ng/L		03/28/23 22:07	04/10/23 18:52	1
NEtFOSAA	ND		13	3.3	ng/L		03/28/23 22:07	04/10/23 18:52	1
4:2 FTS	ND		5.0	0.60	ng/L		03/28/23 22:07	04/10/23 18:52	1
6:2 FTS	ND		13	6.3	ng/L		03/28/23 22:07	04/10/23 18:52	1
8:2 FTS	ND		5.0	1.2	ng/L		03/28/23 22:07	04/10/23 18:52	1
NEtFOSA	ND		5.0	2.2	ng/L		03/28/23 22:07	04/10/23 18:52	1
NMeFOSA	ND		5.0	1.1	ng/L		03/28/23 22:07	04/10/23 18:52	1
NMeFOSE	ND		10	3.5	ng/L		03/28/23 22:07	04/10/23 18:52	1
NEtFOSE	ND		5.0	2.2	ng/L		03/28/23 22:07	04/10/23 18:52	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		03/28/23 22:07	04/10/23 18:52	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		03/28/23 22:07	04/10/23 18:52	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		03/28/23 22:07	04/10/23 18:52	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		03/28/23 22:07	04/10/23 18:52	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	98		25 - 150	03/28/23 22:07	04/10/23 18:52	1
13C4 PFBA	108		25 - 150	03/28/23 22:07	04/10/23 18:52	1
13C5 PFPeA	109		25 - 150	03/28/23 22:07	04/10/23 18:52	1
13C2 PFHxA	110		25 - 150	03/28/23 22:07	04/10/23 18:52	1
13C4 PFHpA	119		25 - 150	03/28/23 22:07	04/10/23 18:52	1
13C4 PFOA	112		25 - 150	03/28/23 22:07	04/10/23 18:52	1
13C5 PFNA	111		25 - 150	03/28/23 22:07	04/10/23 18:52	1
13C2 PFDA	109		25 - 150	03/28/23 22:07	04/10/23 18:52	1
13C2 PFUnA	104		25 - 150	03/28/23 22:07	04/10/23 18:52	1
13C2 PFDoA	113		25 - 150	03/28/23 22:07	04/10/23 18:52	1
13C2 PFTeDA	123		25 - 150	03/28/23 22:07	04/10/23 18:52	1
13C3 PFBS	106		25 - 150	03/28/23 22:07	04/10/23 18:52	1
18O2 PFHxS	113		25 - 150	03/28/23 22:07	04/10/23 18:52	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-11-20230320

Lab Sample ID: 320-98088-4

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFOS	101		25 - 150	03/28/23 22:07	04/10/23 18:52	1
d3-NMeFOSAA	101		25 - 150	03/28/23 22:07	04/10/23 18:52	1
d5-NEtFOSAA	110		25 - 150	03/28/23 22:07	04/10/23 18:52	1
M2-4:2 FTS	0		0 - 10	03/28/23 22:07	04/10/23 18:52	1
M2-6:2 FTS	97		25 - 150	03/28/23 22:07	04/10/23 18:52	1
M2-8:2 FTS	95		25 - 150	03/28/23 22:07	04/10/23 18:52	1
d-N-MeFOSA-M	85		25 - 150	03/28/23 22:07	04/10/23 18:52	1
d-N-EtFOSA-M	80		25 - 150	03/28/23 22:07	04/10/23 18:52	1
d7-N-MeFOSE-M	83		25 - 150	03/28/23 22:07	04/10/23 18:52	1
d9-N-EtFOSE-M	84		25 - 150	03/28/23 22:07	04/10/23 18:52	1
13C3 HFPO-DA	131		25 - 150	03/28/23 22:07	04/10/23 18:52	1
13C2 10:2 FTS	117		25 - 150	03/28/23 22:07	04/10/23 18:52	1



Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-18-20230320

Lab Sample ID: 320-98088-5

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	11	J	13	6.0	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluoropentanoic acid (PFPA)	6.0		5.0	1.2	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluorohexanoic acid (PFHxA)	10		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluoroheptanoic acid (PFHpA)	2.7	J	5.0	0.63	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluorooctanoic acid (PFOA)	8.8		5.0	2.1	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluorodecanoic acid (PFDA)	ND		5.0	0.78	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluorobutanesulfonic acid (PFBS)	5.3		5.0	0.50	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluoropentanesulfonic acid (PFPeS)	1.5	J	5.0	0.75	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluorohexanesulfonic acid (PFHxS)	14		5.0	0.43	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluorooctanesulfonic acid (PFOS)	7.6		5.0	0.80	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		03/28/23 21:54	04/10/23 17:21	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		03/28/23 21:54	04/10/23 17:21	1
NMeFOSAA	ND		13	3.0	ng/L		03/28/23 21:54	04/10/23 17:21	1
NEtFOSAA	ND		13	3.3	ng/L		03/28/23 21:54	04/10/23 17:21	1
4:2 FTS	ND		5.0	0.60	ng/L		03/28/23 21:54	04/10/23 17:21	1
6:2 FTS	ND		13	6.3	ng/L		03/28/23 21:54	04/10/23 17:21	1
8:2 FTS	ND		5.0	1.2	ng/L		03/28/23 21:54	04/10/23 17:21	1
NMeFOSE	ND		10	3.5	ng/L		03/28/23 21:54	04/10/23 17:21	1
NEtFOSE	ND		5.0	2.2	ng/L		03/28/23 21:54	04/10/23 17:21	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		03/28/23 21:54	04/10/23 17:21	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		03/28/23 21:54	04/10/23 17:21	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		03/28/23 21:54	04/10/23 17:21	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		03/28/23 21:54	04/10/23 17:21	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	79		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C4 PFBA	91		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C5 PFPeA	103		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C2 PFHxA	99		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C4 PFHpA	119		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C4 PFOA	115		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C5 PFNA	111		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C2 PFDA	109		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C2 PFUnA	90		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C2 PFDoA	68		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C2 PFTeDA	58		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C3 PFBS	93		25 - 150	03/28/23 21:54	04/10/23 17:21	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-18-20230320

Lab Sample ID: 320-98088-5

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	99		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C4 PFOS	85		25 - 150	03/28/23 21:54	04/10/23 17:21	1
d3-NMeFOSAA	71		25 - 150	03/28/23 21:54	04/10/23 17:21	1
d5-NEtFOSAA	75		25 - 150	03/28/23 21:54	04/10/23 17:21	1
M2-4:2 FTS	113		25 - 150	03/28/23 21:54	04/10/23 17:21	1
M2-6:2 FTS	193	*5+	25 - 150	03/28/23 21:54	04/10/23 17:21	1
M2-8:2 FTS	124		25 - 150	03/28/23 21:54	04/10/23 17:21	1
d7-N-MeFOSE-M	64		25 - 150	03/28/23 21:54	04/10/23 17:21	1
d9-N-EtFOSE-M	66		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C3 HFPO-DA	122		25 - 150	03/28/23 21:54	04/10/23 17:21	1
13C2 10:2 FTS	85		25 - 150	03/28/23 21:54	04/10/23 17:21	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSA	ND	*----- UJ	5.0	2.2	ng/L		04/12/23 20:59	04/14/23 00:44	1
NMeFOSA	ND		5.0	1.1	ng/L		04/12/23 20:59	04/14/23 00:44	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d-N-MeFOSA-M	37		25 - 150	04/12/23 20:59	04/14/23 00:44	1
d-N-EtFOSA-M	51		25 - 150	04/12/23 20:59	04/14/23 00:44	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	44	*+	13	6.0	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluoropentanoic acid (PFPA)	35	*+	5.0	1.2	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluorohexanoic acid (PFHxA)	32	*+	5.0	1.4	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluoroheptanoic acid (PFHpA)	10	*+	5.0	0.63	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluorooctanoic acid (PFOA)	14		5.0	2.1	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluorononanoic acid (PFNA)	2.0	J *+	5.0	0.68	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluorodecanoic acid (PFDA)	1.3	J *+	5.0	0.78	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluorotridecanoic acid (PFTTrDA)	ND		5.0	3.2	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluorobutanesulfonic acid (PFBS)	5.5		5.0	0.50	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluoropentanesulfonic acid (PFPeS)	1.3	J	5.0	0.75	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluorohexanesulfonic acid (PFHxS)	14		5.0	0.43	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluorooctanesulfonic acid (PFOS)	8.2		5.0	0.80	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		03/28/23 22:07	04/10/23 19:02	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		03/28/23 22:07	04/10/23 19:02	1
NMeFOSAA	ND		13	3.0	ng/L		03/28/23 22:07	04/10/23 19:02	1
NEtFOSAA	ND		13	3.3	ng/L		03/28/23 22:07	04/10/23 19:02	1
4:2 FTS	ND		5.0	0.60	ng/L		03/28/23 22:07	04/10/23 19:02	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Inf-18-20230320

Lab Sample ID: 320-98088-5

Date Collected: 03/20/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 FTS	ND		13	6.3	ng/L		03/28/23 22:07	04/10/23 19:02	1
8:2 FTS	ND		5.0	1.2	ng/L		03/28/23 22:07	04/10/23 19:02	1
NEtFOSA	ND		5.0	2.2	ng/L		03/28/23 22:07	04/10/23 19:02	1
NMeFOSA	ND		5.0	1.1	ng/L		03/28/23 22:07	04/10/23 19:02	1
NMeFOSE	ND		10	3.5	ng/L		03/28/23 22:07	04/10/23 19:02	1
NEtFOSE	ND		5.0	2.2	ng/L		03/28/23 22:07	04/10/23 19:02	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		03/28/23 22:07	04/10/23 19:02	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		03/28/23 22:07	04/10/23 19:02	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		03/28/23 22:07	04/10/23 19:02	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		03/28/23 22:07	04/10/23 19:02	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	96		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C4 PFBA	111		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C5 PFPeA	109		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C2 PFHxA	111		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C4 PFHpA	118		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C4 PFOA	113		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C5 PFNA	117		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C2 PFDA	109		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C2 PFUnA	109		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C2 PFDoA	114		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C2 PFTeDA	118		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C3 PFBS	105		25 - 150	03/28/23 22:07	04/10/23 19:02	1
18O2 PFHxS	111		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C4 PFOS	99		25 - 150	03/28/23 22:07	04/10/23 19:02	1
d3-NMeFOSAA	100		25 - 150	03/28/23 22:07	04/10/23 19:02	1
d5-NEtFOSAA	108		25 - 150	03/28/23 22:07	04/10/23 19:02	1
M2-4:2 FTS	0.6		0 - 10	03/28/23 22:07	04/10/23 19:02	1
M2-6:2 FTS	94		25 - 150	03/28/23 22:07	04/10/23 19:02	1
M2-8:2 FTS	92		25 - 150	03/28/23 22:07	04/10/23 19:02	1
d-N-MeFOSA-M	47		25 - 150	03/28/23 22:07	04/10/23 19:02	1
d-N-EtFOSA-M	43		25 - 150	03/28/23 22:07	04/10/23 19:02	1
d7-N-MeFOSE-M	48		25 - 150	03/28/23 22:07	04/10/23 19:02	1
d9-N-EtFOSE-M	47		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C3 HFPO-DA	130		25 - 150	03/28/23 22:07	04/10/23 19:02	1
13C2 10:2 FTS	117		25 - 150	03/28/23 22:07	04/10/23 19:02	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
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- 10
- 11
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- 13
- 14
- 15

Client Sample ID: Eff-20230321

Lab Sample ID: 320-98088-7

Date Collected: 03/21/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	8.7	J	13	6.0	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluoropentanoic acid (PFPA)	12		5.0	1.2	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorohexanoic acid (PFHxA)	21		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluoroheptanoic acid (PFHpA)	2.5	J	5.0	0.63	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorooctanoic acid (PFOA)	7.4		5.0	2.1	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorodecanoic acid (PFDA)	ND		5.0	0.78	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorobutanesulfonic acid (PFBS)	3.8	J	5.0	0.50	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorohexanesulfonic acid (PFHxS)	6.9		5.0	0.43	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorooctanesulfonic acid (PFOS)	4.0	J	5.0	0.80	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		03/28/23 21:54	04/10/23 17:31	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		03/28/23 21:54	04/10/23 17:31	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Eff-20230321

Lab Sample ID: 320-98088-7

Date Collected: 03/21/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NMeFOSAA	ND		13	3.0	ng/L		03/28/23 21:54	04/10/23 17:31	1
NEtFOSAA	ND		13	3.3	ng/L		03/28/23 21:54	04/10/23 17:31	1
4:2 FTS	ND		5.0	0.60	ng/L		03/28/23 21:54	04/10/23 17:31	1
6:2 FTS	ND		13	6.3	ng/L		03/28/23 21:54	04/10/23 17:31	1
8:2 FTS	ND		5.0	1.2	ng/L		03/28/23 21:54	04/10/23 17:31	1
NMeFOSE	ND		10	3.5	ng/L		03/28/23 21:54	04/10/23 17:31	1
NEtFOSE	ND		5.0	2.2	ng/L		03/28/23 21:54	04/10/23 17:31	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		03/28/23 21:54	04/10/23 17:31	1
9CI-PF3ONS	ND		5.0	0.60	ng/L		03/28/23 21:54	04/10/23 17:31	1
11CI-PF3OUdS	ND		5.0	0.80	ng/L		03/28/23 21:54	04/10/23 17:31	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		03/28/23 21:54	04/10/23 17:31	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	96		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C4 PFBA	97		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C5 PFPeA	113		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C2 PFHxA	118		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C4 PFHpA	122		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C4 PFOA	116		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C5 PFNA	117		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C2 PFDA	111		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C2 PFUnA	108		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C2 PFDoA	113		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C2 PFTeDA	85		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C3 PFBS	104		25 - 150	03/28/23 21:54	04/10/23 17:31	1
18O2 PFHxS	110		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C4 PFOS	102		25 - 150	03/28/23 21:54	04/10/23 17:31	1
d3-NMeFOSAA	102		25 - 150	03/28/23 21:54	04/10/23 17:31	1
d5-NEtFOSAA	107		25 - 150	03/28/23 21:54	04/10/23 17:31	1
M2-4:2 FTS	130		25 - 150	03/28/23 21:54	04/10/23 17:31	1
M2-6:2 FTS	125		25 - 150	03/28/23 21:54	04/10/23 17:31	1
M2-8:2 FTS	112		25 - 150	03/28/23 21:54	04/10/23 17:31	1
d7-N-MeFOSE-M	55		25 - 150	03/28/23 21:54	04/10/23 17:31	1
d9-N-EtFOSE-M	52		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C3 HFPO-DA	129		25 - 150	03/28/23 21:54	04/10/23 17:31	1
13C2 10:2 FTS	120		25 - 150	03/28/23 21:54	04/10/23 17:31	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSA	ND	*-----UJ	5.0	2.2	ng/L		04/12/23 20:59	04/14/23 00:55	1
NMeFOSA	ND		5.0	1.1	ng/L		04/12/23 20:59	04/14/23 00:55	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
d-N-MeFOSA-M	105		25 - 150	04/12/23 20:59	04/14/23 00:55	1			
d-N-EtFOSA-M	98		25 - 150	04/12/23 20:59	04/14/23 00:55	1			

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	33	*+	13	6.0	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluoropentanoic acid (PFPA)	24	*+	5.0	1.2	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluorohexanoic acid (PFHxA)	25	*+	5.0	1.4	ng/L		03/28/23 22:07	04/10/23 19:12	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Eff-20230321

Lab Sample ID: 320-98088-7

Date Collected: 03/21/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	3.2	J**	5.0	0.63	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluorooctanoic acid (PFOA)	8.4		5.0	2.1	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluorononanoic acid (PFNA)	ND	**	5.0	0.68	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluorodecanoic acid (PFDA)	0.82	J**	5.0	0.78	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluorobutanesulfonic acid (PFBS)	3.7	J	5.0	0.50	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluorohexanesulfonic acid (PFHxS)	6.2		5.0	0.43	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluorooctanesulfonic acid (PFOS)	3.4	J	5.0	0.80	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		03/28/23 22:07	04/10/23 19:12	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		03/28/23 22:07	04/10/23 19:12	1
NMeFOSAA	ND		13	3.0	ng/L		03/28/23 22:07	04/10/23 19:12	1
NEtFOSAA	ND		13	3.3	ng/L		03/28/23 22:07	04/10/23 19:12	1
4:2 FTS	ND		5.0	0.60	ng/L		03/28/23 22:07	04/10/23 19:12	1
6:2 FTS	ND		13	6.3	ng/L		03/28/23 22:07	04/10/23 19:12	1
8:2 FTS	ND		5.0	1.2	ng/L		03/28/23 22:07	04/10/23 19:12	1
NEtFOSA	ND		5.0	2.2	ng/L		03/28/23 22:07	04/10/23 19:12	1
NMeFOSA	ND		5.0	1.1	ng/L		03/28/23 22:07	04/10/23 19:12	1
NMeFOSE	ND		10	3.5	ng/L		03/28/23 22:07	04/10/23 19:12	1
NEtFOSE	ND		5.0	2.2	ng/L		03/28/23 22:07	04/10/23 19:12	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		03/28/23 22:07	04/10/23 19:12	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		03/28/23 22:07	04/10/23 19:12	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		03/28/23 22:07	04/10/23 19:12	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		03/28/23 22:07	04/10/23 19:12	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	97		25 - 150	03/28/23 22:07	04/10/23 19:12	1
13C4 PFBA	110		25 - 150	03/28/23 22:07	04/10/23 19:12	1
13C5 PFPeA	115		25 - 150	03/28/23 22:07	04/10/23 19:12	1
13C2 PFHxA	115		25 - 150	03/28/23 22:07	04/10/23 19:12	1
13C4 PFHpA	122		25 - 150	03/28/23 22:07	04/10/23 19:12	1
13C4 PFOA	113		25 - 150	03/28/23 22:07	04/10/23 19:12	1
13C5 PFNA	114		25 - 150	03/28/23 22:07	04/10/23 19:12	1
13C2 PFDA	112		25 - 150	03/28/23 22:07	04/10/23 19:12	1
13C2 PFUnA	104		25 - 150	03/28/23 22:07	04/10/23 19:12	1
13C2 PFDoA	117		25 - 150	03/28/23 22:07	04/10/23 19:12	1
13C2 PFTeDA	122		25 - 150	03/28/23 22:07	04/10/23 19:12	1
13C3 PFBS	111		25 - 150	03/28/23 22:07	04/10/23 19:12	1
18O2 PFHxS	110		25 - 150	03/28/23 22:07	04/10/23 19:12	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: Eff-20230321

Lab Sample ID: 320-98088-7

Date Collected: 03/21/23 23:59

Matrix: Water

Date Received: 03/23/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFOS	102		25 - 150	03/28/23 22:07	04/10/23 19:12	1
d3-NMeFOSAA	102		25 - 150	03/28/23 22:07	04/10/23 19:12	1
d5-NEtFOSAA	109		25 - 150	03/28/23 22:07	04/10/23 19:12	1
M2-4:2 FTS	0		0 - 10	03/28/23 22:07	04/10/23 19:12	1
M2-6:2 FTS	90		25 - 150	03/28/23 22:07	04/10/23 19:12	1
M2-8:2 FTS	95		25 - 150	03/28/23 22:07	04/10/23 19:12	1
d-N-MeFOSA-M	53		25 - 150	03/28/23 22:07	04/10/23 19:12	1
d-N-EtFOSA-M	47		25 - 150	03/28/23 22:07	04/10/23 19:12	1
d7-N-MeFOSE-M	58		25 - 150	03/28/23 22:07	04/10/23 19:12	1
d9-N-EtFOSE-M	52		25 - 150	03/28/23 22:07	04/10/23 19:12	1
13C3 HFPO-DA	137		25 - 150	03/28/23 22:07	04/10/23 19:12	1
13C2 10:2 FTS	108		25 - 150	03/28/23 22:07	04/10/23 19:12	1

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: BioA-22-20230321

Lab Sample ID: 320-98088-8

Date Collected: 03/21/23 14:00

Matrix: Solid

Date Received: 03/23/23 09:40

Percent Solids: 23.2

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	7.2	B-- U	4.4	1.0	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
Perfluoropentanoic acid (PFPA)	4.3	J	4.4	0.90	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
Perfluorohexanoic acid (PFHxA)	10		4.4	0.67	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
Perfluoroheptanoic acid (PFHpA)	ND		4.4	0.83	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
Perfluorooctanoic acid (PFOA)	5.8		4.4	1.2	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
Perfluorononanoic acid (PFNA)	0.80	J	4.4	0.48	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
Perfluorodecanoic acid (PFDA)	7.6		4.4	1.0	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
Perfluoroundecanoic acid (PFUnA)	1.5	J	4.4	0.91	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
Perfluorododecanoic acid (PFDoA)	2.9	J	4.4	0.65	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
Perfluorotridecanoic acid (PFTTrDA)	ND		4.4	0.46	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
Perfluorotetradecanoic acid (PFTTeA)	0.85	J	4.4	0.81	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
Perfluorobutanesulfonic acid (PFBS)	3.6	J	4.4	0.83	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
Perfluoropentanesulfonic acid (PFPeS)	ND		4.4	0.81	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
Perfluorohexanesulfonic acid (PFHxS)	3.7	J	4.4	0.63	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		4.4	1.1	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
Perfluorooctanesulfonic acid (PFOS)	17		4.4	0.94	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
Perfluorononanesulfonic acid (PFNS)	ND		4.4	0.63	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
Perfluorodecanesulfonic acid (PFDS)	ND		4.4	1.1	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
Perfluorododecanesulfonic acid (PFDoS)	ND		4.4	1.0	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
Perfluorooctanesulfonamide (FOSA)	ND		4.4	0.72	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
NMeFOSAA	17		4.4	0.50	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
NEtFOSAA	6.1		4.4	1.0	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
NMeFOSE	11		4.4	1.0	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
NEtFOSE	6.3		4.4	0.61	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
4:2 FTS	ND		4.4	1.1	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
6:2 FTS	ND		4.4	0.59	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
8:2 FTS	ND		4.4	0.76	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
HFPO-DA (GenX)	ND		4.4	0.90	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
9Cl-PF3ONS	ND		4.4	0.76	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
11Cl-PF3OUdS	ND		4.4	0.67	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		4.4	0.85	ug/Kg	✳	03/28/23 23:20	04/07/23 17:35	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	109		25 - 150	03/28/23 23:20	04/07/23 17:35	1
13C5 PFPeA	117		25 - 150	03/28/23 23:20	04/07/23 17:35	1
13C2 PFHxA	110		25 - 150	03/28/23 23:20	04/07/23 17:35	1
13C4 PFHpA	121		25 - 150	03/28/23 23:20	04/07/23 17:35	1
13C4 PFOA	117		25 - 150	03/28/23 23:20	04/07/23 17:35	1
13C5 PFNA	119		25 - 150	03/28/23 23:20	04/07/23 17:35	1
13C2 PFDA	119		25 - 150	03/28/23 23:20	04/07/23 17:35	1
13C2 PFUnA	112		25 - 150	03/28/23 23:20	04/07/23 17:35	1
13C2 PFDoA	96		25 - 150	03/28/23 23:20	04/07/23 17:35	1
13C2 PFTTeDA	53		25 - 150	03/28/23 23:20	04/07/23 17:35	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: BioA-22-20230321

Lab Sample ID: 320-98088-8

Date Collected: 03/21/23 14:00

Matrix: Solid

Date Received: 03/23/23 09:40

Percent Solids: 23.2

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	104		25 - 150	03/28/23 23:20	04/07/23 17:35	1
18O2 PFHxS	112		25 - 150	03/28/23 23:20	04/07/23 17:35	1
13C4 PFOS	103		25 - 150	03/28/23 23:20	04/07/23 17:35	1
13C8 FOSA	93		25 - 150	03/28/23 23:20	04/07/23 17:35	1
M2-4:2 FTS	117		25 - 150	03/28/23 23:20	04/07/23 17:35	1
M2-6:2 FTS	152	*5+	25 - 150	03/28/23 23:20	04/07/23 17:35	1
M2-8:2 FTS	148		25 - 150	03/28/23 23:20	04/07/23 17:35	1
13C2 10:2 FTS	146		25 - 150	03/28/23 23:20	04/07/23 17:35	1
13C3 HFPO-DA	126		25 - 150	03/28/23 23:20	04/07/23 17:35	1
d3-NMeFOSAA	105		25 - 150	03/28/23 23:20	04/07/23 17:35	1
d5-NEtFOSAA	121		25 - 150	03/28/23 23:20	04/07/23 17:35	1
d7-N-MeFOSE-M	49		25 - 150	03/28/23 23:20	04/07/23 17:35	1
d9-N-EtFOSE-M	48		25 - 150	03/28/23 23:20	04/07/23 17:35	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NMeFOSA	ND		4.2	1.0	ug/Kg	☼	04/12/23 20:20	04/14/23 01:50	1
NEtFOSA	ND		4.2	0.99	ug/Kg	☼	04/12/23 20:20	04/14/23 01:50	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d-N-MeFOSA-M	55		25 - 150	04/12/23 20:20	04/14/23 01:50	1
d-N-EtFOSA-M	53		25 - 150	04/12/23 20:20	04/14/23 01:50	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	97	B----	4.2	0.97	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluoropentanoic acid (PFPA)	43		4.2	0.87	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluorohexanoic acid (PFHxA)	33	*+	4.2	0.65	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluoroheptanoic acid (PFHpA)	16		4.2	0.80	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluorooctanoic acid (PFOA)	35		4.2	1.1	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluorononanoic acid (PFNA)	8.3		4.2	0.46	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluorodecanoic acid (PFDA)	10		4.2	1.0	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluoroundecanoic acid (PFUnA)	4.1	J	4.2	0.89	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluorododecanoic acid (PFDoA)	5.0		4.2	0.63	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluorotridecanoic acid (PFTTrDA)	1.4	J	4.2	0.44	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluorotetradecanoic acid (PFTTeA)	1.5	J	4.2	0.78	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluorobutanesulfonic acid (PFBS)	13		4.2	0.80	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluoropentanesulfonic acid (PFPeS)	ND		4.2	0.78	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluorohexanesulfonic acid (PFHxS)	2.6	J	4.2	0.61	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		4.2	1.0	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluorooctanesulfonic acid (PFOS)	18		4.2	0.91	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluorononanesulfonic acid (PFNS)	ND		4.2	0.61	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1
Perfluorodecanesulfonic acid (PFDS)	1.9	J	4.2	1.1	ug/Kg	☼	03/28/23 23:40	04/07/23 18:25	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: BioA-22-20230321

Lab Sample ID: 320-98088-8

Date Collected: 03/21/23 14:00

Matrix: Solid

Date Received: 03/23/23 09:40

Percent Solids: 23.2

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanesulfonic acid (PFDoS)	ND		4.2	1.0	ug/Kg	☆	03/28/23 23:40	04/07/23 18:25	1
Perfluorooctanesulfonamide (FOSA)	ND		4.2	0.70	ug/Kg	☆	03/28/23 23:40	04/07/23 18:25	1
NMeFOSAA	ND		4.2	0.49	ug/Kg	☆	03/28/23 23:40	04/07/23 18:25	1
NEtFOSAA	ND		4.2	1.0	ug/Kg	☆	03/28/23 23:40	04/07/23 18:25	1
4:2 FTS	ND		4.2	1.1	ug/Kg	☆	03/28/23 23:40	04/07/23 18:25	1
6:2 FTS	ND		4.2	0.57	ug/Kg	☆	03/28/23 23:40	04/07/23 18:25	1
8:2 FTS	ND		4.2	0.74	ug/Kg	☆	03/28/23 23:40	04/07/23 18:25	1
NEtFOSA	ND		4.2	1.0	ug/Kg	☆	03/28/23 23:40	04/07/23 18:25	1
NMeFOSA	ND		4.2	1.0	ug/Kg	☆	03/28/23 23:40	04/07/23 18:25	1
NMeFOSE	ND		4.2	1.0	ug/Kg	☆	03/28/23 23:40	04/07/23 18:25	1
NEtFOSE	ND		4.2	0.59	ug/Kg	☆	03/28/23 23:40	04/07/23 18:25	1
HFPO-DA (GenX)	ND		4.2	0.87	ug/Kg	☆	03/28/23 23:40	04/07/23 18:25	1
9Cl-PF3ONS	ND		4.2	0.74	ug/Kg	☆	03/28/23 23:40	04/07/23 18:25	1
11Cl-PF3OUdS	ND		4.2	0.65	ug/Kg	☆	03/28/23 23:40	04/07/23 18:25	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		4.2	0.82	ug/Kg	☆	03/28/23 23:40	04/07/23 18:25	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	101		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C4 PFBA	106		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C5 PFPeA	110		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C2 PFHxA	107		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C4 PFHpA	114		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C4 PFOA	108		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C5 PFNA	106		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C2 PFDA	105		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C2 PFUnA	100		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C2 PFDoA	111		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C2 PFTeDA	114		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C3 PFBS	101		25 - 150	03/28/23 23:40	04/07/23 18:25	1
18O2 PFHxS	105		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C4 PFOS	94		25 - 150	03/28/23 23:40	04/07/23 18:25	1
d3-NMeFOSAA	99		25 - 150	03/28/23 23:40	04/07/23 18:25	1
d5-NEtFOSAA	102		25 - 150	03/28/23 23:40	04/07/23 18:25	1
M2-4:2 FTS	0		0 - 10	03/28/23 23:40	04/07/23 18:25	1
M2-6:2 FTS	92		25 - 150	03/28/23 23:40	04/07/23 18:25	1
M2-8:2 FTS	81		25 - 150	03/28/23 23:40	04/07/23 18:25	1
d-N-MeFOSA-M	71		25 - 150	03/28/23 23:40	04/07/23 18:25	1
d-N-EtFOSA-M	69		25 - 150	03/28/23 23:40	04/07/23 18:25	1
d7-N-MeFOSE-M	64		25 - 150	03/28/23 23:40	04/07/23 18:25	1
d9-N-EtFOSE-M	67		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C3 HFPO-DA	130		25 - 150	03/28/23 23:40	04/07/23 18:25	1
13C2 10:2 FTS	90		25 - 150	03/28/23 23:40	04/07/23 18:25	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
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- 11
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- 13
- 14
- 15

Client Sample ID: BioB-20230321

Lab Sample ID: 320-98088-9

Date Collected: 03/21/23 14:21

Matrix: Solid

Date Received: 03/23/23 09:40

Percent Solids: 6.0

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	18	B- U	17	3.8	ug/Kg	✱	03/28/23 23:20	04/07/23 17:45	1
Perfluoropentanoic acid (PFPA)	ND		17	3.4	ug/Kg	✱	03/28/23 23:20	04/07/23 17:45	1
Perfluorohexanoic acid (PFHxA)	4.1	J	17	2.6	ug/Kg	✱	03/28/23 23:20	04/07/23 17:45	1
Perfluoroheptanoic acid (PFHpA)	ND		17	3.1	ug/Kg	✱	03/28/23 23:20	04/07/23 17:45	1
Perfluorooctanoic acid (PFOA)	ND		17	4.4	ug/Kg	✱	03/28/23 23:20	04/07/23 17:45	1
Perfluorononanoic acid (PFNA)	ND		17	1.8	ug/Kg	✱	03/28/23 23:20	04/07/23 17:45	1
Perfluorodecanoic acid (PFDA)	ND		17	4.0	ug/Kg	✱	03/28/23 23:20	04/07/23 17:45	1
Perfluoroundecanoic acid (PFUnA)	ND		17	3.5	ug/Kg	✱	03/28/23 23:20	04/07/23 17:45	1
Perfluorododecanoic acid (PFDoA)	ND		17	2.5	ug/Kg	✱	03/28/23 23:20	04/07/23 17:45	1
Perfluorotridecanoic acid (PFTrDA)	ND		17	1.7	ug/Kg	✱	03/28/23 23:20	04/07/23 17:45	1
Perfluorotetradecanoic acid (PFTeA)	ND		17	3.1	ug/Kg	✱	03/28/23 23:20	04/07/23 17:45	1
Perfluorobutanesulfonic acid (PFBS)	ND		17	3.1	ug/Kg	✱	03/28/23 23:20	04/07/23 17:45	1
Perfluoropentanesulfonic acid (PFPeS)	ND		17	3.1	ug/Kg	✱	03/28/23 23:20	04/07/23 17:45	1
Perfluorohexanesulfonic acid (PFHxS)	ND		17	2.4	ug/Kg	✱	03/28/23 23:20	04/07/23 17:45	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		17	4.1	ug/Kg	✱	03/28/23 23:20	04/07/23 17:45	1
Perfluorooctanesulfonic acid (PFOS)	14	J	17	3.6	ug/Kg	✱	03/28/23 23:20	04/07/23 17:45	1
Perfluorononanesulfonic acid (PFNS)	ND		17	2.4	ug/Kg	✱	03/28/23 23:20	04/07/23 17:45	1
Perfluorodecanesulfonic acid (PFDS)	ND		17	4.3	ug/Kg	✱	03/28/23 23:20	04/07/23 17:45	1
Perfluorododecanesulfonic acid (PFDoS)	ND		17	3.9	ug/Kg	✱	03/28/23 23:20	04/07/23 17:45	1
Perfluorooctanesulfonamide (FOSA)	ND		17	2.7	ug/Kg	✱	03/28/23 23:20	04/07/23 17:45	1
NMeFOSAA	ND		17	1.9	ug/Kg	✱	03/28/23 23:20	04/07/23 17:45	1
NEtFOSAA	ND		17	4.0	ug/Kg	✱	03/28/23 23:20	04/07/23 17:45	1
NMeFOSE	5.8	J	17	3.9	ug/Kg	✱	03/28/23 23:20	04/07/23 17:45	1
NEtFOSE	6.8	J	17	2.3	ug/Kg	✱	03/28/23 23:20	04/07/23 17:45	1
4:2 FTS	ND		17	4.2	ug/Kg	✱	03/28/23 23:20	04/07/23 17:45	1
6:2 FTS	ND		17	2.2	ug/Kg	✱	03/28/23 23:20	04/07/23 17:45	1
8:2 FTS	ND		17	2.9	ug/Kg	✱	03/28/23 23:20	04/07/23 17:45	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: BioB-20230321

Lab Sample ID: 320-98088-9

Date Collected: 03/21/23 14:21

Matrix: Solid

Date Received: 03/23/23 09:40

Percent Solids: 6.0

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA (GenX)	ND		17	3.4	ug/Kg	☼	03/28/23 23:20	04/07/23 17:45	1
9CI-PF3ONS	ND		17	2.9	ug/Kg	☼	03/28/23 23:20	04/07/23 17:45	1
11CI-PF3OUdS	ND		17	2.6	ug/Kg	☼	03/28/23 23:20	04/07/23 17:45	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		17	3.2	ug/Kg	☼	03/28/23 23:20	04/07/23 17:45	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	106		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C5 PFPeA	90		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C2 PFHxA	103		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C4 PFHpA	114		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C4 PFOA	117		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C5 PFNA	118		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C2 PFDA	122		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C2 PFUnA	112		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C2 PFDoA	105		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C2 PFTeDA	79		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C3 PFBS	105		25 - 150	03/28/23 23:20	04/07/23 17:45	1
18O2 PFHxS	110		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C4 PFOS	100		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C8 FOSA	105		25 - 150	03/28/23 23:20	04/07/23 17:45	1
M2-4:2 FTS	125		25 - 150	03/28/23 23:20	04/07/23 17:45	1
M2-6:2 FTS	154	*5+	25 - 150	03/28/23 23:20	04/07/23 17:45	1
M2-8:2 FTS	142		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C2 10:2 FTS	141		25 - 150	03/28/23 23:20	04/07/23 17:45	1
13C3 HFPO-DA	116		25 - 150	03/28/23 23:20	04/07/23 17:45	1
d3-NMeFOSAA	112		25 - 150	03/28/23 23:20	04/07/23 17:45	1
d5-NEtFOSAA	115		25 - 150	03/28/23 23:20	04/07/23 17:45	1
d7-N-MeFOSE-M	70		25 - 150	03/28/23 23:20	04/07/23 17:45	1
d9-N-EtFOSE-M	72		25 - 150	03/28/23 23:20	04/07/23 17:45	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NMeFOSA	ND		16	4.0	ug/Kg	☼	04/12/23 20:20	04/14/23 02:02	1
NEtFOSA	ND		16	3.9	ug/Kg	☼	04/12/23 20:20	04/14/23 02:02	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d-N-MeFOSA-M	75		25 - 150	04/12/23 20:20	04/14/23 02:02	1
d-N-EtFOSA-M	77		25 - 150	04/12/23 20:20	04/14/23 02:02	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	97	B-- U	16	3.7	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
Perfluoropentanoic acid (PFPA)	51		16	3.3	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
Perfluorohexanoic acid (PFHxA)	28	*±	16	2.5	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
Perfluoroheptanoic acid (PFHpA)	15	J	16	3.1	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
Perfluorooctanoic acid (PFOA)	21		16	4.3	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
Perfluorononanoic acid (PFNA)	7.9	J	16	1.8	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
Perfluorodecanoic acid (PFDA)	6.6	J	16	3.9	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
Perfluoroundecanoic acid (PFUnA)	4.1	J	16	3.4	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: BioB-20230321

Lab Sample ID: 320-98088-9

Date Collected: 03/21/23 14:21

Matrix: Solid

Date Received: 03/23/23 09:40

Percent Solids: 6.0

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	3.6	J	16	2.4	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
Perfluorotridecanoic acid (PFTrDA)	1.7	J	16	1.7	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
Perfluorotetradecanoic acid (PFTeA)	ND		16	3.0	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
Perfluorobutanesulfonic acid (PFBS)	3.2	J	16	3.1	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
Perfluoropentanesulfonic acid (PFPeS)	ND		16	3.0	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
Perfluorohexanesulfonic acid (PFHxS)	ND		16	2.4	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		16	4.0	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
Perfluorooctanesulfonic acid (PFOS)	11	J	16	3.5	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
Perfluorononanesulfonic acid (PFNS)	ND		16	2.4	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
Perfluorodecanesulfonic acid (PFDS)	ND		16	4.2	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
Perfluorododecanesulfonic acid (PFDoS)	ND		16	3.8	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
Perfluorooctanesulfonamide (FOSA)	ND		16	2.7	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
NMeFOSAA	ND		16	1.9	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
NEtFOSAA	ND		16	3.9	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
4:2 FTS	ND		16	4.2	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
6:2 FTS	ND		16	2.2	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
8:2 FTS	ND		16	2.8	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
NEtFOSA	ND		16	3.8	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
NMeFOSA	ND		16	4.0	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
NMeFOSE	ND		16	3.8	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
NEtFOSE	ND		16	2.3	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
HFPO-DA (GenX)	ND		16	3.3	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
9CI-PF3ONS	ND		16	2.8	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
11CI-PF3OUdS	ND		16	2.5	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		16	3.2	ug/Kg	☼	03/28/23 23:40	04/07/23 18:35	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	101		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C4 PFBA	111		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C5 PFPeA	111		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C2 PFHxA	111		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C4 PFHpA	115		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C4 PFOA	113		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C5 PFNA	106		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C2 PFDA	107		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C2 PFUnA	100		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C2 PFDoA	106		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C2 PFTeDA	116		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C3 PFBS	108		25 - 150	03/28/23 23:40	04/07/23 18:35	1
18O2 PFHxS	110		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C4 PFOS	96		25 - 150	03/28/23 23:40	04/07/23 18:35	1
d3-NMeFOSAA	96		25 - 150	03/28/23 23:40	04/07/23 18:35	1
d5-NEtFOSAA	106		25 - 150	03/28/23 23:40	04/07/23 18:35	1
M2-4:2 FTS	0		0 - 10	03/28/23 23:40	04/07/23 18:35	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS

Job ID: 320-98088-1

Client Sample ID: BioB-20230321

Lab Sample ID: 320-98088-9

Date Collected: 03/21/23 14:21

Matrix: Solid

Date Received: 03/23/23 09:40

Percent Solids: 6.0

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
M2-6:2 FTS	91		25 - 150	03/28/23 23:40	04/07/23 18:35	1
M2-8:2 FTS	84		25 - 150	03/28/23 23:40	04/07/23 18:35	1
d-N-MeFOSA-M	55		25 - 150	03/28/23 23:40	04/07/23 18:35	1
d-N-EtFOSA-M	49		25 - 150	03/28/23 23:40	04/07/23 18:35	1
d7-N-MeFOSE-M	58		25 - 150	03/28/23 23:40	04/07/23 18:35	1
d9-N-EtFOSE-M	55		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C3 HFPO-DA	128		25 - 150	03/28/23 23:40	04/07/23 18:35	1
13C2 10:2 FTS	95		25 - 150	03/28/23 23:40	04/07/23 18:35	1



April 2023

Data Quality and Usability Review – April 2023

Data Reviewer: Kristen Morin

Peer Reviewer: Jeff Ramey

Date: 5/30/2023

Madison Metropolitan Sewerage District (MMSD) collected influent and effluent samples at the Nine Springs wastewater treatment plant on April 17 and 18, 2023 in conjunction with an additional characterization study conducted by TRC. Samples were analyzed for the standard list of Wisconsin's 33 per- and polyfluoroalkyl substances (PFAS) by Eurofins in West Sacramento, California and total suspended solids (TSS) by Eurofins in Chicago, Illinois. The laboratory analytical results were reported in laboratory SDG 320-99133-1.

Samples included in this review are listed below:

- Inf Comp 20230417
- Eff 20230418

Each sample was analyzed for the following constituents:

Analyte Group	Method
PFAS (33 Analytes)	Modified EPA Method 537 and laboratory standard operating procedure (SOP) using Isotope Dilution/WI Method Criteria
Total Suspended Solids (TSS)	Standard Method (SM) 2540D

TRC performed a limited validation of the laboratory data to assess data usability. The following sections summarize the data validation procedure and the results of the validation.

Data Usability Review Procedure

The analytical data were reviewed using the USEPA Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537 (EPA 910-R-18-001), November 2018, USEPA National Functional Guidelines for High Resolution Superfund Methods Data Review (EPA 542-R-20-007), November 2020, and Wisconsin PFAS Aqueous (Non-Potable Water) and Non-Aqueous Matrices Method Expectations, Document # EA-19-0001, WDNR, December 2019 as guidance for data review. EPA 910-R-18-001 applies to method 537 and drinking water matrices only but the guidance can be applied in part or in whole to evaluate data in non-drinking water matrices. The following items were specifically included in the evaluation of the data:

- Data completeness;
- Sample receipt, as noted in the cover page or case narrative;
- Technical holding times for analyses;
- Quantitation limits (QLs) compared to the ranges of QLs suggested in the Sampling and Analysis Blueprint (SAB) of 2-5 ng/L and 1-5 ug/kg per individual PFAS, as appropriate;
- Data for method blanks, equipment blanks, and field blanks. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Field and equipment blanks are used to assess potential contamination arising from field procedures;

- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCSs and/or LCSDs are used to assess the accuracy and precision of the analytical method using a clean matrix;
- Percent recoveries for matrix spike (MS) and matrix spike duplicate (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Percent recoveries for isotopically labeled surrogates. Percent recoveries are calculated for each surrogate and used to assess the accuracy of the extraction procedure and bias due to sample matrix effects;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;
- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and
- Overall usability of the data.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

Review Summary

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances, and issues identified in this evaluation are noted below.

- The reviewed PFAS and TSS data will be utilized for the purposes of an additional characterization.
- Data are usable for the purposes of the additional characterization.
- The issues noted in the QA/QC sample summary below have a minor impact on the data usability.

QA/QC Sample Summary

- The data package was found to be complete as received from the laboratory.
- The cooler temperature upon receipt at the laboratory was within the acceptance criteria (< 10°C).
 - Samples were not shipped to the laboratory until one to two days after collection. The samples were stored in coolers, on ice, at the site until delivery to the laboratory. No validation actions were required on this basis since the samples were kept in coolers, on ice, prior to delivery to the laboratory and were received at acceptable temperatures by the laboratory.

- A method blank was analyzed with each analytical batch for PFAS and TSS. Target analytes were not detected in the method blanks.
- An equipment blank was not collected with this sample set.
- All samples were extracted and/or prepared and analyzed within the holding time.
- The LCS and LCSD percent recoveries (%Rs) and relative percent differences (RPDs), where applicable, were within the acceptance criteria.
- MS/MSD analyses were not performed on a sample from this sample set.
- The isotopically labeled surrogate %Rs were within the acceptance criteria.
- A field duplicate pair was not collected with this sample set.
- A laboratory duplicate analysis was not performed on a sample from this sample set.
- The laboratory noted in the case narrative that during the solid phase extraction process, sample Inf Comp 20230417 contained non-settable particulates which clogged the solid phase extraction column. The lab also stated that approximately 35% of the sample container was filtered through the solid phase extraction (SPE) column at which point the SPE column became clogged. The remainder of the unfiltered sample was retained in the original sample bottle. The SPE column along with the particulates that clogged it were then extracted using the elution solvent. The laboratory confirmed during previous rounds of review that samples are spiked with EIS prior to filtration through the SPE column; thus, no validation actions were taken on this basis.
- The laboratory also noted in the case narrative that samples Inf Comp 20230417 and Eff 20230418 were light brown in color and contained floating particulates prior to extraction for PFAS.
- With the exception of PFPA and PFHxA in sample Inf Comp 20230417, sample QLs were within the ranges of QLs suggested in the SAB of 2-5 ng/L per individual PFAS. The results for PFPA and PFHxA in sample Inf Comp 20230417 were flagged with a "G" by the laboratory indicating that the sample exhibited matrix interferences for these two compounds. The laboratory raised the reporting limits (RLs) and method detection limits (MDLs) to be equal to the matrix interference for these two compounds in this sample; therefore, the QLs were outside of the ranges of QLs suggested in the SAB for PFPA and PFHxA in sample Inf Comp 20230417. The results were nondetect at elevated RLs/MDLs of 5.5 ng/L and 35 ng/L for PFPA and PFHxA, respectively, in sample Inf Comp 20230417.
- The RL for TSS in sample Inf Comp 20230417 was 10x higher than the associated method blank due to a reduced volume (50 mL versus the typical 500 mL) used in the sample analysis. There is no adverse impact on the data usability due to this issue since TSS was detected above the RL in this sample. No validation action was required on this basis.
- No dilutions were performed on the samples in this data set.

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS Phase 3

Job ID: 320-99133-1

Client Sample ID: Inf Comp 20230417

Lab Sample ID: 320-99133-1

Date Collected: 04/17/23 23:59

Matrix: Water

Date Received: 04/20/23 09:35

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	10		4.8	2.3	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluoropentanoic acid (PFPA)	ND	C	5.5	5.5	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorohexanoic acid (PFHxA)	ND	C	35	35	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluoroheptanoic acid (PFHpA)	2.4		1.9	0.24	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorooctanoic acid (PFOA)	6.0		1.9	0.82	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorononanoic acid (PFNA)	0.51	J	1.9	0.26	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorodecanoic acid (PFDA)	0.61	J	1.9	0.30	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorobutanesulfonic acid (PFBS)	4.4		1.9	0.19	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.9	0.29	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorohexanesulfonic acid (PFHxS)	11		1.9	0.55	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorooctanesulfonic acid (PFOS)	6.9		1.9	0.52	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.35	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.31	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.93	ng/L		04/25/23 06:29	05/08/23 03:21	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.94	ng/L		04/25/23 06:29	05/08/23 03:21	1
NEtFOSA	ND		1.9	0.83	ng/L		04/25/23 06:29	05/08/23 03:21	1
NMeFOSA	ND		1.9	0.41	ng/L		04/25/23 06:29	05/08/23 03:21	1
NMeFOSAA	ND		4.8	1.2	ng/L		04/25/23 06:29	05/08/23 03:21	1
NEtFOSAA	ND		4.8	1.2	ng/L		04/25/23 06:29	05/08/23 03:21	1
NMeFOSE	ND		3.8	1.3	ng/L		04/25/23 06:29	05/08/23 03:21	1
NEtFOSE	ND		1.9	0.82	ng/L		04/25/23 06:29	05/08/23 03:21	1
4:2 FTS	ND		1.9	0.23	ng/L		04/25/23 06:29	05/08/23 03:21	1
6:2 FTS	ND		4.8	2.4	ng/L		04/25/23 06:29	05/08/23 03:21	1
8:2 FTS	ND		1.9	0.44	ng/L		04/25/23 06:29	05/08/23 03:21	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		04/25/23 06:29	05/08/23 03:21	1
HFPO-DA (GenX)	ND		3.8	1.4	ng/L		04/25/23 06:29	05/08/23 03:21	1
9CI-PF3ONS	ND		1.9	0.23	ng/L		04/25/23 06:29	05/08/23 03:21	1
11CI-PF3OUdS	ND		1.9	0.31	ng/L		04/25/23 06:29	05/08/23 03:21	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	54		25 - 150				04/25/23 06:29	05/08/23 03:21	1
13C5 PFPeA	62		25 - 150				04/25/23 06:29	05/08/23 03:21	1
13C2 PFHxA	59		25 - 150				04/25/23 06:29	05/08/23 03:21	1
13C4 PFHpA	64		25 - 150				04/25/23 06:29	05/08/23 03:21	1
13C4 PFOA	66		25 - 150				04/25/23 06:29	05/08/23 03:21	1
13C5 PFNA	63		25 - 150				04/25/23 06:29	05/08/23 03:21	1
13C2 PFDA	60		25 - 150				04/25/23 06:29	05/08/23 03:21	1
13C2 PFUnA	50		25 - 150				04/25/23 06:29	05/08/23 03:21	1
13C2 PFDoA	37		25 - 150				04/25/23 06:29	05/08/23 03:21	1
13C2 PFTeDA	25		25 - 150				04/25/23 06:29	05/08/23 03:21	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS Phase 3

Job ID: 320-99133-1

Client Sample ID: Inf Comp 20230417

Lab Sample ID: 320-99133-1

Date Collected: 04/17/23 23:59

Matrix: Water

Date Received: 04/20/23 09:35

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	61		25 - 150	04/25/23 06:29	05/08/23 03:21	1
18O2 PFHxS	58		25 - 150	04/25/23 06:29	05/08/23 03:21	1
13C4 PFOS	56		25 - 150	04/25/23 06:29	05/08/23 03:21	1
13C8 FOSA	56		10 - 150	04/25/23 06:29	05/08/23 03:21	1
d3-NMeFOSAA	45		25 - 150	04/25/23 06:29	05/08/23 03:21	1
d5-NEtFOSAA	52		25 - 150	04/25/23 06:29	05/08/23 03:21	1
d-N-MeFOSA-M	22		10 - 150	04/25/23 06:29	05/08/23 03:21	1
d-N-EtFOSA-M	36		10 - 150	04/25/23 06:29	05/08/23 03:21	1
d7-N-MeFOSE-M	21		10 - 150	04/25/23 06:29	05/08/23 03:21	1
d9-N-EtFOSE-M	41		10 - 150	04/25/23 06:29	05/08/23 03:21	1
M2-4:2 FTS	57		25 - 150	04/25/23 06:29	05/08/23 03:21	1
M2-6:2 FTS	91		25 - 150	04/25/23 06:29	05/08/23 03:21	1
M2-8:2 FTS	68		25 - 150	04/25/23 06:29	05/08/23 03:21	1
13C3 HFPO-DA	59		25 - 150	04/25/23 06:29	05/08/23 03:21	1
13C2 10:2 FTS	49		25 - 150	04/25/23 06:29	05/08/23 03:21	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	290		50	19	mg/L			04/24/23 11:01	1

Client Sample ID: Eff 20230418

Lab Sample ID: 320-99133-2

Date Collected: 04/18/23 23:59

Matrix: Water

Date Received: 04/20/23 09:35

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	12		4.7	2.2	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluoropentanoic acid (PFPA)	14		1.9	0.46	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluorohexanoic acid (PFHxA)	23		1.9	0.54	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluoroheptanoic acid (PFHpA)	3.9		1.9	0.23	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluorooctanoic acid (PFOA)	12		1.9	0.80	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluorononanoic acid (PFNA)	0.76	J	1.9	0.25	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluorodecanoic acid (PFDA)	1.2	J	1.9	0.29	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluorobutanesulfonic acid (PFBS)	4.6		1.9	0.19	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluoropentanesulfonic acid (PFPeS)	1.0	J	1.9	0.28	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluorohexanesulfonic acid (PFHxS)	10		1.9	0.53	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluorooctanesulfonic acid (PFOS)	5.4		1.9	0.51	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.35	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		04/25/23 06:29	05/08/23 03:31	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.91	ng/L		04/25/23 06:29	05/08/23 03:31	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS Phase 3

Job ID: 320-99133-1

Client Sample ID: Eff 20230418

Lab Sample ID: 320-99133-2

Date Collected: 04/18/23 23:59

Matrix: Water

Date Received: 04/20/23 09:35

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (FOSA)	0.94	J	1.9	0.92	ng/L		04/25/23 06:29	05/08/23 03:31	1
NEtFOSA	ND		1.9	0.81	ng/L		04/25/23 06:29	05/08/23 03:31	1
NMeFOSA	ND		1.9	0.40	ng/L		04/25/23 06:29	05/08/23 03:31	1
NMeFOSAA	1.4	J	4.7	1.1	ng/L		04/25/23 06:29	05/08/23 03:31	1
NEtFOSAA	ND		4.7	1.2	ng/L		04/25/23 06:29	05/08/23 03:31	1
NMeFOSE	ND		3.7	1.3	ng/L		04/25/23 06:29	05/08/23 03:31	1
NEtFOSE	ND		1.9	0.80	ng/L		04/25/23 06:29	05/08/23 03:31	1
4:2 FTS	ND		1.9	0.22	ng/L		04/25/23 06:29	05/08/23 03:31	1
6:2 FTS	ND		4.7	2.3	ng/L		04/25/23 06:29	05/08/23 03:31	1
8:2 FTS	ND		1.9	0.43	ng/L		04/25/23 06:29	05/08/23 03:31	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.37	ng/L		04/25/23 06:29	05/08/23 03:31	1
HFPO-DA (GenX)	ND		3.7	1.4	ng/L		04/25/23 06:29	05/08/23 03:31	1
9CI-PF3ONS	ND		1.9	0.22	ng/L		04/25/23 06:29	05/08/23 03:31	1
11CI-PF3OUdS	ND		1.9	0.30	ng/L		04/25/23 06:29	05/08/23 03:31	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	79		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C5 PFPeA	93		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C2 PFHxA	100		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C4 PFHpA	101		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C4 PFOA	98		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C5 PFNA	100		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C2 PFDA	104		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C2 PFUnA	105		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C2 PFDoA	87		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C2 PFTeDA	49		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C3 PFBS	92		25 - 150				04/25/23 06:29	05/08/23 03:31	1
18O2 PFHxS	92		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C4 PFOS	97		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C8 FOSA	118		10 - 150				04/25/23 06:29	05/08/23 03:31	1
d3-NMeFOSAA	135		25 - 150				04/25/23 06:29	05/08/23 03:31	1
d5-NEtFOSAA	144		25 - 150				04/25/23 06:29	05/08/23 03:31	1
d-N-MeFOSA-M	92		10 - 150				04/25/23 06:29	05/08/23 03:31	1
d-N-EtFOSA-M	82		10 - 150				04/25/23 06:29	05/08/23 03:31	1
d7-N-MeFOSE-M	82		10 - 150				04/25/23 06:29	05/08/23 03:31	1
d9-N-EtFOSE-M	74		10 - 150				04/25/23 06:29	05/08/23 03:31	1
M2-4:2 FTS	92		25 - 150				04/25/23 06:29	05/08/23 03:31	1
M2-6:2 FTS	92		25 - 150				04/25/23 06:29	05/08/23 03:31	1
M2-8:2 FTS	99		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C3 HFPO-DA	92		25 - 150				04/25/23 06:29	05/08/23 03:31	1
13C2 10:2 FTS	89		25 - 150				04/25/23 06:29	05/08/23 03:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	5.6		5.0	1.9	mg/L			04/24/23 10:57	1

May 2023

Data Quality and Usability Review – May 2023

Data Reviewer: Kristen Morin

Peer Reviewer: Jeff Ramey

Date: 7/17/2023

Madison Metropolitan Sewerage District (MMSD) collected influent and effluent samples at the Nine Springs wastewater treatment plant on May 15 and 16, 2023 in conjunction with an additional characterization study conducted by TRC. Samples were analyzed for the standard list of Wisconsin's 33 per- and polyfluoroalkyl substances (PFAS) by Eurofins in West Sacramento, California and total suspended solids (TSS) by Eurofins in Chicago, Illinois. The laboratory analytical results were reported in laboratory SDG 320-100432-1 (Revision 1).

Samples included in this review are listed below:

- Inf Comp 20230515
- Eff 20230516

Each sample was analyzed for the following constituents:

Analyte Group	Method
PFAS (33 Analytes)	Modified EPA Method 537 and laboratory standard operating procedure (SOP) using Isotope Dilution/WI Method Criteria
Total Suspended Solids (TSS)	Standard Method (SM) 2540D

TRC performed a limited validation of the laboratory data to assess data usability. The following sections summarize the data validation procedure and the results of the validation.

Data Usability Review Procedure

The analytical data were reviewed using the USEPA Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537 (EPA 910-R-18-001), November 2018, USEPA National Functional Guidelines for High Resolution Superfund Methods Data Review (EPA 542-R-20-007), November 2020, and Wisconsin PFAS Aqueous (Non-Potable Water) and Non-Aqueous Matrices Method Expectations, Document # EA-19-0001, WDNR, December 2019 as guidance for data review. EPA 910-R-18-001 applies to method 537 and drinking water matrices only but the guidance can be applied in part or in whole to evaluate data in non-drinking water matrices. The following items were specifically included in the evaluation of the data:

- Data completeness;
- Sample receipt, as noted in the cover page or case narrative;
- Technical holding times for analyses;
- Quantitation limits (QLs) compared to the ranges of QLs suggested in the Sampling and Analysis Blueprint (SAB) of 2-5 ng/L and 1-5 ug/kg per individual PFAS, as appropriate;
- Data for method blanks, equipment blanks, and field blanks. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Field and equipment blanks are used to assess potential contamination arising from field procedures;

- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCSs and/or LCSDs are used to assess the accuracy and precision of the analytical method using a clean matrix;
- Percent recoveries for matrix spike (MS) and matrix spike duplicate (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Percent recoveries for isotopically labeled surrogates. Percent recoveries are calculated for each surrogate and used to assess the accuracy of the extraction procedure and bias due to sample matrix effects;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;
- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and
- Overall usability of the data.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

Review Summary

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances, and issues identified in this evaluation are noted below.

- The reviewed PFAS and TSS data will be utilized for the purposes of an additional characterization.
- Data are usable for the purposes of the additional characterization.
- The issues noted in the QA/QC sample summary below have a minor impact on the data usability.

QA/QC Sample Summary

- The revised data package was found to be complete as received from the laboratory.
- The cooler temperature upon receipt at the laboratory was within the acceptance criteria (< 10°C).
 - Samples were not shipped to the laboratory until one to two days after collection. The samples were stored in coolers, on ice, at the site until delivery to the laboratory. No validation actions were required on this basis since the samples were kept in coolers, on ice, prior to delivery to the laboratory and were received at acceptable temperatures by the laboratory.

- Samples submitted for TSS analysis were received by Eurofins in Chicago, Illinois at -0.5°C. No validation actions were taken on this basis since the laboratory noted that the samples were not frozen.
- A method blank was analyzed with each analytical batch for PFAS and TSS. Target analytes were not detected in the method blanks.
- An equipment blank was not collected with this sample set.
- All samples were extracted and/or prepared and analyzed within the holding time with the following exception. Samples were analyzed for PFAS approximately 16 hours after the 30th day after extraction. There is no adverse impact on the data usability since the samples were analyzed on the 30th day after extraction. Therefore, no validation actions were taken on this basis.
- The LCS percent recoveries (%Rs) were within the acceptance criteria.
- MS analysis was performed on sample Eff 20230516 for TSS; all criteria were met. MS/MSD analyses were not performed on a sample from this sample set for PFAS.
- The isotopically labeled surrogate %Rs were within the acceptance criteria with the following exception. The %R for 13C2 PFTeDA (17%) was below the acceptance criteria (25-150%) in the PFAS analysis of sample Inf Comp 20230515; therefore, the nondetect result for PFTeA in sample Inf Comp 20230515 was qualified as estimated (UJ).
- A field duplicate pair was not collected with this sample set.
- A laboratory duplicate analysis was not performed on a sample from this sample set.
- The laboratory noted in the case narrative that during the solid phase extraction (SPE) process, samples Inf Comp 20230515 and Eff 20230516 contained non-settable particulates which clogged the SPE column. The lab also stated that approximately 63% and 84%, respectively, of the sample containers were filtered through the SPE column at which point the SPE column became clogged. The remainder of the unfiltered samples were retained in the original sample bottles. The SPE column along with the particulates that clogged it were then extracted using the elution solvent. The laboratory confirmed during previous rounds of review that samples are spiked with EIS prior to filtration through the SPE column; thus, no validation actions were taken on this basis.
- Sample QLs were within the ranges of QLs suggested in the SAB of 2-5 ng/L per individual PFAS.
- The reporting limit (RL) for TSS in sample Inf Comp 20230515 was 7.6x higher than the associated method blank due to a reduced volume (65 mL versus the typical 500 mL) used in the sample analysis. There is no adverse impact on the data usability due to this issue since TSS was detected above the RL in this sample. No validation action was required on this basis.
- No dilutions were performed on the samples in this data set.
- The laboratory noted select continuing calibration verification (CCV) issues for PFAS in the case narrative; these issues were not summarized in this report or used to qualify sample results since the evaluation of CCV results are beyond the scope of this review.

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS Phase 3

Job ID: 320-100432-1

Client Sample ID: Inf Comp 20230515

Lab Sample ID: 320-100432-1

Date Collected: 05/15/23 23:59

Matrix: Water

Date Received: 05/18/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	6.8		4.7	2.3	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluoropentanoic acid (PFPA)	5.3		1.9	0.46	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorohexanoic acid (PFHxA)	7.6		1.9	0.55	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluoroheptanoic acid (PFHpA)	1.7	J	1.9	0.24	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorooctanoic acid (PFOA)	4.5		1.9	0.80	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorononanoic acid (PFNA)	0.50	J	1.9	0.25	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorodecanoic acid (PFDA)	0.38	J	1.9	0.29	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorotetradecanoic acid (PFTeA)	ND	UJ	1.9	0.69	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorobutanesulfonic acid (PFBS)	2.9		1.9	0.19	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluoropentanesulfonic acid (PFPeS)	0.39	J	1.9	0.28	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorohexanesulfonic acid (PFHxS)	7.6		1.9	0.54	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorooctanesulfonic acid (PFOS)	5.0		1.9	0.51	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.35	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.91	ng/L		05/23/23 05:12	06/22/23 21:01	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.92	ng/L		05/23/23 05:12	06/22/23 21:01	1
NEtFOSA	ND		1.9	0.82	ng/L		05/23/23 05:12	06/22/23 21:01	1
NMeFOSA	ND		1.9	0.40	ng/L		05/23/23 05:12	06/22/23 21:01	1
NMeFOSAA	ND		4.7	1.1	ng/L		05/23/23 05:12	06/22/23 21:01	1
NEtFOSAA	ND		4.7	1.2	ng/L		05/23/23 05:12	06/22/23 21:01	1
NMeFOSE	1.5	J	3.8	1.3	ng/L		05/23/23 05:12	06/22/23 21:01	1
NEtFOSE	ND		1.9	0.80	ng/L		05/23/23 05:12	06/22/23 21:01	1
4:2 FTS	ND		1.9	0.23	ng/L		05/23/23 05:12	06/22/23 21:01	1
6:2 FTS	ND		4.7	2.4	ng/L		05/23/23 05:12	06/22/23 21:01	1
8:2 FTS	ND		1.9	0.43	ng/L		05/23/23 05:12	06/22/23 21:01	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		05/23/23 05:12	06/22/23 21:01	1
HFPO-DA (GenX)	ND		3.8	1.4	ng/L		05/23/23 05:12	06/22/23 21:01	1
9CI-PF3ONS	ND		1.9	0.23	ng/L		05/23/23 05:12	06/22/23 21:01	1
11CI-PF3OUdS	ND		1.9	0.30	ng/L		05/23/23 05:12	06/22/23 21:01	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	52		25 - 150				05/23/23 05:12	06/22/23 21:01	1
13C5 PFPeA	66		25 - 150				05/23/23 05:12	06/22/23 21:01	1
13C2 PFHxA	53		25 - 150				05/23/23 05:12	06/22/23 21:01	1
13C4 PFHpA	68		25 - 150				05/23/23 05:12	06/22/23 21:01	1
13C4 PFOA	70		25 - 150				05/23/23 05:12	06/22/23 21:01	1
13C5 PFNA	68		25 - 150				05/23/23 05:12	06/22/23 21:01	1
13C2 PFDA	65		25 - 150				05/23/23 05:12	06/22/23 21:01	1
13C2 PFUnA	51		25 - 150				05/23/23 05:12	06/22/23 21:01	1
13C2 PFDoA	37		25 - 150				05/23/23 05:12	06/22/23 21:01	1
13C2 PFTeDA	17	*5-	25 - 150				05/23/23 05:12	06/22/23 21:01	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS Phase 3

Job ID: 320-100432-1

Client Sample ID: Inf Comp 20230515

Lab Sample ID: 320-100432-1

Date Collected: 05/15/23 23:59

Matrix: Water

Date Received: 05/18/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	57		25 - 150	05/23/23 05:12	06/22/23 21:01	1
18O2 PFHxS	58		25 - 150	05/23/23 05:12	06/22/23 21:01	1
13C4 PFOS	54		25 - 150	05/23/23 05:12	06/22/23 21:01	1
13C8 FOSA	52		10 - 150	05/23/23 05:12	06/22/23 21:01	1
d3-NMeFOSAA	37		25 - 150	05/23/23 05:12	06/22/23 21:01	1
d5-NEtFOSAA	41		25 - 150	05/23/23 05:12	06/22/23 21:01	1
d-N-MeFOSA-M	22		10 - 150	05/23/23 05:12	06/22/23 21:01	1
d-N-EtFOSA-M	35		10 - 150	05/23/23 05:12	06/22/23 21:01	1
d7-N-MeFOSE-M	27		10 - 150	05/23/23 05:12	06/22/23 21:01	1
d9-N-EtFOSE-M	37		10 - 150	05/23/23 05:12	06/22/23 21:01	1
M2-4:2 FTS	68		25 - 150	05/23/23 05:12	06/22/23 21:01	1
M2-6:2 FTS	143		25 - 150	05/23/23 05:12	06/22/23 21:01	1
M2-8:2 FTS	99		25 - 150	05/23/23 05:12	06/22/23 21:01	1
13C3 HFPO-DA	53		25 - 150	05/23/23 05:12	06/22/23 21:01	1
13C2 10:2 FTS	48		25 - 150	05/23/23 05:12	06/22/23 21:01	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	220		38	15	mg/L			05/22/23 16:45	1

Client Sample ID: Eff 20230516

Lab Sample ID: 320-100432-2

Date Collected: 05/16/23 23:59

Matrix: Water

Date Received: 05/18/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	13		4.8	2.3	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluoropentanoic acid (PFPA)	13		1.9	0.47	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluorohexanoic acid (PFHxA)	18		1.9	0.56	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluoroheptanoic acid (PFHpA)	2.6		1.9	0.24	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluorooctanoic acid (PFOA)	11		1.9	0.81	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluorononanoic acid (PFNA)	1.3	J	1.9	0.26	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluorodecanoic acid (PFDA)	1.3	J	1.9	0.30	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluorobutanesulfonic acid (PFBS)	2.9		1.9	0.19	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluoropentanesulfonic acid (PFPeS)	0.72	J	1.9	0.29	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluorohexanesulfonic acid (PFHxS)	8.9		1.9	0.55	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluorooctanesulfonic acid (PFOS)	5.6		1.9	0.52	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.35	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.31	ng/L		05/23/23 05:12	06/22/23 21:12	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.93	ng/L		05/23/23 05:12	06/22/23 21:12	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD PFAS Phase 3

Job ID: 320-100432-1

Client Sample ID: Eff 20230516

Lab Sample ID: 320-100432-2

Date Collected: 05/16/23 23:59

Matrix: Water

Date Received: 05/18/23 09:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.94	ng/L		05/23/23 05:12	06/22/23 21:12	1
NEtFOSA	ND		1.9	0.83	ng/L		05/23/23 05:12	06/22/23 21:12	1
NMeFOSA	ND		1.9	0.41	ng/L		05/23/23 05:12	06/22/23 21:12	1
NMeFOSAA	ND		4.8	1.1	ng/L		05/23/23 05:12	06/22/23 21:12	1
NEtFOSAA	ND		4.8	1.2	ng/L		05/23/23 05:12	06/22/23 21:12	1
NMeFOSE	ND		3.8	1.3	ng/L		05/23/23 05:12	06/22/23 21:12	1
NEtFOSE	ND		1.9	0.81	ng/L		05/23/23 05:12	06/22/23 21:12	1
4:2 FTS	ND		1.9	0.23	ng/L		05/23/23 05:12	06/22/23 21:12	1
6:2 FTS	ND		4.8	2.4	ng/L		05/23/23 05:12	06/22/23 21:12	1
8:2 FTS	ND		1.9	0.44	ng/L		05/23/23 05:12	06/22/23 21:12	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		05/23/23 05:12	06/22/23 21:12	1
HFPO-DA (GenX)	ND		3.8	1.4	ng/L		05/23/23 05:12	06/22/23 21:12	1
9Cl-PF3ONS	ND		1.9	0.23	ng/L		05/23/23 05:12	06/22/23 21:12	1
11Cl-PF3OUdS	ND		1.9	0.31	ng/L		05/23/23 05:12	06/22/23 21:12	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFBA	70		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C5 PFPeA	83		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C2 PFHxA	87		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C4 PFHpA	88		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C4 PFOA	91		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C5 PFNA	91		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C2 PFDA	89		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C2 PFUnA	82		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C2 PFDoA	61		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C2 PFTeDA	45		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C3 PFBS	83		25 - 150				05/23/23 05:12	06/22/23 21:12	1
18O2 PFHxS	83		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C4 PFOS	76		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C8 FOSA	83		10 - 150				05/23/23 05:12	06/22/23 21:12	1
d3-NMeFOSAA	69		25 - 150				05/23/23 05:12	06/22/23 21:12	1
d5-NEtFOSAA	81		25 - 150				05/23/23 05:12	06/22/23 21:12	1
d-N-MeFOSA-M	57		10 - 150				05/23/23 05:12	06/22/23 21:12	1
d-N-EtFOSA-M	49		10 - 150				05/23/23 05:12	06/22/23 21:12	1
d7-N-MeFOSE-M	45		10 - 150				05/23/23 05:12	06/22/23 21:12	1
d9-N-EtFOSE-M	39		10 - 150				05/23/23 05:12	06/22/23 21:12	1
M2-4:2 FTS	120		25 - 150				05/23/23 05:12	06/22/23 21:12	1
M2-6:2 FTS	122		25 - 150				05/23/23 05:12	06/22/23 21:12	1
M2-8:2 FTS	110		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C3 HFPO-DA	71		25 - 150				05/23/23 05:12	06/22/23 21:12	1
13C2 10:2 FTS	79		25 - 150				05/23/23 05:12	06/22/23 21:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	2.6	J	5.0	1.9	mg/L			05/22/23 16:48	1

Eurofins Sacramento

June 2023

Data Quality and Usability Review – June 2023

Data Reviewer: Kristen Morin

Peer Reviewer: Jeff Ramey

Date: 8/7/2023 (Updated 3/8/2024)

Madison Metropolitan Sewerage District (MMSD) collected influent and effluent samples at the Nine Springs wastewater treatment plant on June 19, 20, and 21, 2023 in conjunction with an additional characterization study conducted by TRC. Samples were analyzed for the standard list of Wisconsin's 33 per- and polyfluoroalkyl substances (PFAS) by Eurofins in West Sacramento, California and total suspended solids (TSS) by Eurofins in Chicago, Illinois. The laboratory analytical results were reported in laboratory SDGs 320-101909-1 (TSS) and 320-101930-2 (PFAS).

Samples included in this review are listed below:

- BioA20230621*
- Inf0220230619
- Inf0820230619
- Inf1820230619
- Eff20230620
- BioB20230621
- Inf0720230619
- Inf1120230619
- Inf Comp 20230619
- EB0120230621

* Refer to note about the identification (ID) of this sample below.

Each sample was analyzed for one or more of the following constituents:

Analyte Group	Method
PFAS (33 Analytes)	Modified EPA Method 537 and laboratory standard operating procedure (SOP) using Isotope Dilution/WI Method Criteria
Total Suspended Solids (TSS)	Standard Method (SM) 2540D

TRC performed a limited validation of the laboratory data to assess data usability. The following sections summarize the data validation procedure and the results of the validation.

Data Usability Review Procedure

The analytical data were reviewed using the USEPA Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537 (EPA 910-R-18-001), November 2018, USEPA National Functional Guidelines for High Resolution Superfund Methods Data Review (EPA 542-R-20-007), November 2020, and Wisconsin PFAS Aqueous (Non-Potable Water) and Non-Aqueous Matrices Method Expectations, Document # EA-19-0001, WDNR, December 2019 as guidance for data review. EPA 910-R-18-001 applies to method 537 and drinking water matrices only but the guidance can be applied in part or in whole to evaluate data in non-drinking water matrices. The following items were specifically included in the evaluation of the data:

- Data completeness;

- Sample receipt, as noted in the cover page or case narrative;
- Technical holding times for analyses;
- Quantitation limits (QLs) compared to the ranges of QLs suggested in the Sampling and Analysis Blueprint (SAB) of 2-5 ng/L and 1-5 ug/kg per individual PFAS, as appropriate;
- Data for method blanks, equipment blanks, and field blanks. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Field and equipment blanks are used to assess potential contamination arising from field procedures;
- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCSs and/or LCSDs are used to assess the accuracy and precision of the analytical method using a clean matrix;
- Percent recoveries for matrix spike (MS) and matrix spike duplicate (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Percent recoveries for isotopically labeled surrogates. Percent recoveries are calculated for each surrogate and used to assess the accuracy of the extraction procedure and bias due to sample matrix effects;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;
- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and
- Overall usability of the data.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

Review Summary

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances, and issues identified in this evaluation are noted below.

- The reviewed PFAS and TSS data will be utilized for the purposes of an additional characterization.
- Data are usable for the purposes of the additional characterization.
- The issues noted in the QA/QC sample summary below have a minor impact on the data usability.

QA/QC Sample Summary

- The data packages were found to be complete as received from the laboratory.
- In SDG 320-101930-2, the laboratory misidentified the sample ID listed on the chain-of-custody (COC) as BioA~~22~~ 20230621 as “BioA20230621” (i.e., the laboratory did not include the additional “22” in the sample ID). As a result, the sample location code was modified accordingly in the database and project dashboard to properly identify this sample as BioA22 20230621. However, the laboratory was not contacted to update this sample ID in a revised laboratory report; thus, the sample ID logged in by the laboratory for this sample, BioA20230621, is used throughout this review.
- The cooler temperatures upon receipt at the laboratories were within the acceptance criteria (< 10°C) except as noted below.
 - Samples were not shipped to the laboratory until two to four days after collection. The samples were stored in coolers, on ice, at the site until delivery to the laboratory. No validation actions were required on this basis since the samples were kept in coolers, on ice, prior to delivery to the laboratory and were received at acceptable temperatures by the laboratory.
 - Samples submitted for PFAS analysis were received by Eurofins in West Sacramento, California at 15.2°C with melted ice. As a result of this cooler temperature exceedance, the total oxidizable precursor (TOP) analysis was cancelled. Based on professional judgement, the PFAS results were qualified as follows based on the elevated cooler temperature:
 - Positive results for PFBA, PFPA, PFHxA, PFHpA, PFOA, PFNA, PFDA, PFUnA, PFDoA, PFTrDA, and PFTeA in all samples in this data set, where detected, were qualified as estimated (J+) with a potential high bias due to potential transformation of polyfluoroalkyl precursors which may be present in the samples. Note that select positive results were also qualified as estimated (J) by the laboratory due to detection < the QL; thus, the overall qualification was J for those results. No qualification was required on this basis for nondetect results for these PFAS compounds.
 - Positive and nondetect results for polyfluoroalkyl precursors (4:2 FTS, 6:2 FTS, 8:2 FTS, PFOSA, NMeFOSA, NEtFOSA, NMeFOSAA, NEtFOSAA, NMeFOSE, NEtFOSE, ADONA, 9Cl-PF3ONS, and 11Cl-PF3OUdS) were qualified as estimated (J-/UJ) with a potential low bias. Note that select positive results were also qualified as estimated (J) by the laboratory due to detection < the QL; thus, the overall qualification was J for those results.
 - Samples were not analyzed for total oxidizable precursor assay due to the temperature exceedance.
- A method blank was analyzed with each analytical batch for PFAS and TSS. Target analytes were not detected in the method blanks.
- One equipment blank (EB0120230621) was collected and analyzed for total PFAS; no target PFAS were detected in the equipment blank.

- All samples were extracted and/or prepared and analyzed within the holding time with the following exception. Sample BioA20230621 was prepared for PFAS approximately 11.5 hours after the 28th day after collection. There is no adverse impact on the data usability since the samples were prepared on the 28th day after collection. Therefore, no validation actions were taken on this basis.
- The LCS and LCSD percent recoveries (%Rs) and relative percent differences (RPDs), as applicable, were within the acceptance criteria.
- MS/MSD analyses were not performed on a sample from this sample set.
- The following table summarizes the remaining isotopically labeled surrogate %Rs that were outside of the laboratory's acceptance limits, the associated samples, and the validation actions.

Sample ID	Surrogate	%R	%R Acceptance Limits	Action*
Inf0220230619	13C2 PFTeDA	20	25-150	The nondetect results for PFTeA were qualified as estimated (UJ) in samples Inf0220230619, Inf0720230619, Inf0820230619, Inf1820230619, and Inf Comp 20230619.
Inf0720230619		16		
Inf0820230619		11		
Inf1820230619		15		
Inf Comp 20230619		18		
Inf1120230619	13C2 PFDoA	24	25-150	The nondetect results for PFDoA, PFTrDA, PFTeA, and N-MeFOSAA were qualified as estimated (UJ) in sample Inf1120230619.
	13C2 PFTeDA	13		
	d3-NMeFOSAA	23		

- A field duplicate pair was not collected with this sample set.
- A laboratory duplicate analysis was not performed on a sample from this sample set.
- The laboratory noted the following PFAS observations in the case narrative. No validation actions were taken on this basis.
 - During the solid phase extraction process, the following samples contained non-settable particulates which clogged the solid phase extraction (SPE) column: Inf0220230619, Inf0720230619, Inf0820230619, Inf1120230619, Inf820230619, and Inf Comp 20230619. The lab also stated that approximately 84%, 75%, 67%, 65%, 73%, and 73%, respectively, of the sample containers were filtered through the SPE column at which point the SPE column became clogged. The remainder of the unfiltered samples were retained in the original sample bottles. The SPE column along with the particulates that clogged it were then extracted using the elution solvent. The laboratory confirmed during this review that the samples were spiked with EIS prior to filtration through the SPE column; thus, no validation actions were taken on this basis.
 - Samples Inf0220230619, Inf0720230619, Inf0820230619, Inf1120230619, Inf1820230619, Eff20230620, and Inf Comp 20230619 were yellow in color prior to and following extraction.
 - Sample BioA20230621 was yellow in color following extraction.
 - Due to the matrix, the initial volume used for sample BioA20230621 (approximately 1 gram) deviated from the standard procedure (approximately 5 grams).
- Sample QLs were at or below the ranges of QLs suggested in the SAB of 2-5 ng/L and 1-5 ug/kg per individual PFAS.

- The reporting limits (RLs) for TSS in all influent samples were 8.4-12.6x higher than the associated method blank due to a reduced volume (between 40-60 mL versus the typical 500 mL) used in the sample analysis. There is no adverse impact on the data usability due to this issue since TSS was detected above the RL in the influent samples. No validation action was required on this basis.
 - No dilutions were performed on the samples in this data set.
 - The results for the following PFAS in the samples listed below were flagged with an “I” by the laboratory indicating that the ion transition ratio did not meet the acceptance limits; thus, the positive results for the PFAS in the samples listed below were qualified as estimated (J).
 - PFNA*, PFBS*, PFHxS, and PFOS in sample Inf0220230619;
 - PFHxS in sample Inf0820230619;
 - PFDA*, PFHxS, and ADONA* in sample Inf1120230619;
 - PFPeS* in sample Eff20230620;
 - PFNA in sample Inf Comp 20230619; and
 - PFDS in sample BioB20230621.
- * These results were also qualified as estimated (J) by the laboratory due to detection < the QL.
- The percent moisture for the biosolids samples was high (>70% moisture). The laboratory was contacted during previous validation reviews regarding this issue and previously stated that the biosolids samples are agitated and then immediately aliquoted for extraction after agitation, indicating that a representative sample was extracted for PFAS analysis. No validation actions were taken on this basis.

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: Inf0220230619

Lab Sample ID: 320-101930-1

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	3.8	J-- J	4.4	2.1	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluoropentanoic acid (PFPA)	3.6	J+	1.8	0.43	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorohexanoic acid (PFHxA)	23	J+	1.8	0.51	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluoroheptanoic acid (PFHpA)	1.1	J- J	1.8	0.22	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorooctanoic acid (PFOA)	3.0	J+	1.8	0.75	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorononanoic acid (PFNA)	0.40	J+- J	1.8	0.24	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorodecanoic acid (PFDA)	0.45	J--- J	1.8	0.27	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.97	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.48	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.1	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorotetradecanoic acid (PFTeA)	ND	UU	1.8	0.64	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorobutanesulfonic acid (PFBS)	1.2	J+- J	1.8	0.18	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.8	0.26	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorohexanesulfonic acid (PFHxS)	4.0	+-- J	1.8	0.50	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorooctanesulfonic acid (PFOS)	5.0	1--- J	1.8	0.48	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.33	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.28	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.85	ng/L		07/06/23 18:44	07/14/23 00:25	1
Perfluorooctanesulfonamide (FOSA)	ND	UU	1.8	0.86	ng/L		07/06/23 18:44	07/14/23 00:25	1
NEtFOSA	ND	UU	1.8	0.77	ng/L		07/06/23 18:44	07/14/23 00:25	1
NMeFOSA	ND	UU	1.8	0.38	ng/L		07/06/23 18:44	07/14/23 00:25	1
NMeFOSAA	ND	UU	4.4	1.1	ng/L		07/06/23 18:44	07/14/23 00:25	1
NEtFOSAA	ND	UU	4.4	1.1	ng/L		07/06/23 18:44	07/14/23 00:25	1
NMeFOSE	ND	UU	3.5	1.2	ng/L		07/06/23 18:44	07/14/23 00:25	1
NEtFOSE	ND	UU	1.8	0.75	ng/L		07/06/23 18:44	07/14/23 00:25	1
4:2 FTS	ND	UU	1.8	0.21	ng/L		07/06/23 18:44	07/14/23 00:25	1
6:2 FTS	ND	UU	4.4	2.2	ng/L		07/06/23 18:44	07/14/23 00:25	1
8:2 FTS	ND	UU	1.8	0.40	ng/L		07/06/23 18:44	07/14/23 00:25	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	UU	1.8	0.35	ng/L		07/06/23 18:44	07/14/23 00:25	1
HFPO-DA (GenX)	ND		3.5	1.3	ng/L		07/06/23 18:44	07/14/23 00:25	1
9CI-PF3ONS	ND	UU	1.8	0.21	ng/L		07/06/23 18:44	07/14/23 00:25	1
11CI-PF3OUdS	ND	UU	1.8	0.28	ng/L		07/06/23 18:44	07/14/23 00:25	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	48		25 - 150				07/06/23 18:44	07/14/23 00:25	1
13C5 PFPeA	60		25 - 150				07/06/23 18:44	07/14/23 00:25	1
13C2 PFHxA	57		25 - 150				07/06/23 18:44	07/14/23 00:25	1
13C4 PFHpA	71		25 - 150				07/06/23 18:44	07/14/23 00:25	1
13C4 PFOA	69		25 - 150				07/06/23 18:44	07/14/23 00:25	1
13C5 PFNA	73		25 - 150				07/06/23 18:44	07/14/23 00:25	1
13C2 PFDA	75		25 - 150				07/06/23 18:44	07/14/23 00:25	1
13C2 PFUnA	56		25 - 150				07/06/23 18:44	07/14/23 00:25	1
13C2 PFDoA	35		25 - 150				07/06/23 18:44	07/14/23 00:25	1
13C2 PFTeDA	20	*5-	25 - 150				07/06/23 18:44	07/14/23 00:25	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: Inf0220230619

Lab Sample ID: 320-101930-1

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	63		25 - 150	07/06/23 18:44	07/14/23 00:25	1
18O2 PFHxS	66		25 - 150	07/06/23 18:44	07/14/23 00:25	1
13C4 PFOS	62		25 - 150	07/06/23 18:44	07/14/23 00:25	1
13C8 FOSA	56		10 - 150	07/06/23 18:44	07/14/23 00:25	1
d3-NMeFOSAA	36		25 - 150	07/06/23 18:44	07/14/23 00:25	1
d5-NEtFOSAA	44		25 - 150	07/06/23 18:44	07/14/23 00:25	1
d-N-MeFOSA-M	16		10 - 150	07/06/23 18:44	07/14/23 00:25	1
d-N-EtFOSA-M	32		10 - 150	07/06/23 18:44	07/14/23 00:25	1
d7-N-MeFOSE-M	19		10 - 150	07/06/23 18:44	07/14/23 00:25	1
d9-N-EtFOSE-M	38		10 - 150	07/06/23 18:44	07/14/23 00:25	1
M2-4:2 FTS	71		25 - 150	07/06/23 18:44	07/14/23 00:25	1
M2-6:2 FTS	138		25 - 150	07/06/23 18:44	07/14/23 00:25	1
M2-8:2 FTS	114		25 - 150	07/06/23 18:44	07/14/23 00:25	1
13C3 HFPO-DA	60		25 - 150	07/06/23 18:44	07/14/23 00:25	1
13C2 10:2 FTS	45		25 - 150	07/06/23 18:44	07/14/23 00:25	1

Client Sample ID: Inf0720230619

Lab Sample ID: 320-101930-2

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	10	J+	4.3	2.1	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluoropentanoic acid (PFPA)	5.3	J+	1.7	0.42	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorohexanoic acid (PFHxA)	10	J+	1.7	0.50	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluoroheptanoic acid (PFHpA)	1.8	J+	1.7	0.22	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorooctanoic acid (PFOA)	6.7	J+	1.7	0.73	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorononanoic acid (PFNA)	0.48	J-- J	1.7	0.23	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorodecanoic acid (PFDA)	0.41	J-- J	1.7	0.27	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.95	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.47	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.7	1.1	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorotetradecanoic acid (PFTeA)	ND	UJ	1.7	0.63	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorobutanesulfonic acid (PFBS)	5.3		1.7	0.17	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluoropentanesulfonic acid (PFPeS)	0.81	J	1.7	0.26	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorohexanesulfonic acid (PFHxS)	12		1.7	0.49	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluoroheptanesulfonic acid (PFHpS)	0.19	J	1.7	0.16	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorooctanesulfonic acid (PFOS)	5.7		1.7	0.47	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.32	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.28	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.84	ng/L		07/06/23 18:44	07/14/23 00:36	1
Perfluorooctanesulfonamide (FOSA)	ND	UJ	1.7	0.84	ng/L		07/06/23 18:44	07/14/23 00:36	1
NEtFOSA	ND	UJ	1.7	0.75	ng/L		07/06/23 18:44	07/14/23 00:36	1
NMeFOSA	ND	UJ	1.7	0.37	ng/L		07/06/23 18:44	07/14/23 00:36	1
NMeFOSAA	ND	UJ	4.3	1.0	ng/L		07/06/23 18:44	07/14/23 00:36	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: Inf0720230619

Lab Sample ID: 320-101930-2

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	ND	UJ	4.3	1.1	ng/L		07/06/23 18:44	07/14/23 00:36	1
NMeFOSE	ND	UJ	3.4	1.2	ng/L		07/06/23 18:44	07/14/23 00:36	1
NEtFOSE	ND	UJ	1.7	0.73	ng/L		07/06/23 18:44	07/14/23 00:36	1
4:2 FTS	ND	UJ	1.7	0.21	ng/L		07/06/23 18:44	07/14/23 00:36	1
6:2 FTS	ND	UJ	4.3	2.2	ng/L		07/06/23 18:44	07/14/23 00:36	1
8:2 FTS	ND	UJ	1.7	0.40	ng/L		07/06/23 18:44	07/14/23 00:36	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	UJ	1.7	0.34	ng/L		07/06/23 18:44	07/14/23 00:36	1
HFPO-DA (GenX)	ND		3.4	1.3	ng/L		07/06/23 18:44	07/14/23 00:36	1
9CI-PF3ONS	ND	UJ	1.7	0.21	ng/L		07/06/23 18:44	07/14/23 00:36	1
11CI-PF3OUdS	ND	UJ	1.7	0.28	ng/L		07/06/23 18:44	07/14/23 00:36	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	57		25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C5 PFPeA	67		25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C2 PFHxA	58		25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C4 PFHpA	73		25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C4 PFOA	72		25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C5 PFNA	74		25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C2 PFDA	73		25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C2 PFUnA	55		25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C2 PFDoA	30		25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C2 PFTeDA	16	*5-	25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C3 PFBS	64		25 - 150				07/06/23 18:44	07/14/23 00:36	1
18O2 PFHxS	67		25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C4 PFOS	63		25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C8 FOSA	52		10 - 150				07/06/23 18:44	07/14/23 00:36	1
d3-NMeFOSAA	31		25 - 150				07/06/23 18:44	07/14/23 00:36	1
d5-NEtFOSAA	45		25 - 150				07/06/23 18:44	07/14/23 00:36	1
d-N-MeFOSA-M	15		10 - 150				07/06/23 18:44	07/14/23 00:36	1
d-N-EtFOSA-M	32		10 - 150				07/06/23 18:44	07/14/23 00:36	1
d7-N-MeFOSE-M	17		10 - 150				07/06/23 18:44	07/14/23 00:36	1
d9-N-EtFOSE-M	37		10 - 150				07/06/23 18:44	07/14/23 00:36	1
M2-4:2 FTS	72		25 - 150				07/06/23 18:44	07/14/23 00:36	1
M2-6:2 FTS	139		25 - 150				07/06/23 18:44	07/14/23 00:36	1
M2-8:2 FTS	106		25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C3 HFPO-DA	61		25 - 150				07/06/23 18:44	07/14/23 00:36	1
13C2 10:2 FTS	43		25 - 150				07/06/23 18:44	07/14/23 00:36	1

Client Sample ID: Inf0820230619

Lab Sample ID: 320-101930-3

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	7.3	J+	4.7	2.3	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluoropentanoic acid (PFPA)	3.0	J+	1.9	0.46	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluorohexanoic acid (PFHxA)	5.4	J+	1.9	0.54	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluoroheptanoic acid (PFHpA)	1.0	J- J	1.9	0.23	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluorooctanoic acid (PFOA)	1.9	J+	1.9	0.80	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluorononanoic acid (PFNA)	0.27	J-- J	1.9	0.25	ng/L		07/06/23 18:44	07/14/23 00:48	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: Inf0820230619

Lab Sample ID: 320-101930-3

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanoic acid (PFDA)	0.46	J-- J	1.9	0.29	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluorotetradecanoic acid (PFTeA)	ND	UJ	1.9	0.68	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluorobutanesulfonic acid (PFBS)	1.3	J	1.9	0.19	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.9	0.28	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluorohexanesulfonic acid (PFHxS)	3.0	+-- J	1.9	0.53	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.51	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.35	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.91	ng/L		07/06/23 18:44	07/14/23 00:48	1
Perfluorooctanesulfonamide (FOSA)	ND	UJ	1.9	0.92	ng/L		07/06/23 18:44	07/14/23 00:48	1
NEtFOSA	ND	UJ	1.9	0.82	ng/L		07/06/23 18:44	07/14/23 00:48	1
NMeFOSA	ND	UJ	1.9	0.40	ng/L		07/06/23 18:44	07/14/23 00:48	1
NMeFOSAA	ND	UJ	4.7	1.1	ng/L		07/06/23 18:44	07/14/23 00:48	1
NEtFOSAA	ND	UJ	4.7	1.2	ng/L		07/06/23 18:44	07/14/23 00:48	1
NMeFOSE	ND	UJ	3.8	1.3	ng/L		07/06/23 18:44	07/14/23 00:48	1
NEtFOSE	ND	UJ	1.9	0.80	ng/L		07/06/23 18:44	07/14/23 00:48	1
4:2 FTS	ND	UJ	1.9	0.23	ng/L		07/06/23 18:44	07/14/23 00:48	1
6:2 FTS	ND	UJ	4.7	2.3	ng/L		07/06/23 18:44	07/14/23 00:48	1
8:2 FTS	ND	UJ	1.9	0.43	ng/L		07/06/23 18:44	07/14/23 00:48	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	UJ	1.9	0.38	ng/L		07/06/23 18:44	07/14/23 00:48	1
HFPO-DA (GenX)	ND		3.8	1.4	ng/L		07/06/23 18:44	07/14/23 00:48	1
9Cl-PF3ONS	ND	UJ	1.9	0.23	ng/L		07/06/23 18:44	07/14/23 00:48	1
11Cl-PF3OUdS	ND	UJ	1.9	0.30	ng/L		07/06/23 18:44	07/14/23 00:48	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	39		25 - 150				07/06/23 18:44	07/14/23 00:48	1
13C5 PFPeA	39		25 - 150				07/06/23 18:44	07/14/23 00:48	1
13C2 PFHxA	44		25 - 150				07/06/23 18:44	07/14/23 00:48	1
13C4 PFHpA	50		25 - 150				07/06/23 18:44	07/14/23 00:48	1
13C4 PFOA	57		25 - 150				07/06/23 18:44	07/14/23 00:48	1
13C5 PFNA	54		25 - 150				07/06/23 18:44	07/14/23 00:48	1
13C2 PFDA	54		25 - 150				07/06/23 18:44	07/14/23 00:48	1
13C2 PFUnA	46		25 - 150				07/06/23 18:44	07/14/23 00:48	1
13C2 PFDoA	27		25 - 150				07/06/23 18:44	07/14/23 00:48	1
13C2 PFTeDA	11	*5-	25 - 150				07/06/23 18:44	07/14/23 00:48	1
13C3 PFBS	46		25 - 150				07/06/23 18:44	07/14/23 00:48	1
18O2 PFHxS	52		25 - 150				07/06/23 18:44	07/14/23 00:48	1
13C4 PFOS	47		25 - 150				07/06/23 18:44	07/14/23 00:48	1
13C8 FOSA	43		10 - 150				07/06/23 18:44	07/14/23 00:48	1
d3-NMeFOSAA	27		25 - 150				07/06/23 18:44	07/14/23 00:48	1
d5-NEtFOSAA	36		25 - 150				07/06/23 18:44	07/14/23 00:48	1
d-N-MeFOSA-M	13		10 - 150				07/06/23 18:44	07/14/23 00:48	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: Inf0820230619

Lab Sample ID: 320-101930-3

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d-N-EtFOSA-M	24		10 - 150	07/06/23 18:44	07/14/23 00:48	1
d7-N-MeFOSE-M	18		10 - 150	07/06/23 18:44	07/14/23 00:48	1
d9-N-EtFOSE-M	28		10 - 150	07/06/23 18:44	07/14/23 00:48	1
M2-4:2 FTS	57		25 - 150	07/06/23 18:44	07/14/23 00:48	1
M2-6:2 FTS	107		25 - 150	07/06/23 18:44	07/14/23 00:48	1
M2-8:2 FTS	78		25 - 150	07/06/23 18:44	07/14/23 00:48	1
13C3 HFPO-DA	41		25 - 150	07/06/23 18:44	07/14/23 00:48	1
13C2 10:2 FTS	41		25 - 150	07/06/23 18:44	07/14/23 00:48	1

Client Sample ID: Inf1120230619

Lab Sample ID: 320-101930-4

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	2.8	J-- J	4.4	2.1	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluoropentanoic acid (PFPA)	0.59	J-- J	1.7	0.43	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorohexanoic acid (PFHxA)	4.5	J+	1.7	0.51	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluoroheptanoic acid (PFHpA)	0.63	J-- J	1.7	0.22	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorooctanoic acid (PFOA)	1.7	J+	1.7	0.74	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.24	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorodecanoic acid (PFDA)	0.35	J+- J	1.7	0.27	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.96	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorododecanoic acid (PFDoA)	-ND--	UJ	1.7	0.48	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorotridecanoic acid (PFTrDA)	-ND--	UJ	1.7	1.1	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorotetradecanoic acid (PFTeA)	-ND--	UJ	1.7	0.64	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorobutanesulfonic acid (PFBS)	0.83	J	1.7	0.17	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.7	0.26	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorohexanesulfonic acid (PFHxS)	2.5	+- J	1.7	0.50	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.7	0.17	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	0.47	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.32	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.28	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.85	ng/L		07/06/23 18:44	07/14/23 00:59	1
Perfluorooctanesulfonamide (FOSA)	-ND	UJ	1.7	0.85	ng/L		07/06/23 18:44	07/14/23 00:59	1
NEtFOSA	-ND	UJ	1.7	0.76	ng/L		07/06/23 18:44	07/14/23 00:59	1
NMeFOSA	-ND	UJ	1.7	0.37	ng/L		07/06/23 18:44	07/14/23 00:59	1
NMeFOSAA	-ND	UJ	4.4	1.0	ng/L		07/06/23 18:44	07/14/23 00:59	1
NEtFOSAA	-ND	UJ	4.4	1.1	ng/L		07/06/23 18:44	07/14/23 00:59	1
NMeFOSE	-ND	UJ	3.5	1.2	ng/L		07/06/23 18:44	07/14/23 00:59	1
NEtFOSE	-ND	UJ	1.7	0.74	ng/L		07/06/23 18:44	07/14/23 00:59	1
4:2 FTS	-ND	UJ	1.7	0.21	ng/L		07/06/23 18:44	07/14/23 00:59	1
6:2 FTS	-ND	UJ	4.4	2.2	ng/L		07/06/23 18:44	07/14/23 00:59	1
8:2 FTS	-ND	UJ	1.7	0.40	ng/L		07/06/23 18:44	07/14/23 00:59	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.36	J+- J	1.7	0.35	ng/L		07/06/23 18:44	07/14/23 00:59	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: Inf1120230619

Lab Sample ID: 320-101930-4

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA (GenX)	ND		3.5	1.3	ng/L		07/06/23 18:44	07/14/23 00:59	1
9CI-PF3ONS	ND	UJ	1.7	0.21	ng/L		07/06/23 18:44	07/14/23 00:59	1
11CI-PF3OUdS	ND	UJ	1.7	0.28	ng/L		07/06/23 18:44	07/14/23 00:59	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	42		25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C5 PFPeA	50		25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C2 PFHxA	50		25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C4 PFHpA	59		25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C4 PFOA	59		25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C5 PFNA	59		25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C2 PFDA	61		25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C2 PFUnA	43		25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C2 PFDoA	24	*5-	25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C2 PFTeDA	13	*5-	25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C3 PFBS	56		25 - 150				07/06/23 18:44	07/14/23 00:59	1
18O2 PFHxS	56		25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C4 PFOS	51		25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C8 FOSA	46		10 - 150				07/06/23 18:44	07/14/23 00:59	1
d3-NMeFOSAA	23	*5-	25 - 150				07/06/23 18:44	07/14/23 00:59	1
d5-NEtFOSAA	34		25 - 150				07/06/23 18:44	07/14/23 00:59	1
d-N-MeFOSA-M	13		10 - 150				07/06/23 18:44	07/14/23 00:59	1
d-N-EtFOSA-M	25		10 - 150				07/06/23 18:44	07/14/23 00:59	1
d7-N-MeFOSE-M	14		10 - 150				07/06/23 18:44	07/14/23 00:59	1
d9-N-EtFOSE-M	28		10 - 150				07/06/23 18:44	07/14/23 00:59	1
M2-4:2 FTS	89		25 - 150				07/06/23 18:44	07/14/23 00:59	1
M2-6:2 FTS	130		25 - 150				07/06/23 18:44	07/14/23 00:59	1
M2-8:2 FTS	90		25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C3 HFPO-DA	51		25 - 150				07/06/23 18:44	07/14/23 00:59	1
13C2 10:2 FTS	34		25 - 150				07/06/23 18:44	07/14/23 00:59	1

Client Sample ID: Inf1820230619

Lab Sample ID: 320-101930-5

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	9.5	J+	4.3	2.1	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluoropentanoic acid (PFPA)	4.7	J+	1.7	0.42	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorohexanoic acid (PFHxA)	7.8	J+	1.7	0.50	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluoroheptanoic acid (PFHpA)	1.9	J+	1.7	0.22	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorooctanoic acid (PFOA)	7.2	J+	1.7	0.73	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorononanoic acid (PFNA)	0.48	J-- J	1.7	0.23	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.27	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.95	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.47	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.7	1.1	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorotetradecanoic acid (PFTeA)	ND	-- UJ	1.7	0.63	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorobutanesulfonic acid (PFBS)	3.3		1.7	0.17	ng/L		07/06/23 18:44	07/14/23 01:10	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: Inf1820230619

Lab Sample ID: 320-101930-5

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanesulfonic acid (PFPeS)	1.0	J	1.7	0.26	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorohexanesulfonic acid (PFHxS)	13		1.7	0.49	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluoroheptanesulfonic acid (PFHpS)	0.26	J	1.7	0.16	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorooctanesulfonic acid (PFOS)	8.4		1.7	0.47	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.32	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.28	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.84	ng/L		07/06/23 18:44	07/14/23 01:10	1
Perfluorooctanesulfonamide (FOSA)	-ND-	UJ	1.7	0.84	ng/L		07/06/23 18:44	07/14/23 01:10	1
NEtFOSA	-ND-	UJ	1.7	0.75	ng/L		07/06/23 18:44	07/14/23 01:10	1
NMeFOSA	-ND-	UJ	1.7	0.37	ng/L		07/06/23 18:44	07/14/23 01:10	1
NMeFOSAA	-ND-	UJ	4.3	1.0	ng/L		07/06/23 18:44	07/14/23 01:10	1
NEtFOSAA	-ND-	UJ	4.3	1.1	ng/L		07/06/23 18:44	07/14/23 01:10	1
NMeFOSE	-ND-	UJ	3.4	1.2	ng/L		07/06/23 18:44	07/14/23 01:10	1
NEtFOSE	-ND-	UJ	1.7	0.73	ng/L		07/06/23 18:44	07/14/23 01:10	1
4:2 FTS	-ND-	UJ	1.7	0.21	ng/L		07/06/23 18:44	07/14/23 01:10	1
6:2 FTS	2.5	J---J	4.3	2.2	ng/L		07/06/23 18:44	07/14/23 01:10	1
8:2 FTS	-ND-	UJ	1.7	0.40	ng/L		07/06/23 18:44	07/14/23 01:10	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	-ND-	UJ	1.7	0.34	ng/L		07/06/23 18:44	07/14/23 01:10	1
HFPO-DA (GenX)	ND		3.4	1.3	ng/L		07/06/23 18:44	07/14/23 01:10	1
9Cl-PF3ONS	-ND-	UJ	1.7	0.21	ng/L		07/06/23 18:44	07/14/23 01:10	1
11Cl-PF3OUdS	-ND-	UJ	1.7	0.28	ng/L		07/06/23 18:44	07/14/23 01:10	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	45		25 - 150	07/06/23 18:44	07/14/23 01:10	1
13C5 PFPeA	54		25 - 150	07/06/23 18:44	07/14/23 01:10	1
13C2 PFHxA	46		25 - 150	07/06/23 18:44	07/14/23 01:10	1
13C4 PFHpA	54		25 - 150	07/06/23 18:44	07/14/23 01:10	1
13C4 PFOA	55		25 - 150	07/06/23 18:44	07/14/23 01:10	1
13C5 PFNA	54		25 - 150	07/06/23 18:44	07/14/23 01:10	1
13C2 PFDA	58		25 - 150	07/06/23 18:44	07/14/23 01:10	1
13C2 PFUnA	44		25 - 150	07/06/23 18:44	07/14/23 01:10	1
13C2 PFDoA	27		25 - 150	07/06/23 18:44	07/14/23 01:10	1
13C2 PFTeDA	15	*5-	25 - 150	07/06/23 18:44	07/14/23 01:10	1
13C3 PFBS	50		25 - 150	07/06/23 18:44	07/14/23 01:10	1
18O2 PFHxS	53		25 - 150	07/06/23 18:44	07/14/23 01:10	1
13C4 PFOS	45		25 - 150	07/06/23 18:44	07/14/23 01:10	1
13C8 FOSA	42		10 - 150	07/06/23 18:44	07/14/23 01:10	1
d3-NMeFOSAA	26		25 - 150	07/06/23 18:44	07/14/23 01:10	1
d5-NEtFOSAA	36		25 - 150	07/06/23 18:44	07/14/23 01:10	1
d-N-MeFOSA-M	14		10 - 150	07/06/23 18:44	07/14/23 01:10	1
d-N-EtFOSA-M	28		10 - 150	07/06/23 18:44	07/14/23 01:10	1
d7-N-MeFOSE-M	14		10 - 150	07/06/23 18:44	07/14/23 01:10	1
d9-N-EtFOSE-M	33		10 - 150	07/06/23 18:44	07/14/23 01:10	1
M2-4:2 FTS	53		25 - 150	07/06/23 18:44	07/14/23 01:10	1
M2-6:2 FTS	105		25 - 150	07/06/23 18:44	07/14/23 01:10	1
M2-8:2 FTS	93		25 - 150	07/06/23 18:44	07/14/23 01:10	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: Inf1820230619

Lab Sample ID: 320-101930-5

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	42		25 - 150	07/06/23 18:44	07/14/23 01:10	1
13C2 10:2 FTS	36		25 - 150	07/06/23 18:44	07/14/23 01:10	1

Client Sample ID: Eff20230620

Lab Sample ID: 320-101930-6

Date Collected: 06/20/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	10	J+	4.5	2.2	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluoropentanoic acid (PFPA)	17	J+	1.8	0.44	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorohexanoic acid (PFHxA)	22	J+	1.8	0.52	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluoroheptanoic acid (PFHpA)	2.3	J+	1.8	0.22	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorooctanoic acid (PFOA)	7.4	J+	1.8	0.76	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorononanoic acid (PFNA)	0.52	J- J	1.8	0.24	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorodecanoic acid (PFDA)	1.5	J- J	1.8	0.28	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.99	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.8	1.2	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorobutanesulfonic acid (PFBS)	3.2		1.8	0.18	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluoropentanesulfonic acid (PFPeS)	0.65	J+ J	1.8	0.27	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorohexanesulfonic acid (PFHxS)	8.0		1.8	0.51	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorooctanesulfonic acid (PFOS)	3.8		1.8	0.48	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.33	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.87	ng/L		07/06/23 18:44	07/14/23 01:21	1
Perfluorooctanesulfonamide (FOSA)	ND--	UJ	1.8	0.88	ng/L		07/06/23 18:44	07/14/23 01:21	1
NEtFOSA	ND--	UJ	1.8	0.78	ng/L		07/06/23 18:44	07/14/23 01:21	1
NMeFOSA	ND--	UJ	1.8	0.39	ng/L		07/06/23 18:44	07/14/23 01:21	1
NMeFOSAA	ND--	UJ	4.5	1.1	ng/L		07/06/23 18:44	07/14/23 01:21	1
NEtFOSAA	ND--	UJ	4.5	1.2	ng/L		07/06/23 18:44	07/14/23 01:21	1
NMeFOSE	ND--	UJ	3.6	1.3	ng/L		07/06/23 18:44	07/14/23 01:21	1
NEtFOSE	ND--	UJ	1.8	0.76	ng/L		07/06/23 18:44	07/14/23 01:21	1
4:2 FTS	ND--	UJ	1.8	0.22	ng/L		07/06/23 18:44	07/14/23 01:21	1
6:2 FTS	ND--	UJ	4.5	2.2	ng/L		07/06/23 18:44	07/14/23 01:21	1
8:2 FTS	ND--	UJ	1.8	0.41	ng/L		07/06/23 18:44	07/14/23 01:21	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.53	J- J- J	1.8	0.36	ng/L		07/06/23 18:44	07/14/23 01:21	1
HFPO-DA (GenX)	ND		3.6	1.3	ng/L		07/06/23 18:44	07/14/23 01:21	1
9Cl-PF3ONS	ND--	UJ	1.8	0.22	ng/L		07/06/23 18:44	07/14/23 01:21	1
11Cl-PF3OUdS	ND--	UJ	1.8	0.29	ng/L		07/06/23 18:44	07/14/23 01:21	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	54		25 - 150				07/06/23 18:44	07/14/23 01:21	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: Eff20230620

Lab Sample ID: 320-101930-6

Date Collected: 06/20/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	65		25 - 150	07/06/23 18:44	07/14/23 01:21	1
13C2 PFHxA	71		25 - 150	07/06/23 18:44	07/14/23 01:21	1
13C4 PFHpA	79		25 - 150	07/06/23 18:44	07/14/23 01:21	1
13C4 PFOA	85		25 - 150	07/06/23 18:44	07/14/23 01:21	1
13C5 PFNA	79		25 - 150	07/06/23 18:44	07/14/23 01:21	1
13C2 PFDA	86		25 - 150	07/06/23 18:44	07/14/23 01:21	1
13C2 PFUnA	81		25 - 150	07/06/23 18:44	07/14/23 01:21	1
13C2 PFDoA	74		25 - 150	07/06/23 18:44	07/14/23 01:21	1
13C2 PFTeDA	53		25 - 150	07/06/23 18:44	07/14/23 01:21	1
13C3 PFBS	69		25 - 150	07/06/23 18:44	07/14/23 01:21	1
18O2 PFHxS	70		25 - 150	07/06/23 18:44	07/14/23 01:21	1
13C4 PFOS	72		25 - 150	07/06/23 18:44	07/14/23 01:21	1
13C8 FOSA	81		10 - 150	07/06/23 18:44	07/14/23 01:21	1
d3-NMeFOSAA	71		25 - 150	07/06/23 18:44	07/14/23 01:21	1
d5-NEtFOSAA	79		25 - 150	07/06/23 18:44	07/14/23 01:21	1
d-N-MeFOSA-M	62		10 - 150	07/06/23 18:44	07/14/23 01:21	1
d-N-EtFOSA-M	58		10 - 150	07/06/23 18:44	07/14/23 01:21	1
d7-N-MeFOSE-M	66		10 - 150	07/06/23 18:44	07/14/23 01:21	1
d9-N-EtFOSE-M	65		10 - 150	07/06/23 18:44	07/14/23 01:21	1
M2-4:2 FTS	97		25 - 150	07/06/23 18:44	07/14/23 01:21	1
M2-6:2 FTS	111		25 - 150	07/06/23 18:44	07/14/23 01:21	1
M2-8:2 FTS	106		25 - 150	07/06/23 18:44	07/14/23 01:21	1
13C3 HFPO-DA	65		25 - 150	07/06/23 18:44	07/14/23 01:21	1
13C2 10:2 FTS	83		25 - 150	07/06/23 18:44	07/14/23 01:21	1

Client Sample ID: Inf Comp 20230619

Lab Sample ID: 320-101930-7

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	6.9	J+	4.3	2.1	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluoropentanoic acid (PFPA)	3.3	J+	1.7	0.42	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluorohexanoic acid (PFHxA)	6.5	J+	1.7	0.50	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluoroheptanoic acid (PFHpA)	1.3	J--- J	1.7	0.22	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluorooctanoic acid (PFOA)	4.1	J+	1.7	0.74	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluorononanoic acid (PFNA)	0.39	J+--- J	1.7	0.23	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.27	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.95	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.48	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.7	1.1	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluorotetradecanoic acid (PFTeA)	ND--	UJ	1.7	0.63	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluorobutanesulfonic acid (PFBS)	2.0		1.7	0.17	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluoropentanesulfonic acid (PFPeS)	0.40	J	1.7	0.26	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluorohexanesulfonic acid (PFHxS)	7.1		1.7	0.49	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.7	0.16	ng/L		07/06/23 18:44	07/14/23 01:33	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: Inf Comp 20230619

Lab Sample ID: 320-101930-7

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	4.3		1.7	0.47	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.32	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.28	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.84	ng/L		07/06/23 18:44	07/14/23 01:33	1
Perfluorooctanesulfonamide (FOSA)	-ND-	UJ	1.7	0.85	ng/L		07/06/23 18:44	07/14/23 01:33	1
NEtFOSA	-ND-	UJ	1.7	0.75	ng/L		07/06/23 18:44	07/14/23 01:33	1
NMeFOSA	-ND-	UJ	1.7	0.37	ng/L		07/06/23 18:44	07/14/23 01:33	1
NMeFOSAA	-ND-	UJ	4.3	1.0	ng/L		07/06/23 18:44	07/14/23 01:33	1
NEtFOSAA	-ND-	UJ	4.3	1.1	ng/L		07/06/23 18:44	07/14/23 01:33	1
NMeFOSE	-ND-	UJ	3.5	1.2	ng/L		07/06/23 18:44	07/14/23 01:33	1
NEtFOSE	-ND-	UJ	1.7	0.74	ng/L		07/06/23 18:44	07/14/23 01:33	1
4:2 FTS	-ND-	UJ	1.7	0.21	ng/L		07/06/23 18:44	07/14/23 01:33	1
6:2 FTS	-ND-	UJ	4.3	2.2	ng/L		07/06/23 18:44	07/14/23 01:33	1
8:2 FTS	-ND-	UJ	1.7	0.40	ng/L		07/06/23 18:44	07/14/23 01:33	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	-ND-	UJ	1.7	0.35	ng/L		07/06/23 18:44	07/14/23 01:33	1
HFPO-DA (GenX)	ND		3.5	1.3	ng/L		07/06/23 18:44	07/14/23 01:33	1
9Cl-PF3ONS	-ND-	UJ	1.7	0.21	ng/L		07/06/23 18:44	07/14/23 01:33	1
11Cl-PF3OUdS	-ND-	UJ	1.7	0.28	ng/L		07/06/23 18:44	07/14/23 01:33	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	55		25 - 150				07/06/23 18:44	07/14/23 01:33	1
13C5 PFPeA	62		25 - 150				07/06/23 18:44	07/14/23 01:33	1
13C2 PFHxA	54		25 - 150				07/06/23 18:44	07/14/23 01:33	1
13C4 PFHpA	66		25 - 150				07/06/23 18:44	07/14/23 01:33	1
13C4 PFOA	65		25 - 150				07/06/23 18:44	07/14/23 01:33	1
13C5 PFNA	69		25 - 150				07/06/23 18:44	07/14/23 01:33	1
13C2 PFDA	72		25 - 150				07/06/23 18:44	07/14/23 01:33	1
13C2 PFUnA	58		25 - 150				07/06/23 18:44	07/14/23 01:33	1
13C2 PFDoA	33		25 - 150				07/06/23 18:44	07/14/23 01:33	1
13C2 PFTeDA	18	*5-	25 - 150				07/06/23 18:44	07/14/23 01:33	1
13C3 PFBS	66		25 - 150				07/06/23 18:44	07/14/23 01:33	1
18O2 PFHxS	67		25 - 150				07/06/23 18:44	07/14/23 01:33	1
13C4 PFOS	60		25 - 150				07/06/23 18:44	07/14/23 01:33	1
13C8 FOSA	54		10 - 150				07/06/23 18:44	07/14/23 01:33	1
d3-NMeFOSAA	32		25 - 150				07/06/23 18:44	07/14/23 01:33	1
d5-NEtFOSAA	44		25 - 150				07/06/23 18:44	07/14/23 01:33	1
d-N-MeFOSA-M	16		10 - 150				07/06/23 18:44	07/14/23 01:33	1
d-N-EtFOSA-M	32		10 - 150				07/06/23 18:44	07/14/23 01:33	1
d7-N-MeFOSE-M	17		10 - 150				07/06/23 18:44	07/14/23 01:33	1
d9-N-EtFOSE-M	36		10 - 150				07/06/23 18:44	07/14/23 01:33	1
M2-4:2 FTS	74		25 - 150				07/06/23 18:44	07/14/23 01:33	1
M2-6:2 FTS	141		25 - 150				07/06/23 18:44	07/14/23 01:33	1
M2-8:2 FTS	113		25 - 150				07/06/23 18:44	07/14/23 01:33	1
13C3 HFPO-DA	54		25 - 150				07/06/23 18:44	07/14/23 01:33	1
13C2 10:2 FTS	46		25 - 150				07/06/23 18:44	07/14/23 01:33	1

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: BioA20230621

Lab Sample ID: 320-101930-8

Date Collected: 06/21/23 07:45

Matrix: Solid

Date Received: 06/26/23 09:10

Percent Solids: 21.0

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	2.8	J---	4.4	1.0	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
Perfluoropentanoic acid (PFPA)	7.8	J+	4.4	0.90	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
Perfluorohexanoic acid (PFHxA)	15	J+	4.4	0.68	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
Perfluoroheptanoic acid (PFHpA)	ND		4.4	0.84	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
Perfluorooctanoic acid (PFOA)	6.0	J+	4.4	1.2	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
Perfluorononanoic acid (PFNA)	ND		4.4	0.48	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
Perfluorodecanoic acid (PFDA)	8.9	J+	4.4	1.1	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
Perfluoroundecanoic acid (PFUnA)	1.7	J-	4.4	0.93	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
Perfluorododecanoic acid (PFDoA)	4.2	J---	4.4	0.66	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
Perfluorotridecanoic acid (PFTrDA)	0.57	J---	4.4	0.46	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
Perfluorotetradecanoic acid (PFTeA)	1.6	J--	4.4	0.82	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
Perfluorobutanesulfonic acid (PFBS)	ND		4.4	0.84	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
Perfluoropentanesulfonic acid (PFPeS)	ND		4.4	0.82	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
Perfluorohexanesulfonic acid (PFHxS)	ND		4.4	0.64	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		4.4	1.1	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
Perfluorooctanesulfonic acid (PFOS)	ND		4.4	0.95	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
Perfluorononanesulfonic acid (PFNS)	ND		4.4	0.64	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
Perfluorodecanesulfonic acid (PFDS)	10		4.4	1.1	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
Perfluorododecanesulfonic acid (PFDoS)	ND		4.4	1.0	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
Perfluorooctanesulfonamide (FOSA)	1.5	J--	4.4	0.73	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
NEtFOSA	ND---	UU	4.4	1.0	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
NMeFOSA	ND--	UU	4.4	1.1	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
NMeFOSAA	27	J-	4.4	0.51	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
NEtFOSAA	9.2	J-	4.4	1.1	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
NMeFOSE	21	J-	4.4	1.0	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
NEtFOSE	3.3	J---	4.4	0.62	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
4:2 FTS	ND-	UU	4.4	1.1	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
6:2 FTS	ND-	UU	4.4	0.60	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
8:2 FTS	1.1	J--	4.4	0.77	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	UU	4.4	0.86	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
HFPO-DA (GenX)	ND		4.4	0.90	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
9CI-PF3ONS	ND---	UU	4.4	0.77	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
11CI-PF3OUds	0.77	J--	4.4	0.68	ug/Kg	✱	07/19/23 19:11	07/20/23 19:59	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	77		25 - 150				07/19/23 19:11	07/20/23 19:59	1
13C5 PFPeA	85		25 - 150				07/19/23 19:11	07/20/23 19:59	1
13C2 PFHxA	78		25 - 150				07/19/23 19:11	07/20/23 19:59	1
13C4 PFHpA	85		25 - 150				07/19/23 19:11	07/20/23 19:59	1
13C4 PFOA	87		25 - 150				07/19/23 19:11	07/20/23 19:59	1
13C5 PFNA	77		25 - 150				07/19/23 19:11	07/20/23 19:59	1
13C2 PFDA	74		25 - 150				07/19/23 19:11	07/20/23 19:59	1
13C2 PFUnA	61		25 - 150				07/19/23 19:11	07/20/23 19:59	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: BioA20230621

Lab Sample ID: 320-101930-8

Date Collected: 06/21/23 07:45

Matrix: Solid

Date Received: 06/26/23 09:10

Percent Solids: 21.0

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDoA	51		25 - 150	07/19/23 19:11	07/20/23 19:59	1
13C2 PFTeDA	42		25 - 150	07/19/23 19:11	07/20/23 19:59	1
13C3 PFBS	83		25 - 150	07/19/23 19:11	07/20/23 19:59	1
18O2 PFHxS	80		25 - 150	07/19/23 19:11	07/20/23 19:59	1
13C4 PFOS	76		25 - 150	07/19/23 19:11	07/20/23 19:59	1
13C8 FOSA	79		10 - 150	07/19/23 19:11	07/20/23 19:59	1
d3-NMeFOSAA	60		25 - 150	07/19/23 19:11	07/20/23 19:59	1
d5-NEtFOSAA	57		25 - 150	07/19/23 19:11	07/20/23 19:59	1
d-N-MeFOSA-M	44		10 - 150	07/19/23 19:11	07/20/23 19:59	1
d-N-EtFOSA-M	34		10 - 150	07/19/23 19:11	07/20/23 19:59	1
d7-N-MeFOSE-M	44		10 - 150	07/19/23 19:11	07/20/23 19:59	1
d9-N-EtFOSE-M	42		10 - 150	07/19/23 19:11	07/20/23 19:59	1
M2-4:2 FTS	87		25 - 150	07/19/23 19:11	07/20/23 19:59	1
M2-6:2 FTS	93		25 - 150	07/19/23 19:11	07/20/23 19:59	1
M2-8:2 FTS	82		25 - 150	07/19/23 19:11	07/20/23 19:59	1
13C3 HFPO-DA	80		25 - 150	07/19/23 19:11	07/20/23 19:59	1
13C2 10:2 FTS	67		25 - 150	07/19/23 19:11	07/20/23 19:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	79.0		0.1	0.1	%			06/28/23 11:44	1
Percent Solids (ASTM D 2216)	21.0		0.1	0.1	%			06/28/23 11:44	1

Client Sample ID: BioB20230621

Lab Sample ID: 320-101930-9

Date Collected: 06/21/23 07:00

Matrix: Solid

Date Received: 06/26/23 09:10

Percent Solids: 5.8

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.3	0.75	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluoropentanoic acid (PFPA)	ND		3.3	0.67	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluorohexanoic acid (PFHxA)	ND		3.3	0.51	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluoroheptanoic acid (PFHpA)	ND		3.3	0.62	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluorooctanoic acid (PFOA)	1.5	J--- J	3.3	0.86	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluorononanoic acid (PFNA)	ND		3.3	0.36	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluorodecanoic acid (PFDA)	5.0	J+	3.3	0.78	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluoroundecanoic acid (PFUnA)	1.2	-J--- J	3.3	0.68	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluorododecanoic acid (PFDoA)	2.4	J-- J	3.3	0.49	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluorotridecanoic acid (PFTriDA)	0.50	J--- J	3.3	0.34	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluorotetradecanoic acid (PFTeA)	0.62	-J--- J	3.3	0.60	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluorobutanesulfonic acid (PFBS)	ND		3.3	0.62	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.3	0.60	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluorohexanesulfonic acid (PFHxS)	ND		3.3	0.47	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.3	0.80	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluorooctanesulfonic acid (PFOS)	ND		3.3	0.70	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1
Perfluorononanesulfonic acid (PFNS)	ND		3.3	0.47	ug/Kg	✱	07/06/23 04:40	07/13/23 18:29	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: BioB20230621

Lab Sample ID: 320-101930-9

Date Collected: 06/21/23 07:00

Matrix: Solid

Date Received: 06/26/23 09:10

Percent Solids: 5.8

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanesulfonic acid (PFDS)	11	J-- J	3.3	0.85	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.3	0.77	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
Perfluorooctanesulfonamide (FOSA)	0.62	J-- J	3.3	0.54	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
NEtFOSA	ND	UJ	3.3	0.77	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
NMeFOSA	ND	UJ	3.3	0.80	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
NMeFOSAA	11	J-	3.3	0.37	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
NEtFOSAA	4.3	J-	3.3	0.78	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
NMeFOSE	6.7	J-	3.3	0.77	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
NEtFOSE	ND	UJ	3.3	0.46	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
4:2 FTS	ND	UJ	3.3	0.83	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
6:2 FTS	ND	UJ	3.3	0.44	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
8:2 FTS	ND	UJ	3.3	0.57	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	UJ	3.3	0.64	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
HFPO-DA (GenX)	ND		3.3	0.67	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
9CI-PF3ONS	ND	UJ	3.3	0.57	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1
11CI-PF3OUdS	ND	UJ	3.3	0.51	ug/Kg	☼	07/06/23 04:40	07/13/23 18:29	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	83		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C5 PFPeA	92		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C2 PFHxA	90		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C4 PFHpA	88		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C4 PFOA	88		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C5 PFNA	90		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C2 PFDA	87		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C2 PFUnA	68		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C2 PFDoA	69		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C2 PFTeDA	36		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C3 PFBS	94		25 - 150	07/06/23 04:40	07/13/23 18:29	1
18O2 PFHxS	87		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C4 PFOS	88		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C8 FOSA	92		10 - 150	07/06/23 04:40	07/13/23 18:29	1
d3-NMeFOSAA	60		25 - 150	07/06/23 04:40	07/13/23 18:29	1
d5-NEtFOSAA	60		25 - 150	07/06/23 04:40	07/13/23 18:29	1
d-N-MeFOSA-M	49		10 - 150	07/06/23 04:40	07/13/23 18:29	1
d-N-EtFOSA-M	43		10 - 150	07/06/23 04:40	07/13/23 18:29	1
d7-N-MeFOSE-M	48		10 - 150	07/06/23 04:40	07/13/23 18:29	1
d9-N-EtFOSE-M	58		10 - 150	07/06/23 04:40	07/13/23 18:29	1
M2-4:2 FTS	92		25 - 150	07/06/23 04:40	07/13/23 18:29	1
M2-6:2 FTS	94		25 - 150	07/06/23 04:40	07/13/23 18:29	1
M2-8:2 FTS	98		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C3 HFPO-DA	96		25 - 150	07/06/23 04:40	07/13/23 18:29	1
13C2 10:2 FTS	82		25 - 150	07/06/23 04:40	07/13/23 18:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	94.2		0.1	0.1	%			06/28/23 11:44	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: BioB20230621

Lab Sample ID: 320-101930-9

Date Collected: 06/21/23 07:00

Matrix: Solid

Date Received: 06/26/23 09:10

Percent Solids: 5.8

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (ASTM D 2216)	5.8		0.1	0.1	%			06/28/23 11:44	1

Client Sample ID: EB0120230621

Lab Sample ID: 320-101930-10

Date Collected: 06/21/23 07:24

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.4	2.1	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluoropentanoic acid (PFPA)	ND		1.8	0.43	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.51	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.22	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.75	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.27	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.97	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.48	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.8	1.1	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.64	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.8	0.26	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.50	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.48	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.33	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.28	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.85	ng/L		07/06/23 18:44	07/14/23 02:07	1
Perfluorooctanesulfonamide (FOSA)	ND--	UJ	1.8	0.86	ng/L		07/06/23 18:44	07/14/23 02:07	1
NEtFOSA	ND--	UJ	1.8	0.77	ng/L		07/06/23 18:44	07/14/23 02:07	1
NMeFOSA	ND--	UJ	1.8	0.38	ng/L		07/06/23 18:44	07/14/23 02:07	1
NMeFOSAA	ND--	UJ	4.4	1.1	ng/L		07/06/23 18:44	07/14/23 02:07	1
NEtFOSAA	ND--	UJ	4.4	1.1	ng/L		07/06/23 18:44	07/14/23 02:07	1
NMeFOSE	ND--	UJ	3.5	1.2	ng/L		07/06/23 18:44	07/14/23 02:07	1
NEtFOSE	ND--	UJ	1.8	0.75	ng/L		07/06/23 18:44	07/14/23 02:07	1
4:2 FTS	ND--	UJ	1.8	0.21	ng/L		07/06/23 18:44	07/14/23 02:07	1
6:2 FTS	ND--	UJ	4.4	2.2	ng/L		07/06/23 18:44	07/14/23 02:07	1
8:2 FTS	ND--	UJ	1.8	0.41	ng/L		07/06/23 18:44	07/14/23 02:07	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND--	UJ	1.8	0.35	ng/L		07/06/23 18:44	07/14/23 02:07	1
HFPO-DA (GenX)	ND		3.5	1.3	ng/L		07/06/23 18:44	07/14/23 02:07	1
9Cl-PF3ONS	ND--	UJ	1.8	0.21	ng/L		07/06/23 18:44	07/14/23 02:07	1
11Cl-PF3OUdS	ND--	UJ	1.8	0.28	ng/L		07/06/23 18:44	07/14/23 02:07	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	46		25 - 150				07/06/23 18:44	07/14/23 02:07	1
13C5 PFPeA	47		25 - 150				07/06/23 18:44	07/14/23 02:07	1
13C2 PFHxA	48		25 - 150				07/06/23 18:44	07/14/23 02:07	1
13C4 PFHpA	47		25 - 150				07/06/23 18:44	07/14/23 02:07	1
13C4 PFOA	51		25 - 150				07/06/23 18:44	07/14/23 02:07	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: MMSD Phase 3

Job ID: 320-101930-2

Client Sample ID: EB0120230621

Lab Sample ID: 320-101930-10

Date Collected: 06/21/23 07:24

Matrix: Water

Date Received: 06/26/23 09:10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C5 PFNA	49		25 - 150	07/06/23 18:44	07/14/23 02:07	1
13C2 PFDA	53		25 - 150	07/06/23 18:44	07/14/23 02:07	1
13C2 PFUnA	52		25 - 150	07/06/23 18:44	07/14/23 02:07	1
13C2 PFDoA	50		25 - 150	07/06/23 18:44	07/14/23 02:07	1
13C2 PFTeDA	49		25 - 150	07/06/23 18:44	07/14/23 02:07	1
13C3 PFBS	43		25 - 150	07/06/23 18:44	07/14/23 02:07	1
18O2 PFHxS	48		25 - 150	07/06/23 18:44	07/14/23 02:07	1
13C4 PFOS	48		25 - 150	07/06/23 18:44	07/14/23 02:07	1
13C8 FOSA	52		10 - 150	07/06/23 18:44	07/14/23 02:07	1
d3-NMeFOSAA	44		25 - 150	07/06/23 18:44	07/14/23 02:07	1
d5-NEtFOSAA	48		25 - 150	07/06/23 18:44	07/14/23 02:07	1
d-N-MeFOSA-M	41		10 - 150	07/06/23 18:44	07/14/23 02:07	1
d-N-EtFOSA-M	45		10 - 150	07/06/23 18:44	07/14/23 02:07	1
d7-N-MeFOSE-M	45		10 - 150	07/06/23 18:44	07/14/23 02:07	1
d9-N-EtFOSE-M	46		10 - 150	07/06/23 18:44	07/14/23 02:07	1
M2-4:2 FTS	44		25 - 150	07/06/23 18:44	07/14/23 02:07	1
M2-6:2 FTS	49		25 - 150	07/06/23 18:44	07/14/23 02:07	1
M2-8:2 FTS	55		25 - 150	07/06/23 18:44	07/14/23 02:07	1
13C3 HFPO-DA	41		25 - 150	07/06/23 18:44	07/14/23 02:07	1
13C2 10:2 FTS	55		25 - 150	07/06/23 18:44	07/14/23 02:07	1

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-101909-1

Client Sample ID: Inf0220230619

Lab Sample ID: 320-101909-1

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/24/23 09:25

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	300		50	19	mg/L			06/24/23 10:18	1

Client Sample ID: Inf0720230619

Lab Sample ID: 320-101909-2

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/24/23 09:25

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	290		45	18	mg/L			06/24/23 10:24	1

Client Sample ID: In0820230619

Lab Sample ID: 320-101909-3

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/24/23 09:25

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	280		42	16	mg/L			06/24/23 10:30	1

Client Sample ID: Inf1120230619

Lab Sample ID: 320-101909-4

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/24/23 09:25

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	320		50	19	mg/L			06/24/23 10:36	1

Client Sample ID: Inf1820230619

Lab Sample ID: 320-101909-5

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/24/23 09:25

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	400		63	24	mg/L			06/24/23 10:42	1

Client Sample ID: InfComp20230619

Lab Sample ID: 320-101909-6

Date Collected: 06/19/23 23:59

Matrix: Water

Date Received: 06/24/23 09:25

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	320		50	19	mg/L			06/24/23 10:48	1

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: MMSD PFAS

Job ID: 320-101909-1

Client Sample ID: Eff20230620

Lab Sample ID: 320-101909-7

Date Collected: 06/20/23 23:59

Matrix: Water

Date Received: 06/24/23 09:25

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	8.9		5.0	1.9	mg/L			06/24/23 10:54	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

July 2023

Data Quality and Usability Review – July 2023

Data Reviewer: Kristen Morin

Peer Reviewer: Jeff Ramey

Date: 9/15/2023

Madison Metropolitan Sewerage District (MMSD) collected influent, effluent, and biosolids samples at the Nine Springs wastewater treatment plant on July 17 and 18, 2023 in conjunction with an additional characterization study conducted by TRC. Samples were analyzed for the standard list of Wisconsin's 33 per- and polyfluoroalkyl substances (PFAS) and total oxidizable precursor (TOP) assay PFAS by Eurofins in West Sacramento, California and total suspended solids (TSS) by Eurofins in Chicago, Illinois. The laboratory analytical results were reported in laboratory SDGs 320-102736-1 (Revision 2, dated 9/7/23) (TOP assay only) and 320-102736-2 (Revision 1, dated 9/7/23) (PFAS and TSS).

Samples included in this review are listed below:

- Bio A-23-D-1 20230717
- Bio A-23-D-3 20230717
- Bio A-23-S-C 20230717
- Bio A 23-S-1 20230717
- Bio A 23-S-2 20230717
- Bio A 23-S-3 20230717
- Bio A 23-S-4 20230717
- EFF 20230718
- INF COMP 20230717
- EB 01 20230717

Each sample was analyzed for one or more of the following constituents:

Analyte Group	Method
PFAS (33 Analytes)	Modified EPA Method 537 and laboratory standard operating procedure (SOP) using Isotope Dilution/WI Method Criteria
PFAS TOP Assay (33 Analytes)	Laboratory SOP using Isotope Dilution/WI Method Criteria
Total Suspended Solids (TSS)	Standard Method (SM) 2540D
Total Solids*	ASTM D 2216*

Notes:

* The laboratory does not hold NELAP accreditation for total solids.

TRC performed a limited validation of the laboratory data to assess data usability. The following sections summarize the data validation procedure and the results of the validation.

Data Usability Review Procedure

The analytical data were reviewed using the USEPA Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537 (EPA 910-R-18-001), November 2018, USEPA National Functional Guidelines for High Resolution Superfund Methods Data Review (EPA 542-R-20-007), November 2020, and Wisconsin PFAS Aqueous (Non-Potable Water) and Non-Aqueous Matrices Method Expectations, Document # EA-19-0001, WDNR, December 2019 as guidance for data review. EPA 910-R-18-001 applies to method 537 and drinking water matrices only but the guidance can be applied in part or in whole to evaluate data

in non-drinking water matrices. The following items were specifically included in the evaluation of the data:

- Data completeness;
- Sample receipt, as noted in the cover page or case narrative;
- Technical holding times for analyses;
- Quantitation limits (QLs) compared to the ranges of QLs suggested in the Sampling and Analysis Blueprint (SAB) of 2-5 ng/L and 1-5 ug/kg per individual PFAS, as appropriate;
- Data for method blanks, equipment blanks, and field blanks. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Field and equipment blanks are used to assess potential contamination arising from field procedures;
- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCSs and/or LCSDs are used to assess the accuracy and precision of the analytical method using a clean matrix;
- Percent recoveries for matrix spike (MS) and matrix spike duplicate (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Percent recoveries for isotopically labeled surrogates. Percent recoveries are calculated for each surrogate and used to assess the accuracy of the extraction procedure and bias due to sample matrix effects;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;
- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and
- Overall usability of the data.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

Review Summary

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances, and issues identified in this evaluation are noted below.

- The reviewed PFAS and TSS data will be utilized for the purposes of an additional characterization.
- Data are usable for the purposes of the additional characterization.
- The issues noted in the QA/QC sample summary below have a minor impact on the data usability.

QA/QC Sample Summary

- The revised data packages were found to be complete as received from the laboratory.
- The laboratory noted the following discrepancies in the case narratives for both SDGs regarding the sample ID, collection dates, and/or collections times listed on the sample containers when compared to the COC; the samples were logged in and labeled according to the IDs, dates, and times listed on the COC.
 - All sample containers, except EFF 20230718, were missing “20230717” in the sample ID on the labels; the containers for sample EFF 20230718; were missing “20230718” in the sample ID on the labels.
 - One of the containers submitted for sample Bio A 23-S-3 20230717 listed a collection time of 13:36.
 - Both containers submitted for sample EB 01 20230717 have an ID as “Equip Blank 01” and do not include a collection time or date.
 - Both containers submitted for sample EFF 20230718 list a collection time of 6:30.
- The cooler temperature upon receipt at the laboratory was within the acceptance criteria (< 10°C).
 - Select samples were not shipped to the laboratory until one to two days after collection. The samples were stored in coolers, on ice, at the site until delivery to the laboratory. No validation actions were required on this basis since the samples were kept in coolers, on ice, prior to delivery to the laboratory and were received at acceptable temperatures by the laboratory.
- A method blank was analyzed with each analytical batch for PFAS (total and TOP assay) and TSS. The following table summarizes the compounds detected in the method blanks, the associated samples, and the validation actions.

Blank ID	Compound	Blank Concentration	Action
MB 320-699407/1-A (pre-TOP assay)	PFBA	0.912 J µg/Kg	No validation actions were required for the post-TOP assay result for PFBA in sample Bio A-23-S-C 20230717 since the result was > the QL and > 10x the blank concentration when adjusted for sample-specific factors.
Associated sample: Bio A-23-S-C 20230717			

- One equipment blank (EB 01 20230717) was collected and analyzed for total PFAS; no target PFAS were detected in the equipment blank.
- All samples were extracted and/or prepared and analyzed within the holding time with the following exceptions.
 - Sample Bio A-23-S-C 20230717 was extracted for the TOP assay analysis 3 days outside of the 28-day holding time due to laboratory contamination. Therefore, the positive and nondetect pre- and post-TOP Assay results in sample Bio A-23-S-C 20230717 were qualified as estimated (J/UJ).
 - All biosolids samples and the effluent sample were extracted several hours after the 28th day after collection for total PFAS. No validation actions were taken on this basis since the samples were extracted on the 28th day after collection.

- The LCS and LCSD relative percent differences (RPDs), where applicable, were within the laboratory's acceptance limits. The LCS and LCSD percent recoveries (%Rs) for all analytes were within the laboratory's acceptance limits except as noted in the table below.

LCS/LCSD ID	Compound	LCS/LCSD %Rs	LCS/LCSD %R Limits	Validation Actions
LCS 320-699407/2-A/ LCSD 320-699407/3-A (post-TOP assay)	11Cl-PF3OUdS	-/62	66-136	The nondetect post-TOP assay result for 11Cl-PF3OUdS was qualified as estimated (UJ) in sample Bio A-23-S-C 20230717.
	PFPA	149/-	81-141	The laboratory stated in the case narrative that the enhanced post-TOP assay LCS/LCSD %Rs for the listed compounds (also known as perfluoroalkyl carboxylic acids [PFCAs]) were due to an increase in the number of precursor analytes (i.e., non-target compounds) included in the laboratory's spiking solution which transform to PFCAs during the TOP assay procedure (i.e., the results are consistent with the expected oxidation of the precursor analytes). Although the %Rs for the listed PFCAs were above the laboratory's acceptance criteria, the post-TOP LCS/LCSD %Rs were still considered to be in control as a result of the additional precursors added to the spiking solution. It should also be noted that the laboratory stated in the case narrative that zero %R of precursor analytes (i.e., ADONA, 4:2 FTS, 6:2 FTS, 8:2 FTS, FOSA, NMeFOSAA, NEtFOSAA, NEtFOSA, NMeFOSA, NMeFOSE, and NEtFOSE) is also expected for the same reason stated above; 0 %R was observed for the listed precursors. No validation actions were taken on this basis.
	PFHxA	184/171	92-152	
	PFHpA	183/188	100-160	
	PFNA	154/146	82-142	
	PFDA	170/162	81-141	
Associated sample: Bio A-23-S-C 20230717				
-: Met criteria				

- MS/MSD analyses were not performed on a sample from this data set.
- The reverse surrogate (M2-4:2 FTS) was within the laboratory's acceptance limits (0-10%) in the post-TOP assay analyses. The following table summarizes the remaining isotopically labeled surrogate %Rs that were outside of the laboratory's acceptance limits, the associated samples, and the validation actions.

Sample ID	Surrogate	%R	%R Acceptance Limits	Action*
Bio A-23-S-C 20230717 (pre-TOP assay)	13C2 PFTeDA	13	25-150	The positive pre-TOP assay result for PFTeA was qualified as estimated (J) in sample Bio A-23-S-C 20230717.
	M2-6:2 FTS	168		No validation action was required on this basis since 6:2 FTS was not detected in the pre-TOP Assay analysis of this sample.
Bio A 23-S-4 20230717 (total PFAS)	13C2 PFTeDA	24		The positive result for total PFTeA was qualified as estimated (J) in sample Bio A 23-S-4 20230717.
INF COMP 20230717 (total PFAS)	d5-NEtFOSAA	24		The nondetect result for total NEtFOSAA was qualified as estimated (UJ) in sample INF COMP 20230717.

* Note that select results were also qualified as estimated (J) by the laboratory due to detection between the method detection limit (MDL) and QL.

- A field duplicate pair was not collected with this sample set.
- A laboratory duplicate analysis was not performed on a sample from this data set.
- The laboratory noted the following observations in the case narratives. No validation actions were taken on this basis.
 - Sample Bio A-23-S-C 20230717 was yellow in color following extraction for pre-TOP assay.
 - Sample EFF 20230718 was light yellow in color prior to and following extraction. Further, during the solid phase extraction (SPE) process, sample EFF 20230718 contained non-settable particulates which clogged the SPE column. The lab also stated that approximately 78% of the sample container was filtered through the SPE column at which point the SPE column became clogged. The remainder of the unfiltered sample was retained in the original sample bottle. The SPE column along with the particulates that clogged it were then extracted using the elution solvent. The laboratory confirmed during previous rounds of review that samples are spiked with EIS prior to filtration through the SPE column; thus, no validation actions were taken on this basis.
 - Sample INF COMP 20230717 contained floating particulates in the total PFAS sample bottle prior to extraction for total PFAS. This sample was also yellow in color prior to extraction and following concentration prior to extraction. Further, during the SPE process, sample INF COMP 20230717 contained non-settable particulates which clogged the SPE column. The lab also stated that approximately 55% of the sample container was filtered through the SPE column at which point the SPE column became clogged. The remainder of the unfiltered sample was retained in the original sample bottle. The SPE column along with the particulates that clogged it were then extracted using the elution solvent. The laboratory confirmed during previous rounds of review that samples are spiked with EIS prior to filtration through the SPE column; thus, no validation actions were taken on this basis.
 - Samples Bio A 23-S-1 20230717, Bio A 23-S-2 20230717, Bio A 23-S-3 20230717, Bio A 23-S-4 20230717, Bio A-23-S-C 20230717, Bio A-23-D-1 20230717, and Bio A-23-D-3 20230717 were yellow in color following concentration for total PFAS. The laboratory also stated that the initial volume used for the total PFAS analyses of these samples deviated from the standard procedure due to the matrix; QLs were adjusted proportionately.
- Select sample QLs were outside of the ranges of QLs suggested in the SAB of 2-5 ng/L and 1-5 ug/kg per individual PFAS due to sample volume and/or low total solids.
- The reporting limit (RL) for TSS in sample INF COMP 20230717 was 10x higher than the associated method blank due to a reduced volume (50 mL versus the typical 500 mL) used in the sample analysis. There is no adverse impact on the data usability due to this issue since TSS was detected above the RL in this sample. No validation action was required on this basis.
- No dilutions were performed on the samples in this data set.

- The results for the following PFAS in the samples listed below were flagged with an “I” by the laboratory indicating that the ion transition ratio did not meet the acceptance limits; thus, the positive results for the PFAS in the samples listed below were qualified as estimated (J).
 - Total 6:2 FTS* in sample Bio A 23-S-2 20230717;
 - Total PFHxA* in sample Bio A-23-D-3 20230717;
 - Total PFDA* and total 8:2 FTS* in sample INF COMP 20230717; and
 - Pre-TOP assay PFTeA* and pre-TOP assay PFHxS* in sample Bio A-23-S-C 20230717.
- * These results were also qualified as estimated (J) by the laboratory due to detection < the QL.
- The percent moisture for all biosolids samples except Bio A 23-S-1 20230717 was high (>70% moisture). The laboratory was contacted during this validation review regarding this issue and stated that the biosolids samples were agitated and then immediately aliquoted for extraction after agitation, indicating that a representative sample was extracted for PFAS analysis. No validation actions were taken on this basis.
- The laboratory noted in the case narrative that the influent and effluent samples were re-analyzed because the effluent results were greater than the influent results. It should be noted that the laboratory re-analyzed these samples based upon their own evaluation of the data; the re-analysis confirmed the reported results. No validation actions were taken on this basis.

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A 23-S-1 20230717

Lab Sample ID: 320-102736-1

Date Collected: 07/17/23 13:17

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 34.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	4.0		2.4	0.54	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluoropentanoic acid (PFPA)	11		2.4	0.49	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorohexanoic acid (PFHxA)	33		2.4	0.37	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluoroheptanoic acid (PFHpA)	1.9	J	2.4	0.45	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorooctanoic acid (PFOA)	23		2.4	0.63	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorononanoic acid (PFNA)	1.3	J	2.4	0.26	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorodecanoic acid (PFDA)	13		2.4	0.57	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluoroundecanoic acid (PFUnA)	1.5	J	2.4	0.50	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorododecanoic acid (PFDoA)	4.8		2.4	0.36	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorotridecanoic acid (PFTrDA)	0.59	J	2.4	0.25	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorotetradecanoic acid (PFTeA)	1.3	J	2.4	0.44	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorobutanesulfonic acid (PFBS)	1.5	J	2.4	0.45	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.4	0.44	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.4	0.34	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.4	0.58	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.4	0.51	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorononanesulfonic acid (PFNS)	ND		2.4	0.34	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorodecanesulfonic acid (PFDS)	3.4		2.4	0.62	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.4	0.56	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Perfluorooctanesulfonamide (FOSA)	1.3	J	2.4	0.39	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
NEtFOSA	ND		2.4	0.56	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
NMeFOSA	ND		2.4	0.58	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
NMeFOSAA	29		2.4	0.27	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
NEtFOSAA	9.5		2.4	0.57	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
NMeFOSE	15		2.4	0.56	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
NEtFOSE	3.9		2.4	0.33	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
4:2 FTS	ND		2.4	0.60	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
6:2 FTS	2.4		2.4	0.32	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
8:2 FTS	1.6	J	2.4	0.41	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.4	0.46	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
HFPO-DA (GenX)	ND		2.4	0.49	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
9Cl-PF3ONS	ND		2.4	0.41	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
11Cl-PF3OUdS	ND		2.4	0.37	ug/Kg	☼	08/14/23 20:30	08/17/23 00:36	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	77		25 - 150				08/14/23 20:30	08/17/23 00:36	1
13C5 PFPeA	84		25 - 150				08/14/23 20:30	08/17/23 00:36	1
13C2 PFHxA	96		25 - 150				08/14/23 20:30	08/17/23 00:36	1
13C4 PFHpA	89		25 - 150				08/14/23 20:30	08/17/23 00:36	1
13C4 PFOA	93		25 - 150				08/14/23 20:30	08/17/23 00:36	1
13C5 PFNA	86		25 - 150				08/14/23 20:30	08/17/23 00:36	1
13C2 PFDA	92		25 - 150				08/14/23 20:30	08/17/23 00:36	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A 23-S-1 20230717

Lab Sample ID: 320-102736-1

Date Collected: 07/17/23 13:17

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 34.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFUnA	89		25 - 150	08/14/23 20:30	08/17/23 00:36	1
13C2 PFDoA	61		25 - 150	08/14/23 20:30	08/17/23 00:36	1
13C2 PFTeDA	42		25 - 150	08/14/23 20:30	08/17/23 00:36	1
13C3 PFBS	82		25 - 150	08/14/23 20:30	08/17/23 00:36	1
18O2 PFHxS	89		25 - 150	08/14/23 20:30	08/17/23 00:36	1
13C4 PFOS	76		25 - 150	08/14/23 20:30	08/17/23 00:36	1
13C8 FOSA	90		10 - 150	08/14/23 20:30	08/17/23 00:36	1
d3-NMeFOSAA	87		25 - 150	08/14/23 20:30	08/17/23 00:36	1
d5-NEtFOSAA	69		25 - 150	08/14/23 20:30	08/17/23 00:36	1
d-N-MeFOSA-M	22		10 - 150	08/14/23 20:30	08/17/23 00:36	1
d-N-EtFOSA-M	45		10 - 150	08/14/23 20:30	08/17/23 00:36	1
d7-N-MeFOSE-M	18		10 - 150	08/14/23 20:30	08/17/23 00:36	1
d9-N-EtFOSE-M	64		10 - 150	08/14/23 20:30	08/17/23 00:36	1
M2-4:2 FTS	121		25 - 150	08/14/23 20:30	08/17/23 00:36	1
M2-6:2 FTS	128		25 - 150	08/14/23 20:30	08/17/23 00:36	1
M2-8:2 FTS	105		25 - 150	08/14/23 20:30	08/17/23 00:36	1
13C3 HFPO-DA	89		25 - 150	08/14/23 20:30	08/17/23 00:36	1
13C2 10:2 FTS	111		25 - 150	08/14/23 20:30	08/17/23 00:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	65.4		0.1	0.1	%			07/21/23 13:25	1
Percent Solids (ASTM D 2216)	34.6		0.1	0.1	%			07/21/23 13:25	1

Client Sample ID: Bio A 23-S-2 20230717

Lab Sample ID: 320-102736-2

Date Collected: 07/17/23 13:40

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.4

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.96	J	2.8	0.64	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluoropentanoic acid (PFPA)	5.2		2.8	0.57	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluorohexanoic acid (PFHxA)	13		2.8	0.43	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluoroheptanoic acid (PFHpA)	0.74	J	2.8	0.53	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluorooctanoic acid (PFOA)	7.0		2.8	0.74	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluorononanoic acid (PFNA)	1.0	J	2.8	0.31	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluorodecanoic acid (PFDA)	10		2.8	0.67	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluoroundecanoic acid (PFUnA)	1.7	J	2.8	0.58	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluorododecanoic acid (PFDoA)	4.9		2.8	0.42	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluorotridecanoic acid (PFTTrDA)	0.75	J	2.8	0.29	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluorotetradecanoic acid (PFTeA)	1.5	J	2.8	0.51	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.8	0.53	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.8	0.51	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.8	0.40	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.8	0.68	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.8	0.60	ug/Kg	✱	08/14/23 20:30	08/17/23 18:51	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A 23-S-2 20230717

Lab Sample ID: 320-102736-2

Date Collected: 07/17/23 13:40

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.4

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanesulfonic acid (PFNS)	ND		2.8	0.40	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
Perfluorodecanesulfonic acid (PFDS)	3.9		2.8	0.72	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.8	0.65	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
Perfluorooctanesulfonamide (FOSA)	1.8 J		2.8	0.46	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
NEtFOSA	ND		2.8	0.65	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
NMeFOSA	ND		2.8	0.68	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
NMeFOSAA	27		2.8	0.32	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
NEtFOSAA	11		2.8	0.67	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
NMeFOSE	22		2.8	0.65	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
NEtFOSE	4.7		2.8	0.39	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
4:2 FTS	ND		2.8	0.71	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
6:2 FTS	1.2 J+J		2.8	0.38	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
8:2 FTS	1.5 J		2.8	0.49	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.8	0.54	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
HFPO-DA (GenX)	ND		2.8	0.57	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
9CI-PF3ONS	ND		2.8	0.49	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1
11CI-PF3OUdS	ND		2.8	0.43	ug/Kg	☼	08/14/23 20:30	08/17/23 18:51	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	74		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C5 PFPeA	81		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C2 PFHxA	93		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C4 PFHpA	89		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C4 PFOA	89		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C5 PFNA	67		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C2 PFDA	81		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C2 PFUnA	81		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C2 PFDoA	62		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C2 PFTeDA	36		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C3 PFBS	80		25 - 150	08/14/23 20:30	08/17/23 18:51	1
18O2 PFHxS	88		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C4 PFOS	60		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C8 FOSA	84		10 - 150	08/14/23 20:30	08/17/23 18:51	1
d3-NMeFOSAA	70		25 - 150	08/14/23 20:30	08/17/23 18:51	1
d5-NEtFOSAA	61		25 - 150	08/14/23 20:30	08/17/23 18:51	1
d-N-MeFOSA-M	28		10 - 150	08/14/23 20:30	08/17/23 18:51	1
d-N-EtFOSA-M	25		10 - 150	08/14/23 20:30	08/17/23 18:51	1
d7-N-MeFOSE-M	32		10 - 150	08/14/23 20:30	08/17/23 18:51	1
d9-N-EtFOSE-M	45		10 - 150	08/14/23 20:30	08/17/23 18:51	1
M2-4:2 FTS	140		25 - 150	08/14/23 20:30	08/17/23 18:51	1
M2-6:2 FTS	134		25 - 150	08/14/23 20:30	08/17/23 18:51	1
M2-8:2 FTS	84		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C3 HFPO-DA	87		25 - 150	08/14/23 20:30	08/17/23 18:51	1
13C2 10:2 FTS	106		25 - 150	08/14/23 20:30	08/17/23 18:51	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A 23-S-2 20230717

Lab Sample ID: 320-102736-2

Date Collected: 07/17/23 13:40

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.4

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	75.6		0.1	0.1	%			07/21/23 13:25	1
Percent Solids (ASTM D 2216)	24.4		0.1	0.1	%			07/21/23 13:25	1

Client Sample ID: Bio A 23-S-3 20230717

Lab Sample ID: 320-102736-3

Date Collected: 07/17/23 13:46

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.2	0.73	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluoropentanoic acid (PFPA)	0.94	J	3.2	0.65	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorohexanoic acid (PFHxA)	3.9		3.2	0.49	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluoroheptanoic acid (PFHpA)	ND		3.2	0.60	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorooctanoic acid (PFOA)	3.5		3.2	0.84	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorononanoic acid (PFNA)	1.0	J	3.2	0.35	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorodecanoic acid (PFDA)	9.2		3.2	0.76	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluoroundecanoic acid (PFUnA)	1.4	J	3.2	0.66	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorododecanoic acid (PFDoA)	4.6		3.2	0.47	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorotridecanoic acid (PFTrDA)	0.53	J	3.2	0.33	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorotetradecanoic acid (PFTeA)	1.0	J	3.2	0.59	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorobutanesulfonic acid (PFBS)	ND		3.2	0.60	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.2	0.59	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorohexanesulfonic acid (PFHxS)	ND		3.2	0.46	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.2	0.78	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorooctanesulfonic acid (PFOS)	ND		3.2	0.68	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorononanesulfonic acid (PFNS)	ND		3.2	0.46	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorodecanesulfonic acid (PFDS)	3.7		3.2	0.82	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.2	0.74	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
Perfluorooctanesulfonamide (FOSA)	1.6	J	3.2	0.52	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
NEtFOSA	ND		3.2	0.74	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
NMeFOSA	ND		3.2	0.78	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
NMeFOSAA	24		3.2	0.36	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
NEtFOSAA	9.1		3.2	0.76	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
NMeFOSE	17		3.2	0.74	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
NEtFOSE	3.9		3.2	0.44	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
4:2 FTS	ND		3.2	0.81	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
6:2 FTS	0.45	J	3.2	0.43	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
8:2 FTS	1.3	J	3.2	0.55	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.2	0.62	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
HFPO-DA (GenX)	ND		3.2	0.65	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
9CI-PF3ONS	ND		3.2	0.55	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1
11CI-PF3OUdS	ND		3.2	0.49	ug/Kg	☼	08/14/23 20:30	08/17/23 00:56	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A 23-S-3 20230717

Lab Sample ID: 320-102736-3

Date Collected: 07/17/23 13:46

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	83		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C5 PFPeA	85		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C2 PFHxA	100		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C4 PFHpA	96		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C4 PFOA	94		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C5 PFNA	75		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C2 PFDA	88		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C2 PFUnA	91		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C2 PFDoA	68		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C2 PFTeDA	34		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C3 PFBS	84		25 - 150	08/14/23 20:30	08/17/23 00:56	1
18O2 PFHxS	93		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C4 PFOS	62		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C8 FOSA	89		10 - 150	08/14/23 20:30	08/17/23 00:56	1
d3-NMeFOSAA	69		25 - 150	08/14/23 20:30	08/17/23 00:56	1
d5-NEtFOSAA	67		25 - 150	08/14/23 20:30	08/17/23 00:56	1
d-N-MeFOSA-M	32		10 - 150	08/14/23 20:30	08/17/23 00:56	1
d-N-EtFOSA-M	27		10 - 150	08/14/23 20:30	08/17/23 00:56	1
d7-N-MeFOSE-M	38		10 - 150	08/14/23 20:30	08/17/23 00:56	1
d9-N-EtFOSE-M	49		10 - 150	08/14/23 20:30	08/17/23 00:56	1
M2-4:2 FTS	130		25 - 150	08/14/23 20:30	08/17/23 00:56	1
M2-6:2 FTS	149		25 - 150	08/14/23 20:30	08/17/23 00:56	1
M2-8:2 FTS	99		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C3 HFPO-DA	89		25 - 150	08/14/23 20:30	08/17/23 00:56	1
13C2 10:2 FTS	123		25 - 150	08/14/23 20:30	08/17/23 00:56	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	75.9		0.1	0.1	%			07/21/23 13:25	1
Percent Solids (ASTM D 2216)	24.1		0.1	0.1	%			07/21/23 13:25	1

Client Sample ID: Bio A 23-S-4 20230717

Lab Sample ID: 320-102736-4

Date Collected: 07/17/23 14:05

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 25.2

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.3	0.75	ug/Kg	✱	08/14/23 20:30	08/17/23 01:06	1
Perfluoropentanoic acid (PFPA)	ND		3.3	0.67	ug/Kg	✱	08/14/23 20:30	08/17/23 01:06	1
Perfluorohexanoic acid (PFHxA)	2.9	J	3.3	0.50	ug/Kg	✱	08/14/23 20:30	08/17/23 01:06	1
Perfluoroheptanoic acid (PFHpA)	ND		3.3	0.62	ug/Kg	✱	08/14/23 20:30	08/17/23 01:06	1
Perfluorooctanoic acid (PFOA)	3.1	J	3.3	0.86	ug/Kg	✱	08/14/23 20:30	08/17/23 01:06	1
Perfluorononanoic acid (PFNA)	0.90	J	3.3	0.36	ug/Kg	✱	08/14/23 20:30	08/17/23 01:06	1
Perfluorodecanoic acid (PFDA)	9.7		3.3	0.78	ug/Kg	✱	08/14/23 20:30	08/17/23 01:06	1
Perfluoroundecanoic acid (PFUnA)	1.5	J	3.3	0.68	ug/Kg	✱	08/14/23 20:30	08/17/23 01:06	1
Perfluorododecanoic acid (PFDoA)	4.7		3.3	0.49	ug/Kg	✱	08/14/23 20:30	08/17/23 01:06	1
Perfluorotridecanoic acid (PFTTrDA)	0.49	J	3.3	0.34	ug/Kg	✱	08/14/23 20:30	08/17/23 01:06	1
Perfluorotetradecanoic acid (PFTeA)	1.1	J--- J	3.3	0.60	ug/Kg	✱	08/14/23 20:30	08/17/23 01:06	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A 23-S-4 20230717

Lab Sample ID: 320-102736-4

Date Collected: 07/17/23 14:05

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 25.2

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		3.3	0.62	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.3	0.60	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
Perfluorohexanesulfonic acid (PFHxS)	ND		3.3	0.47	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.3	0.80	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
Perfluorooctanesulfonic acid (PFOS)	ND		3.3	0.70	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
Perfluorononanesulfonic acid (PFNS)	ND		3.3	0.47	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
Perfluorodecanesulfonic acid (PFDS)	3.2	J	3.3	0.85	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.3	0.76	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
Perfluorooctanesulfonamide (FOSA)	1.5	J	3.3	0.54	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
NEtFOSA	ND		3.3	0.76	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
NMeFOSA	ND		3.3	0.80	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
NMeFOSAA	26		3.3	0.37	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
NEtFOSAA	11		3.3	0.78	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
NMeFOSE	18		3.3	0.76	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
NEtFOSE	4.1		3.3	0.46	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
4:2 FTS	ND		3.3	0.83	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
6:2 FTS	ND		3.3	0.44	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
8:2 FTS	1.3	J	3.3	0.57	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.3	0.63	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
HFPO-DA (GenX)	ND		3.3	0.67	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
9Cl-PF3ONS	ND		3.3	0.57	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1
11Cl-PF3OUdS	ND		3.3	0.50	ug/Kg	☼	08/14/23 20:30	08/17/23 01:06	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	80		25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C5 PFPeA	85		25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C2 PFHxA	92		25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C4 PFHpA	87		25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C4 PFOA	91		25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C5 PFNA	67		25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C2 PFDA	82		25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C2 PFUnA	83		25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C2 PFDoA	64		25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C2 PFTeDA	24	*5-	25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C3 PFBS	76		25 - 150	08/14/23 20:30	08/17/23 01:06	1
18O2 PFHxS	81		25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C4 PFOS	53		25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C8 FOSA	80		10 - 150	08/14/23 20:30	08/17/23 01:06	1
d3-NMeFOSAA	62		25 - 150	08/14/23 20:30	08/17/23 01:06	1
d5-NEtFOSAA	62		25 - 150	08/14/23 20:30	08/17/23 01:06	1
d-N-MeFOSA-M	29		10 - 150	08/14/23 20:30	08/17/23 01:06	1
d-N-EtFOSA-M	17		10 - 150	08/14/23 20:30	08/17/23 01:06	1
d7-N-MeFOSE-M	37		10 - 150	08/14/23 20:30	08/17/23 01:06	1
d9-N-EtFOSE-M	38		10 - 150	08/14/23 20:30	08/17/23 01:06	1
M2-4:2 FTS	122		25 - 150	08/14/23 20:30	08/17/23 01:06	1
M2-6:2 FTS	134		25 - 150	08/14/23 20:30	08/17/23 01:06	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A 23-S-4 20230717

Lab Sample ID: 320-102736-4

Date Collected: 07/17/23 14:05

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 25.2

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-8:2 FTS	86		25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C3 HFPO-DA	88		25 - 150	08/14/23 20:30	08/17/23 01:06	1
13C2 10:2 FTS	111		25 - 150	08/14/23 20:30	08/17/23 01:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	74.8		0.1	0.1	%			07/21/23 13:25	1
Percent Solids (ASTM D 2216)	25.2		0.1	0.1	%			07/21/23 13:25	1

Client Sample ID: Bio A-23-S-C 20230717

Lab Sample ID: 320-102736-5

Date Collected: 07/17/23 14:12

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.3	0.75	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluoropentanoic acid (PFPA)	1.4	J	3.3	0.67	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorohexanoic acid (PFHxA)	5.0		3.3	0.50	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluoroheptanoic acid (PFHpA)	ND		3.3	0.62	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorooctanoic acid (PFOA)	4.0		3.3	0.86	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorononanoic acid (PFNA)	0.95	J	3.3	0.36	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorodecanoic acid (PFDA)	9.7		3.3	0.78	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluoroundecanoic acid (PFUnA)	1.5	J	3.3	0.68	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorododecanoic acid (PFDoA)	4.9		3.3	0.49	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorotridecanoic acid (PFTrDA)	0.57	J	3.3	0.34	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorotetradecanoic acid (PFTeA)	1.0	J	3.3	0.60	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorobutanesulfonic acid (PFBS)	ND		3.3	0.62	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.3	0.60	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorohexanesulfonic acid (PFHxS)	ND		3.3	0.47	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.3	0.80	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorooctanesulfonic acid (PFOS)	ND		3.3	0.70	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorononanesulfonic acid (PFNS)	ND		3.3	0.47	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorodecanesulfonic acid (PFDS)	3.8		3.3	0.85	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.3	0.77	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Perfluorooctanesulfonamide (FOSA)	1.4	J	3.3	0.54	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
NEtFOSA	ND		3.3	0.77	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
NMeFOSA	ND		3.3	0.80	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
NMeFOSAA	25		3.3	0.37	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
NEtFOSAA	10		3.3	0.78	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
NMeFOSE	18		3.3	0.77	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
NEtFOSE	4.0		3.3	0.46	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
4:2 FTS	ND		3.3	0.83	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
6:2 FTS	0.58	J	3.3	0.44	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A-23-S-C 20230717

Lab Sample ID: 320-102736-5

Date Collected: 07/17/23 14:12

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
8:2 FTS	1.3	J	3.3	0.57	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.3	0.64	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
HFPO-DA (GenX)	ND		3.3	0.67	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
9CI-PF3ONS	ND		3.3	0.57	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
11CI-PF3OUdS	ND		3.3	0.50	ug/Kg	☼	08/14/23 20:30	08/17/23 01:17	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	81		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C5 PFPeA	84		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C2 PFHxA	93		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C4 PFHpA	93		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C4 PFOA	93		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C5 PFNA	76		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C2 PFDA	85		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C2 PFUnA	89		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C2 PFDoA	66		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C2 PFTeDA	40		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C3 PFBS	78		25 - 150				08/14/23 20:30	08/17/23 01:17	1
18O2 PFHxS	85		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C4 PFOS	60		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C8 FOSA	87		10 - 150				08/14/23 20:30	08/17/23 01:17	1
d3-NMeFOSAA	72		25 - 150				08/14/23 20:30	08/17/23 01:17	1
d5-NEtFOSAA	69		25 - 150				08/14/23 20:30	08/17/23 01:17	1
d-N-MeFOSA-M	31		10 - 150				08/14/23 20:30	08/17/23 01:17	1
d-N-EtFOSA-M	31		10 - 150				08/14/23 20:30	08/17/23 01:17	1
d7-N-MeFOSE-M	38		10 - 150				08/14/23 20:30	08/17/23 01:17	1
d9-N-EtFOSE-M	51		10 - 150				08/14/23 20:30	08/17/23 01:17	1
M2-4:2 FTS	123		25 - 150				08/14/23 20:30	08/17/23 01:17	1
M2-6:2 FTS	147		25 - 150				08/14/23 20:30	08/17/23 01:17	1
M2-8:2 FTS	93		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C3 HFPO-DA	92		25 - 150				08/14/23 20:30	08/17/23 01:17	1
13C2 10:2 FTS	115		25 - 150				08/14/23 20:30	08/17/23 01:17	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	75.4		0.1	0.1	%			07/21/23 13:25	1
Percent Solids (ASTM D 2216)	24.6		0.1	0.1	%			07/21/23 13:25	1

Client Sample ID: Bio A-23-D-1 20230717

Lab Sample ID: 320-102736-6

Date Collected: 07/17/23 13:28

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 23.8

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.9	0.89	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluoropentanoic acid (PFPA)	ND		3.9	0.80	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluorohexanoic acid (PFHxA)	1.9	J	3.9	0.60	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluoroheptanoic acid (PFHpA)	ND		3.9	0.74	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluorooctanoic acid (PFOA)	2.7	J	3.9	1.0	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluorononanoic acid (PFNA)	0.96	J	3.9	0.43	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A-23-D-1 20230717

Lab Sample ID: 320-102736-6

Date Collected: 07/17/23 13:28

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 23.8

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanoic acid (PFDA)	9.6		3.9	0.93	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluoroundecanoic acid (PFUnA)	1.5	J	3.9	0.82	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluorododecanoic acid (PFDoA)	4.4		3.9	0.58	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluorotridecanoic acid (PFTrDA)	0.55	J	3.9	0.41	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluorotetradecanoic acid (PFTeA)	0.95	J	3.9	0.72	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluorobutanesulfonic acid (PFBS)	ND		3.9	0.74	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.9	0.72	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluorohexanesulfonic acid (PFHxS)	ND		3.9	0.56	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.9	0.95	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluorooctanesulfonic acid (PFOS)	ND		3.9	0.84	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluorononanesulfonic acid (PFNS)	ND		3.9	0.56	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluorodecanesulfonic acid (PFDS)	3.5	J	3.9	1.0	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.9	0.91	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
Perfluorooctanesulfonamide (FOSA)	1.5	J	3.9	0.64	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
NEtFOSA	ND		3.9	0.91	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
NMeFOSA	ND		3.9	0.95	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
NMeFOSAA	24		3.9	0.45	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
NEtFOSAA	9.3		3.9	0.93	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
NMeFOSE	18		3.9	0.91	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
NEtFOSE	3.9		3.9	0.54	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
4:2 FTS	ND		3.9	0.99	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
6:2 FTS	ND		3.9	0.52	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
8:2 FTS	1.5	J	3.9	0.68	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.9	0.76	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
HFPO-DA (GenX)	ND		3.9	0.80	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
9Cl-PF3ONS	ND		3.9	0.68	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1
11Cl-PF3OUdS	ND		3.9	0.60	ug/Kg	☼	08/14/23 20:30	08/17/23 01:27	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	64		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C5 PFPeA	84		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C2 PFHxA	96		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C4 PFHpA	90		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C4 PFOA	95		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C5 PFNA	75		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C2 PFDA	88		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C2 PFUnA	90		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C2 PFDoA	67		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C2 PFTeDA	43		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C3 PFBS	78		25 - 150	08/14/23 20:30	08/17/23 01:27	1
18O2 PFHxS	87		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C4 PFOS	61		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C8 FOSA	84		10 - 150	08/14/23 20:30	08/17/23 01:27	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A-23-D-1 20230717

Lab Sample ID: 320-102736-6

Date Collected: 07/17/23 13:28

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 23.8

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d3-NMeFOSAA	74		25 - 150	08/14/23 20:30	08/17/23 01:27	1
d5-NEtFOSAA	71		25 - 150	08/14/23 20:30	08/17/23 01:27	1
d-N-MeFOSA-M	34		10 - 150	08/14/23 20:30	08/17/23 01:27	1
d-N-EtFOSA-M	31		10 - 150	08/14/23 20:30	08/17/23 01:27	1
d7-N-MeFOSE-M	39		10 - 150	08/14/23 20:30	08/17/23 01:27	1
d9-N-EtFOSE-M	54		10 - 150	08/14/23 20:30	08/17/23 01:27	1
M2-4:2 FTS	119		25 - 150	08/14/23 20:30	08/17/23 01:27	1
M2-6:2 FTS	144		25 - 150	08/14/23 20:30	08/17/23 01:27	1
M2-8:2 FTS	96		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C3 HFPO-DA	89		25 - 150	08/14/23 20:30	08/17/23 01:27	1
13C2 10:2 FTS	116		25 - 150	08/14/23 20:30	08/17/23 01:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	76.2		0.1	0.1	%			07/21/23 13:25	1
Percent Solids (ASTM D 2216)	23.8		0.1	0.1	%			07/21/23 13:25	1

Client Sample ID: Bio A-23-D-3 20230717

Lab Sample ID: 320-102736-7

Date Collected: 07/17/23 13:55

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.0	0.93	ug/Kg	⊛	08/14/23 20:30	08/17/23 01:37	1
Perfluoropentanoic acid (PFPA)	ND		4.0	0.83	ug/Kg	⊛	08/14/23 20:30	08/17/23 01:37	1
Perfluorohexanoic acid (PFHxA)	2.2	J+-- J	4.0	0.62	ug/Kg	⊛	08/14/23 20:30	08/17/23 01:37	1
Perfluoroheptanoic acid (PFHpA)	ND		4.0	0.77	ug/Kg	⊛	08/14/23 20:30	08/17/23 01:37	1
Perfluorooctanoic acid (PFOA)	3.3	J	4.0	1.1	ug/Kg	⊛	08/14/23 20:30	08/17/23 01:37	1
Perfluorononanoic acid (PFNA)	1.1	J	4.0	0.44	ug/Kg	⊛	08/14/23 20:30	08/17/23 01:37	1
Perfluorodecanoic acid (PFDA)	11		4.0	0.97	ug/Kg	⊛	08/14/23 20:30	08/17/23 01:37	1
Perfluoroundecanoic acid (PFUnA)	1.7	J	4.0	0.85	ug/Kg	⊛	08/14/23 20:30	08/17/23 01:37	1
Perfluorododecanoic acid (PFDoA)	5.3		4.0	0.60	ug/Kg	⊛	08/14/23 20:30	08/17/23 01:37	1
Perfluorotridecanoic acid (PFTrDA)	0.77	J	4.0	0.42	ug/Kg	⊛	08/14/23 20:30	08/17/23 01:37	1
Perfluorotetradecanoic acid (PFTeA)	1.4	J	4.0	0.75	ug/Kg	⊛	08/14/23 20:30	08/17/23 01:37	1
Perfluorobutanesulfonic acid (PFBS)	ND		4.0	0.77	ug/Kg	⊛	08/14/23 20:30	08/17/23 01:37	1
Perfluoropentanesulfonic acid (PFPeS)	ND		4.0	0.75	ug/Kg	⊛	08/14/23 20:30	08/17/23 01:37	1
Perfluorohexanesulfonic acid (PFHxS)	ND		4.0	0.58	ug/Kg	⊛	08/14/23 20:30	08/17/23 01:37	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		4.0	0.99	ug/Kg	⊛	08/14/23 20:30	08/17/23 01:37	1
Perfluorooctanesulfonic acid (PFOS)	ND		4.0	0.87	ug/Kg	⊛	08/14/23 20:30	08/17/23 01:37	1
Perfluorononanesulfonic acid (PFNS)	ND		4.0	0.58	ug/Kg	⊛	08/14/23 20:30	08/17/23 01:37	1
Perfluorodecanesulfonic acid (PFDS)	3.7	J	4.0	1.0	ug/Kg	⊛	08/14/23 20:30	08/17/23 01:37	1
Perfluorododecanesulfonic acid (PFDoS)	ND		4.0	0.95	ug/Kg	⊛	08/14/23 20:30	08/17/23 01:37	1
Perfluorooctanesulfonamide (FOSA)	1.7	J	4.0	0.67	ug/Kg	⊛	08/14/23 20:30	08/17/23 01:37	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: Bio A-23-D-3 20230717

Lab Sample ID: 320-102736-7

Date Collected: 07/17/23 13:55

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSA	ND		4.0	0.95	ug/Kg	☼	08/14/23 20:30	08/17/23 01:37	1
NMeFOSA	ND		4.0	0.99	ug/Kg	☼	08/14/23 20:30	08/17/23 01:37	1
NMeFOSAA	27		4.0	0.46	ug/Kg	☼	08/14/23 20:30	08/17/23 01:37	1
NEtFOSAA	11		4.0	0.97	ug/Kg	☼	08/14/23 20:30	08/17/23 01:37	1
NMeFOSE	21		4.0	0.95	ug/Kg	☼	08/14/23 20:30	08/17/23 01:37	1
NEtFOSE	5.1		4.0	0.56	ug/Kg	☼	08/14/23 20:30	08/17/23 01:37	1
4:2 FTS	ND		4.0	1.0	ug/Kg	☼	08/14/23 20:30	08/17/23 01:37	1
6:2 FTS	ND		4.0	0.54	ug/Kg	☼	08/14/23 20:30	08/17/23 01:37	1
8:2 FTS	1.7 J		4.0	0.71	ug/Kg	☼	08/14/23 20:30	08/17/23 01:37	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		4.0	0.79	ug/Kg	☼	08/14/23 20:30	08/17/23 01:37	1
HFPO-DA (GenX)	ND		4.0	0.83	ug/Kg	☼	08/14/23 20:30	08/17/23 01:37	1
9Cl-PF3ONS	ND		4.0	0.71	ug/Kg	☼	08/14/23 20:30	08/17/23 01:37	1
11Cl-PF3OUdS	ND		4.0	0.62	ug/Kg	☼	08/14/23 20:30	08/17/23 01:37	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	75		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C5 PFPeA	83		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C2 PFHxA	91		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C4 PFHpA	87		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C4 PFOA	93		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C5 PFNA	72		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C2 PFDA	87		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C2 PFUnA	86		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C2 PFDoA	64		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C2 PFTeDA	43		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C3 PFBS	81		25 - 150	08/14/23 20:30	08/17/23 01:37	1
18O2 PFHxS	88		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C4 PFOS	59		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C8 FOSA	86		10 - 150	08/14/23 20:30	08/17/23 01:37	1
d3-NMeFOSAA	84		25 - 150	08/14/23 20:30	08/17/23 01:37	1
d5-NEtFOSAA	71		25 - 150	08/14/23 20:30	08/17/23 01:37	1
d-N-MeFOSA-M	33		10 - 150	08/14/23 20:30	08/17/23 01:37	1
d-N-EtFOSA-M	33		10 - 150	08/14/23 20:30	08/17/23 01:37	1
d7-N-MeFOSE-M	40		10 - 150	08/14/23 20:30	08/17/23 01:37	1
d9-N-EtFOSE-M	51		10 - 150	08/14/23 20:30	08/17/23 01:37	1
M2-4:2 FTS	119		25 - 150	08/14/23 20:30	08/17/23 01:37	1
M2-6:2 FTS	142		25 - 150	08/14/23 20:30	08/17/23 01:37	1
M2-8:2 FTS	92		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C3 HFPO-DA	87		25 - 150	08/14/23 20:30	08/17/23 01:37	1
13C2 10:2 FTS	115		25 - 150	08/14/23 20:30	08/17/23 01:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	75.4		0.1	0.1	%			07/21/23 13:25	1
Percent Solids (ASTM D 2216)	24.6		0.1	0.1	%			07/21/23 13:25	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: EB 01 20230717

Lab Sample ID: 320-102736-8

Date Collected: 07/17/23 13:10

Matrix: Water

Date Received: 07/20/23 15:42

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.3	2.1	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluoropentanoic acid (PFPA)	ND		1.7	0.42	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorohexanoic acid (PFHxA)	ND		1.7	0.50	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluoroheptanoic acid (PFHpA)	ND		1.7	0.21	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorooctanoic acid (PFOA)	ND		1.7	0.73	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.23	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.27	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.94	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.47	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.7	1.1	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.63	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.7	0.17	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.7	0.26	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.7	0.49	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.7	0.16	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	0.46	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.32	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.27	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.83	ng/L		07/24/23 13:53	07/29/23 09:58	1
Perfluorooctanesulfonamide (FOSA)	ND		1.7	0.84	ng/L		07/24/23 13:53	07/29/23 09:58	1
NEtFOSA	ND		1.7	0.75	ng/L		07/24/23 13:53	07/29/23 09:58	1
NMeFOSA	ND		1.7	0.37	ng/L		07/24/23 13:53	07/29/23 09:58	1
NMeFOSAA	ND		4.3	1.0	ng/L		07/24/23 13:53	07/29/23 09:58	1
NEtFOSAA	ND		4.3	1.1	ng/L		07/24/23 13:53	07/29/23 09:58	1
NMeFOSE	ND		3.4	1.2	ng/L		07/24/23 13:53	07/29/23 09:58	1
NEtFOSE	ND		1.7	0.73	ng/L		07/24/23 13:53	07/29/23 09:58	1
4:2 FTS	ND		1.7	0.21	ng/L		07/24/23 13:53	07/29/23 09:58	1
6:2 FTS	ND		4.3	2.1	ng/L		07/24/23 13:53	07/29/23 09:58	1
8:2 FTS	ND		1.7	0.39	ng/L		07/24/23 13:53	07/29/23 09:58	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.34	ng/L		07/24/23 13:53	07/29/23 09:58	1
HFPO-DA (GenX)	ND		3.4	1.3	ng/L		07/24/23 13:53	07/29/23 09:58	1
9Cl-PF3ONS	ND		1.7	0.21	ng/L		07/24/23 13:53	07/29/23 09:58	1
11Cl-PF3OUdS	ND		1.7	0.27	ng/L		07/24/23 13:53	07/29/23 09:58	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	102		25 - 150				07/24/23 13:53	07/29/23 09:58	1
13C5 PFPeA	106		25 - 150				07/24/23 13:53	07/29/23 09:58	1
13C2 PFHxA	101		25 - 150				07/24/23 13:53	07/29/23 09:58	1
13C4 PFHpA	102		25 - 150				07/24/23 13:53	07/29/23 09:58	1
13C4 PFOA	101		25 - 150				07/24/23 13:53	07/29/23 09:58	1
13C5 PFNA	110		25 - 150				07/24/23 13:53	07/29/23 09:58	1
13C2 PFDA	111		25 - 150				07/24/23 13:53	07/29/23 09:58	1
13C2 PFUnA	112		25 - 150				07/24/23 13:53	07/29/23 09:58	1
13C2 PFDoA	116		25 - 150				07/24/23 13:53	07/29/23 09:58	1
13C2 PFTeDA	118		25 - 150				07/24/23 13:53	07/29/23 09:58	1
13C3 PFBS	110		25 - 150				07/24/23 13:53	07/29/23 09:58	1
18O2 PFHxS	111		25 - 150				07/24/23 13:53	07/29/23 09:58	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: EB 01 20230717

Lab Sample ID: 320-102736-8

Date Collected: 07/17/23 13:10

Matrix: Water

Date Received: 07/20/23 15:42

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	116		25 - 150	07/24/23 13:53	07/29/23 09:58	1
13C8 FOSA	130		10 - 150	07/24/23 13:53	07/29/23 09:58	1
d3-NMeFOSAA	128		25 - 150	07/24/23 13:53	07/29/23 09:58	1
d5-NEtFOSAA	132		25 - 150	07/24/23 13:53	07/29/23 09:58	1
d-N-MeFOSA-M	106		10 - 150	07/24/23 13:53	07/29/23 09:58	1
d-N-EtFOSA-M	107		10 - 150	07/24/23 13:53	07/29/23 09:58	1
d7-N-MeFOSE-M	122		10 - 150	07/24/23 13:53	07/29/23 09:58	1
d9-N-EtFOSE-M	118		10 - 150	07/24/23 13:53	07/29/23 09:58	1
M2-4:2 FTS	84		25 - 150	07/24/23 13:53	07/29/23 09:58	1
M2-6:2 FTS	71		25 - 150	07/24/23 13:53	07/29/23 09:58	1
M2-8:2 FTS	87		25 - 150	07/24/23 13:53	07/29/23 09:58	1
13C3 HFPO-DA	94		25 - 150	07/24/23 13:53	07/29/23 09:58	1
13C2 10:2 FTS	87		25 - 150	07/24/23 13:53	07/29/23 09:58	1

Client Sample ID: INF COMP 20230717

Lab Sample ID: 320-102736-9

Date Collected: 07/17/23 23:59

Matrix: Water

Date Received: 07/20/23 15:42

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	9.7		4.4	2.1	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluoropentanoic acid (PFPA)	7.7		1.7	0.43	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorohexanoic acid (PFHxA)	15		1.7	0.51	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluoroheptanoic acid (PFHpA)	3.2		1.7	0.22	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorooctanoic acid (PFOA)	8.8		1.7	0.74	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.24	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorodecanoic acid (PFDA)	0.65	J J	1.7	0.27	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.96	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.48	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.7	1.1	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.64	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorobutanesulfonic acid (PFBS)	4.9		1.7	0.17	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.7	0.26	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.7	0.50	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.7	0.17	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	0.47	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.32	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.28	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.85	ng/L		08/03/23 04:27	08/03/23 17:10	1
Perfluorooctanesulfonamide (FOSA)	ND		1.7	0.86	ng/L		08/03/23 04:27	08/03/23 17:10	1
NEtFOSA	ND		1.7	0.76	ng/L		08/03/23 04:27	08/03/23 17:10	1
NMeFOSA	ND		1.7	0.38	ng/L		08/03/23 04:27	08/03/23 17:10	1
NMeFOSAA	ND		4.4	1.0	ng/L		08/03/23 04:27	08/03/23 17:10	1
NEtFOSAA	ND	UJ	4.4	1.1	ng/L		08/03/23 04:27	08/03/23 17:10	1
NMeFOSE	ND		3.5	1.2	ng/L		08/03/23 04:27	08/03/23 17:10	1
NEtFOSE	ND		1.7	0.74	ng/L		08/03/23 04:27	08/03/23 17:10	1
4:2 FTS	ND		1.7	0.21	ng/L		08/03/23 04:27	08/03/23 17:10	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: INF COMP 20230717

Lab Sample ID: 320-102736-9

Date Collected: 07/17/23 23:59

Matrix: Water

Date Received: 07/20/23 15:42

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 FTS	ND		4.4	2.2	ng/L		08/03/23 04:27	08/03/23 17:10	1
8:2 FTS	0.69	J+-- J	1.7	0.40	ng/L		08/03/23 04:27	08/03/23 17:10	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.35	ng/L		08/03/23 04:27	08/03/23 17:10	1
HFPO-DA (GenX)	ND		3.5	1.3	ng/L		08/03/23 04:27	08/03/23 17:10	1
9CI-PF3ONS	ND		1.7	0.21	ng/L		08/03/23 04:27	08/03/23 17:10	1
11CI-PF3OUdS	ND		1.7	0.28	ng/L		08/03/23 04:27	08/03/23 17:10	1

Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	66		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C5 PFPeA	56		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C2 PFHxA	58		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C4 PFHpA	52		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C4 PFOA	61		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C5 PFNA	64		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C2 PFDA	52		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C2 PFUnA	32		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C2 PFDaA	31		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C2 PFTeDA	25		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C3 PFBS	67		25 - 150				08/03/23 04:27	08/03/23 17:10	1
18O2 PFHxS	75		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C4 PFOS	62		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C8 FOSA	51		10 - 150				08/03/23 04:27	08/03/23 17:10	1
d3-NMeFOSAA	26		25 - 150				08/03/23 04:27	08/03/23 17:10	1
d5-NEtFOSAA	24	*5-	25 - 150				08/03/23 04:27	08/03/23 17:10	1
d-N-MeFOSA-M	33		10 - 150				08/03/23 04:27	08/03/23 17:10	1
d-N-EtFOSA-M	35		10 - 150				08/03/23 04:27	08/03/23 17:10	1
d7-N-MeFOSE-M	27		10 - 150				08/03/23 04:27	08/03/23 17:10	1
d9-N-EtFOSE-M	31		10 - 150				08/03/23 04:27	08/03/23 17:10	1
M2-4:2 FTS	53		25 - 150				08/03/23 04:27	08/03/23 17:10	1
M2-6:2 FTS	80		25 - 150				08/03/23 04:27	08/03/23 17:10	1
M2-8:2 FTS	64		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C3 HFPO-DA	70		25 - 150				08/03/23 04:27	08/03/23 17:10	1
13C2 10:2 FTS	36		25 - 150				08/03/23 04:27	08/03/23 17:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	420		50	19	mg/L			07/22/23 09:15	1

Client Sample ID: EFF 20230718

Lab Sample ID: 320-102736-10

Date Collected: 07/18/23 23:59

Matrix: Water

Date Received: 07/20/23 15:42

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	12		4.8	2.3	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluoropentanoic acid (PFPA)	21		1.9	0.47	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluorohexanoic acid (PFHxA)	27		1.9	0.55	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluoroheptanoic acid (PFHpA)	3.8		1.9	0.24	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluorooctanoic acid (PFOA)	12		1.9	0.81	ng/L		08/15/23 12:19	08/16/23 13:08	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: EFF 20230718

Lab Sample ID: 320-102736-10

Date Collected: 07/18/23 23:59

Matrix: Water

Date Received: 07/20/23 15:42

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	0.77	J	1.9	0.26	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluorodecanoic acid (PFDA)	1.4	J	1.9	0.30	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluorobutanesulfonic acid (PFBS)	7.1		1.9	0.19	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluoropentanesulfonic acid (PFPeS)	0.66	J	1.9	0.29	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluorohexanesulfonic acid (PFHxS)	8.5		1.9	0.54	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluorooctanesulfonic acid (PFOS)	4.9		1.9	0.51	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.35	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.92	ng/L		08/15/23 12:19	08/16/23 13:08	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.93	ng/L		08/15/23 12:19	08/16/23 13:08	1
NEtFOSA	ND		1.9	0.83	ng/L		08/15/23 12:19	08/16/23 13:08	1
NMeFOSA	ND		1.9	0.41	ng/L		08/15/23 12:19	08/16/23 13:08	1
NMeFOSAA	1.5	J	4.8	1.1	ng/L		08/15/23 12:19	08/16/23 13:08	1
NEtFOSAA	ND		4.8	1.2	ng/L		08/15/23 12:19	08/16/23 13:08	1
NMeFOSE	ND		3.8	1.3	ng/L		08/15/23 12:19	08/16/23 13:08	1
NEtFOSE	ND		1.9	0.81	ng/L		08/15/23 12:19	08/16/23 13:08	1
4:2 FTS	ND		1.9	0.23	ng/L		08/15/23 12:19	08/16/23 13:08	1
6:2 FTS	ND		4.8	2.4	ng/L		08/15/23 12:19	08/16/23 13:08	1
8:2 FTS	ND		1.9	0.44	ng/L		08/15/23 12:19	08/16/23 13:08	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		08/15/23 12:19	08/16/23 13:08	1
HFPO-DA (GenX)	ND		3.8	1.4	ng/L		08/15/23 12:19	08/16/23 13:08	1
9CI-PF3ONS	ND		1.9	0.23	ng/L		08/15/23 12:19	08/16/23 13:08	1
11CI-PF3OUdS	ND		1.9	0.30	ng/L		08/15/23 12:19	08/16/23 13:08	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	63		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C5 PFPeA	67		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C2 PFHxA	74		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C4 PFHpA	77		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C4 PFOA	79		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C5 PFNA	76		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C2 PFDA	72		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C2 PFUnA	61		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C2 PFDoA	43		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C2 PFTeDA	31		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C3 PFBS	80		25 - 150	08/15/23 12:19	08/16/23 13:08	1
18O2 PFHxS	82		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C4 PFOS	74		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C8 FOSA	77		10 - 150	08/15/23 12:19	08/16/23 13:08	1
d3-NMeFOSAA	63		25 - 150	08/15/23 12:19	08/16/23 13:08	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-2

Client Sample ID: EFF 20230718

Lab Sample ID: 320-102736-10

Date Collected: 07/18/23 23:59

Matrix: Water

Date Received: 07/20/23 15:42

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
d5-NEtFOSAA	64		25 - 150	08/15/23 12:19	08/16/23 13:08	1
d-N-MeFOSA-M	50		10 - 150	08/15/23 12:19	08/16/23 13:08	1
d-N-EtFOSA-M	42		10 - 150	08/15/23 12:19	08/16/23 13:08	1
d7-N-MeFOSE-M	41		10 - 150	08/15/23 12:19	08/16/23 13:08	1
d9-N-EtFOSE-M	34		10 - 150	08/15/23 12:19	08/16/23 13:08	1
M2-4:2 FTS	85		25 - 150	08/15/23 12:19	08/16/23 13:08	1
M2-6:2 FTS	96		25 - 150	08/15/23 12:19	08/16/23 13:08	1
M2-8:2 FTS	80		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C3 HFPO-DA	69		25 - 150	08/15/23 12:19	08/16/23 13:08	1
13C2 10:2 FTS	42		25 - 150	08/15/23 12:19	08/16/23 13:08	1

General Chemistry

<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Total Suspended Solids (SM 2540D)	4.7	J	5.0	1.9	mg/L	-		07/22/23 09:19	1

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-1

Client Sample ID: Bio A-23-S-C 20230717

Lab Sample ID: 320-102736-5

Date Collected: 07/17/23 14:12

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	H---UJ	3.8	0.88	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluoropentanoic acid (PFPA)	2.3	JH--- J	3.8	0.79	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorohexanoic acid (PFHxA)	4.1	H---- J	3.8	0.60	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluoroheptanoic acid (PFHpA)	ND	H---UJ	3.8	0.73	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorooctanoic acid (PFOA)	2.8	JH--- J	3.8	1.0	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorononanoic acid (PFNA)	0.63	JH--- J	3.8	0.42	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorodecanoic acid (PFDA)	6.3	H---- J	3.8	0.92	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluoroundecanoic acid (PFUnA)	1.0	JH--- J	3.8	0.81	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorododecanoic acid (PFDoA)	2.7	JH--- J	3.8	0.58	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorotridecanoic acid (PFTTrDA)	ND	H---UJ	3.8	0.40	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorotetradecanoic acid (PFTTeA)	1.2	JH--- J	3.8	0.71	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorobutanesulfonic acid (PFBS)	2.5	JH--- J	3.8	0.73	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluoropentanesulfonic acid (PFPeS)	ND	H---UJ	3.8	0.71	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorohexanesulfonic acid (PFHxS)	3.5	JH--- UJ	3.8	0.56	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	H---UJ	3.8	0.94	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorooctanesulfonic acid (PFOS)	14	H--- J	3.8	0.83	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorononanesulfonic acid (PFNS)	ND	H---UJ	3.8	0.56	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorodecanesulfonic acid (PFDS)	1.9	JH--- J	3.8	1.0	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorododecanesulfonic acid (PFDoS)	ND	H---UJ	3.8	0.91	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
Perfluorooctanesulfonamide (FOSA)	1.0	JH--- J	3.8	0.63	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
NMeFOSA	ND	H---UJ	3.8	0.94	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
NEtFOSA	ND	H---UJ	3.8	0.91	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
NMeFOSAA	12	H---- J	3.8	0.44	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
NEtFOSAA	5.1	H---- J	3.8	0.92	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
NMeFOSE	14	H---- J	3.8	0.91	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
NEtFOSE	9.0	H---- J	3.8	0.54	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
4:2 FTS	ND	H---UJ	3.8	0.98	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
6:2 FTS	ND	H---UJ	3.8	0.52	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
8:2 FTS	ND	H---UJ	3.8	0.67	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
HFPO-DA (GenX)	ND	H---UJ	3.8	0.79	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
9Cl-PF3ONS	ND	H---UJ	3.8	0.67	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
11Cl-PF3OUdS	ND	H---UJ	3.8	0.60	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H---UJ	3.8	0.75	ug/Kg	☼	08/17/23 00:00	08/20/23 20:57	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	70		25 - 150	08/17/23 00:00	08/20/23 20:57	1
13C5 PFPeA	83		25 - 150	08/17/23 00:00	08/20/23 20:57	1
13C2 PFHxA	92		25 - 150	08/17/23 00:00	08/20/23 20:57	1
13C4 PFHpA	99		25 - 150	08/17/23 00:00	08/20/23 20:57	1
13C4 PFOA	101		25 - 150	08/17/23 00:00	08/20/23 20:57	1
13C5 PFNA	101		25 - 150	08/17/23 00:00	08/20/23 20:57	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-1

Client Sample ID: Bio A-23-S-C 20230717

Lab Sample ID: 320-102736-5

Date Collected: 07/17/23 14:12

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDA	95		25 - 150	08/17/23 00:00	08/20/23 20:57	1
13C2 PFUnA	94		25 - 150	08/17/23 00:00	08/20/23 20:57	1
13C2 PFDoA	62		25 - 150	08/17/23 00:00	08/20/23 20:57	1
13C2 PFTeDA	13	*5-	25 - 150	08/17/23 00:00	08/20/23 20:57	1
13C3 PFBS	94		25 - 150	08/17/23 00:00	08/20/23 20:57	1
18O2 PFHxS	94		25 - 150	08/17/23 00:00	08/20/23 20:57	1
13C4 PFOS	84		25 - 150	08/17/23 00:00	08/20/23 20:57	1
13C8 FOSA	84		25 - 150	08/17/23 00:00	08/20/23 20:57	1
M2-4:2 FTS	131		25 - 150	08/17/23 00:00	08/20/23 20:57	1
M2-6:2 FTS	168	*5+	25 - 150	08/17/23 00:00	08/20/23 20:57	1
M2-8:2 FTS	109		25 - 150	08/17/23 00:00	08/20/23 20:57	1
13C2 10:2 FTS	86		25 - 150	08/17/23 00:00	08/20/23 20:57	1
13C3 HFPO-DA	105		25 - 150	08/17/23 00:00	08/20/23 20:57	1
d3-NMeFOSAA	61		25 - 150	08/17/23 00:00	08/20/23 20:57	1
d5-NEtFOSAA	70		25 - 150	08/17/23 00:00	08/20/23 20:57	1
d-N-MeFOSA-M	33		25 - 150	08/17/23 00:00	08/20/23 20:57	1
d-N-EtFOSA-M	38		25 - 150	08/17/23 00:00	08/20/23 20:57	1
d7-N-MeFOSE-M	33		25 - 150	08/17/23 00:00	08/20/23 20:57	1
d9-N-EtFOSE-M	33		25 - 150	08/17/23 00:00	08/20/23 20:57	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	170	H-B-- J	4.0	0.92	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluoropentanoic acid (PFPA)	87	H*+-- J	4.0	0.82	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluorohexanoic acid (PFHxA)	50	*+H-- J	4.0	0.62	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluoroheptanoic acid (PFHpA)	32	*+H- J	4.0	0.76	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluorooctanoic acid (PFOA)	40	H-- J	4.0	1.1	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluorononanoic acid (PFNA)	16	*+H-- J	4.0	0.44	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluorodecanoic acid (PFDA)	16	*+H- J	4.0	0.96	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluoroundecanoic acid (PFUnA)	7.1	H-- J	4.0	0.84	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluorododecanoic acid (PFDoA)	7.5	H-- J	4.0	0.60	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluorotridecanoic acid (PFTTrDA)	2.3	J.H- J	4.0	0.42	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluorotetradecanoic acid (PFTTeA)	3.2	J.H. J	4.0	0.74	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluorobutanesulfonic acid (PFBS)	21	H- J	4.0	0.76	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluoropentanesulfonic acid (PFPeS)	ND	H- UJ	4.0	0.74	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluorohexanesulfonic acid (PFHxS)	2.0	J.H-- J	4.0	0.58	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	H--- UJ	4.0	0.98	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluorooctanesulfonic acid (PFOS)	17	H----- J	4.0	0.86	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluorononanesulfonic acid (PFNS)	ND	H----- UJ	4.0	0.58	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluorodecanesulfonic acid (PFDS)	1.0	J+H J	4.0	1.0	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1
Perfluorododecanesulfonic acid (PFDoS)	ND	H----- UJ	4.0	0.94	ug/Kg	☼	08/17/23 00:00	08/20/23 22:26	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-102736-1

Client Sample ID: Bio A-23-S-C 20230717

Lab Sample ID: 320-102736-5

Date Collected: 07/17/23 14:12

Matrix: Solid

Date Received: 07/20/23 15:42

Percent Solids: 24.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (FOSA)	ND	H-- UJ	4.0	0.66	ug/Kg	✳	08/17/23 00:00	08/20/23 22:26	1
NMeFOSAA	ND	H-- UJ	4.0	0.46	ug/Kg	✳	08/17/23 00:00	08/20/23 22:26	1
NEtFOSAA	ND	H---- UJ	4.0	0.96	ug/Kg	✳	08/17/23 00:00	08/20/23 22:26	1
4:2 FTS	ND	H---- UJ	4.0	1.0	ug/Kg	✳	08/17/23 00:00	08/20/23 22:26	1
6:2 FTS	ND	H---- UJ	4.0	0.54	ug/Kg	✳	08/17/23 00:00	08/20/23 22:26	1
8:2 FTS	ND	H---- UJ	4.0	0.70	ug/Kg	✳	08/17/23 00:00	08/20/23 22:26	1
NEtFOSA	ND	H---- UJ	4.0	0.94	ug/Kg	✳	08/17/23 00:00	08/20/23 22:26	1
NMeFOSA	ND	H---- UJ	4.0	0.98	ug/Kg	✳	08/17/23 00:00	08/20/23 22:26	1
NMeFOSE	ND	H---- UJ	4.0	0.94	ug/Kg	✳	08/17/23 00:00	08/20/23 22:26	1
NEtFOSE	ND	H---- UJ	4.0	0.56	ug/Kg	✳	08/17/23 00:00	08/20/23 22:26	1
HFPO-DA (GenX)	18	H-- J	4.0	0.82	ug/Kg	✳	08/17/23 00:00	08/20/23 22:26	1
9Cl-PF3ONS	ND	H-- UJ	4.0	0.70	ug/Kg	✳	08/17/23 00:00	08/20/23 22:26	1
11Cl-PF3OUdS	ND	H*- UJ	4.0	0.62	ug/Kg	✳	08/17/23 00:00	08/20/23 22:26	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H---- UJ	4.0	0.78	ug/Kg	✳	08/17/23 00:00	08/20/23 22:26	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	83		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C4 PFBA	83		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C5 PFPeA	83		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C2 PFHxA	92		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C4 PFHpA	97		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C4 PFOA	100		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C5 PFNA	97		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C2 PFDA	93		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C2 PFUnA	87		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C2 PFDoA	77		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C2 PFTeDA	78		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C3 PFBS	89		25 - 150	08/17/23 00:00	08/20/23 22:26	1
18O2 PFHxS	99		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C4 PFOS	81		25 - 150	08/17/23 00:00	08/20/23 22:26	1
d3-NMeFOSAA	73		25 - 150	08/17/23 00:00	08/20/23 22:26	1
d5-NEtFOSAA	75		25 - 150	08/17/23 00:00	08/20/23 22:26	1
M2-4:2 FTS	0		0 - 10	08/17/23 00:00	08/20/23 22:26	1
M2-6:2 FTS	118		25 - 150	08/17/23 00:00	08/20/23 22:26	1
M2-8:2 FTS	122		25 - 150	08/17/23 00:00	08/20/23 22:26	1
d-N-MeFOSA-M	76		25 - 150	08/17/23 00:00	08/20/23 22:26	1
d-N-EtFOSA-M	73		25 - 150	08/17/23 00:00	08/20/23 22:26	1
d7-N-MeFOSE-M	72		25 - 150	08/17/23 00:00	08/20/23 22:26	1
d9-N-EtFOSE-M	71		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C3 HFPO-DA	94		25 - 150	08/17/23 00:00	08/20/23 22:26	1
13C2 10:2 FTS	105		25 - 150	08/17/23 00:00	08/20/23 22:26	1

Eurofins Sacramento

September 2023

Data Quality and Usability Review – September 2023

Data Reviewer: Kristen Morin

Peer Reviewer: Liz Denly

Date: 11/16/2023

Madison Metropolitan Sewerage District (MMSD) collected influent, effluent, and biosolids samples at the Nine Springs wastewater treatment plant on September 11 and 12, 2023 in conjunction with an additional characterization study conducted by TRC. Samples were analyzed for the standard list of Wisconsin's 33 per- and polyfluoroalkyl substances (PFAS) and total oxidizable precursor (TOP) assay PFAS by Eurofins in West Sacramento, California and total suspended solids (TSS) by Eurofins in Chicago, Illinois. The laboratory analytical results were reported in laboratory SDG 320-104868-1 (Revision 4, dated 11/15/23). It should be noted that this SDG also included results for samples originally logged in under SDG number 320-104869-1; the laboratory was asked to report all results for the September 2023 sampling event in one SDG.

Samples included in this review are listed below:

- Bio A-22-20230912
- Bio B 20230912
- Eff 20230912
- Inf02 20230911
- Inf07 20230911
- Inf08 20230911
- Inf11 20230911
- Inf18 20230911
- Inf Comp 20230911
- EB01 20230912

Each sample was analyzed for one or more of the following constituents:

Analyte Group	Method
PFAS (33 Analytes)	Modified EPA Method 537 and laboratory standard operating procedure (SOP) using Isotope Dilution/WI Method Criteria
PFAS TOP Assay (33 Analytes)	Laboratory SOP using Isotope Dilution/WI Method Criteria
Total Suspended Solids (TSS)	Standard Method (SM) 2540D
Total Solids*	ASTM D 2216*

Notes:

* The laboratory does not hold NELAP accreditation for total solids.

TRC performed a limited validation of the laboratory data to assess data usability. The following sections summarize the data validation procedure and the results of the validation.

Data Usability Review Procedure

The analytical data were reviewed using the USEPA Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537 (EPA 910-R-18-001), November 2018, USEPA National Functional Guidelines for High Resolution Superfund Methods Data Review (EPA 542-R-20-007), November 2020, and Wisconsin PFAS Aqueous (Non-Potable Water) and Non-Aqueous Matrices Method Expectations, Document # EA-19-0001, WDNR, December 2019 as guidance for data review. EPA 910-R-18-001 applies to method 537 and drinking water matrices only but the guidance can be applied in part or in whole to evaluate data

in non-drinking water matrices. The following items were specifically included in the evaluation of the data:

- Data completeness;
- Sample receipt, as noted in the cover page or case narrative;
- Technical holding times for analyses;
- Quantitation limits (QLs) compared to the ranges of QLs suggested in the Sampling and Analysis Blueprint (SAB) of 2-5 ng/L and 1-5 ug/kg per individual PFAS, as appropriate;
- Data for method blanks, equipment blanks, and field blanks. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Field and equipment blanks are used to assess potential contamination arising from field procedures;
- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCSs and/or LCSDs are used to assess the accuracy and precision of the analytical method using a clean matrix;
- Percent recoveries for matrix spike (MS) and matrix spike duplicate (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Percent recoveries for isotopically labeled surrogates. Percent recoveries are calculated for each surrogate and used to assess the accuracy of the extraction procedure and bias due to sample matrix effects;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;
- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and
- Overall usability of the data.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

Review Summary

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances, and issues identified in this evaluation are noted below.

- The reviewed PFAS and TSS data will be utilized for the purposes of an additional characterization.
- The issues noted in the QA/QC sample summary below have a minor impact on the data usability.

QA/QC Sample Summary

- The revised, combined data package was found to be complete as received from the laboratory.
- The laboratory noted the following discrepancies in the case narrative regarding the sample IDs, collection dates, and/or collections times listed on the sample containers when compared to the chain-of-custody (COC); the samples were logged in and labeled according to the IDs, dates, and times listed on the COC.
 - The containers submitted for samples Bio B 20230912 and Bio A-22-20230912 have an ID ending in “-202309”.
 - Both containers submitted for sample EB01 20230912 have an ID as “Equip Blank” and do not include a collection time or date.
 - All containers submitted for sample Eff 20230912, except the 1-liter plastic containers, have an ID of “Eff Comp 20230912”.
- The laboratory noted in the case narrative that the 1-liter plastic containers submitted for the TSS analyses of samples Inf Comp 20230911 and Inf07 20230911 were received with approximately 700 mL and 875 mL, respectively. It should be noted that the laboratory inadvertently left off the “Inf” portion of the sample ID for Inf Comp 20230911 in the case narrative regarding this issue and thus, the sample was identified using the laboratory ID. There is no adverse impact on the data usability due to the reduced volume submitted for these samples as the laboratory had adequate volume to perform the TSS analyses.
- The cooler temperatures upon receipt at the laboratories were within the acceptance criteria (< 10°C).
 - Select samples were not shipped to the laboratory until one to two days after collection. The samples were stored in coolers, on ice, at the site until delivery to the laboratory. No validation actions were required on this basis since the samples were kept in coolers, on ice, prior to delivery to the laboratory and were received at acceptable temperatures by the laboratory.
- A method blank was analyzed with each analytical batch for PFAS (total and TOP assay) and TSS. The following table summarizes the compounds detected in the method blanks, the associated samples, and the validation actions.

Blank ID	Compound	Blank Concentration	Action
MB 320-709418/1-A (total PFAS)	PFHxA	0.0339 J µg/Kg	No validation actions were required for the total PFAS result for PFHxA in sample Bio A-22-20230912 since the result was > the QL and > 10x the blank concentration when adjusted for sample-specific factors.
Associated sample: Bio A-22-20230912			
MB 320-707538/1-A (post-TOP assay)	PFBA	6.25 J ng/L	The positive post-TOP Assay results for PFBA in all associated samples were qualified as nondetect (U) at the reported concentration since the results were > the QL and < 10x the blank concentration.
Associated samples: Eff 20230912, Inf02 20230911, Inf07 20230911, Inf08 20230911, Inf11 20230911, Inf18 20230911			

Blank ID	Compound	Blank Concentration	Action
MB 320-707540/1-A (post-TOP assay)	PFPeA	0.213 J µg/Kg	No validation actions were required for the post-TOP assay result for PFPeA in samples Bio A-22-20230912 and Bio B 20230912 since the results were > the QL and > 10x the blank concentration when adjusted for sample-specific factors.
Associated samples: Bio A-22-20230912, Bio B 20230912			

- One equipment blank (EB01 20230912) was collected and analyzed for total PFAS. The following table summarizes the compounds detected in the equipment blank, the associated sample, and the validation actions.

Blank ID	Compound	Blank Concentration	Action
EB01 20230912	PFHxA	0.72 J ng/L	No validation actions were required on this basis since the results for total, pre-TOP assay, or post-TOP assay PFHxA were > the QL and > 10x the blank concentration when adjusted for sample-specific factors.
	ADONA	0.40 J ng/L	No validation actions were required on this basis since ADONA was not detected in the total, pre-TOP assay, or post-TOP assay PFAS analyses of sample Bio A-22-20230912.
Associated sample: Bio A-22-20230912			

- All samples were extracted and/or prepared and analyzed within the holding time.
- The LCS and LCSD relative percent differences (RPDs), where applicable, were within the laboratory's acceptance limits. The LCS and LCSD percent recoveries (%Rs) for all analytes were within the laboratory's acceptance limits except as noted in the table below.

LCS/LCSD ID	Compound	LCS/LCSD %Rs	LCS/LCSD %R Limits	Validation Actions
LCS 320-707541/2-A/ LCSD 320-707541/3-A (pre-TOP assay)	PFTTrDA	140/142	71-131	No validation actions were required on this basis since pre-TOP assay PFTTrDA was not detected in the associated samples.
Associated samples: Bio A-22-20230912, Bio B 20230912				
LCS 320-707538/2-A/ LCSD 320-707538/3-A (post-TOP assay)	PFBA	202/271	93-153	The laboratory stated in the case narrative that the enhanced post-TOP assay LCS/LCSD %Rs for the listed compounds (also known as perfluoroalkyl carboxylic acids [PFCAs]) were due to an increase in the number of precursor analytes (i.e., non-target compounds) included in the laboratory's spiking solution which transform to PFCAs during the TOP assay procedure (i.e., the results are consistent with the expected oxidation of the precursor analytes). Although the %Rs for the listed PFCAs were above the laboratory's acceptance criteria, the post-TOP LCS/LCSD %Rs were still considered to be in control as a result of the additional precursors added to the spiking solution. It should also be noted that the laboratory stated in the case narrative that zero %R of precursor analytes (i.e., ADONA, 4:2 FTS, 6:2 FTS, 8:2 FTS, FOSA, NMeFOSAA, NEtFOSAA, NEtFOSA, NMeFOSA, NMeFOSE, and NEtFOSE) is also expected due to the oxidation of these compounds during the TOP Assay procedure; 0 %R was observed for the listed precursors. No validation actions were taken on this basis.
	PFPeA	223/226	85-145	
	PFHxA	234/241	81-141	
	PFHpA	231/239	104-171	
	PFNA	172/163	66-126	
	PFDA	150/158	65-125	
	PFDaA	146/-	66-126	
PFTTrDA	151/147	65-136		

LCS/LCSD ID	Compound	LCS/LCSD %Rs	LCS/LCSD %R Limits	Validation Actions
Associated samples: Eff 20230912, Inf02 20230911, Inf07 20230911, Inf08 20230911, Inf11 20230911, Inf18 20230911				
LCS 320-707540/2-A/ LCSD 320-707540/3-A (post-TOP assay)	PFPeA	178/171	81-141	The laboratory stated in the case narrative that the enhanced post-TOP assay LCS/LCSD %Rs for the listed compounds (also known as perfluoroalkyl carboxylic acids [PFCAs]) were due to an increase in the number of precursor analytes (i.e., non-target compounds) included in the laboratory's spiking solution which transform to PFCAs during the TOP assay procedure (i.e., the results are consistent with the expected oxidation of the precursor analytes). Although the %Rs for the listed PFCAs were above the laboratory's acceptance criteria, the post-TOP LCS/LCSD %Rs were still considered to be in control as a result of the additional precursors added to the spiking solution. It should also be noted that the laboratory stated in the case narrative that zero %R of precursor analytes (i.e., ADONA, 4:2 FTS, 6:2 FTS, 8:2 FTS, FOSA, NMeFOSAA, NEtFOSAA, NEtFOSA, NMeFOSA, NMeFOSE, and NEtFOSE) is also expected due to the oxidation of these compounds during the TOP Assay procedure; 0 %R was observed for the listed precursors. No validation actions were taken on this basis.
	PFHxA	201/203	92-152	
	PFHpA	208/187	100-160	
	PFNA	168/156	82-142	
	PFDA	164/163	81-141	
Associated samples: Bio A-22-20230912, Bio B 20230912				
-: Met criteria				

- MS/MSD analyses were performed on sample Bio A-22-20230912 for total PFAS. The RPDs were within the laboratory's acceptance limits. The MS and MSD %Rs were within the laboratory's acceptance limits except as noted in the table below.

Parent Sample ID	Compound	MS/MSD %Rs	MS/MSD %R Limits	Validation Actions
Bio A-22-20230912 (total PFAS)	PFTTrDA	56/54	70-130	The nondetect results for total PFTTrDA and total 11Cl-PF3OUdS were qualified as estimated (UJ) with a potential low bias in sample Bio A-22-20230912.
	11Cl-PF3OUdS	57/49		
	NEtFOSE	191/187		The positive result for total NEtFOSE was qualified as estimated (J+) with a potential high bias in sample Bio A-22-20230912.

- The reverse surrogate (M2-4:2 FTS) was within the laboratory's acceptance limits (0-10%) in the post-TOP assay analyses. The following table summarizes the remaining isotopically labeled surrogate %Rs that were outside of the laboratory's acceptance limits, the associated samples, and the validation actions.

Sample ID	Surrogate	%R	%R Acceptance Limits	Action*
Inf Comp 20230911 (total PFAS)	M2-6:2 FTS	181	25-150	No validation action was required on this basis since 6:2 FTS was not detected in the total PFAS analysis of this sample.
	M2-8:2 FTS	159		The positive result for total 8:2 FTS was qualified as estimated (J) in sample Inf Comp 20230911.
Bio B 20230912 (total PFAS)	13C2 PFTeDA	24		The positive result for total PFTeA was qualified as estimated (J) in sample Bio B 20230912.
Bio B 20230912 (pre-TOP assay)	13C2 PFTeDA	14		The nondetect result for pre-TOP assay PFTeA was qualified as estimated (UJ) in sample Bio B 20230912.

Sample ID	Surrogate	%R	%R Acceptance Limits	Action*
Bio A-22-20230912 (pre-TOP assay)	13C2 PFTeDA	12	25-150	The positive result for pre-TOP assay PFTeA was qualified as estimated (J) in sample Bio A-22-20230912.
Inf07 20230911 (total PFAS)	M2-6:2 FTS	177		The positive results for total 6:2 FTS and total 8:2 FTS were qualified as estimated (J) in sample Inf07 20230911.
	M2-8:2 FTS	176		
Inf08 20230911 (total PFAS)	M2-6:2 FTS	153		No validation action was required on this basis since 6:2 FTS was not detected in the total PFAS analysis of this sample.
Inf08 20230911 (post-TOP assay)	d9-N-EtFOSE-M	20		The nondetect result for post-TOP assay NEtFOSE was qualified as estimated (UJ) in sample Inf08 20230911.
Inf18 20230911 (total PFAS)	M2-6:2 FTS	176		The positive result for total 6:2 FTS was qualified as estimated (J) in sample Inf18 20230911.
	M2-8:2 FTS	182	No validation action was required on this basis since 8:2 FTS was not detected in the total PFAS analysis of this sample.	

* Note that select results were also qualified as estimated (J) by the laboratory due to detection between the method detection limit (MDL) and QL.

It should be noted that an additional isotopically labeled surrogate %R was outside of the acceptance limits in one of the LCSs. However, no validation actions were required on this basis so this nonconformance is not summarized in the table above.

- A field duplicate pair was not collected with this sample set.
- A laboratory duplicate analysis was not performed on a sample from this data set.
- The laboratory noted the following observations in the case narratives. No validation actions were taken on this basis.
 - For total PFAS, samples Inf Comp 20230911 and Eff 20230912 were observed to have a thin layer of sediment present in the bottom of the bottle prior to extraction and contained floating particles. Sediment and particulates were loaded with the water onto the columns and eluted. The laboratory also noted that the sample extracts for these two samples were yellow in color.
 - Samples Bio B 20230912 and Bio A-22-20230912 were yellow in color following extraction for all PFAS batches.
 - For total PFAS, samples Inf02 20230911, Inf07 20230911, Inf08 20230911, Inf11 20230911, and Inf18 20230911 (320-104869-5) were observed to have a thin layer of sediment present in the bottom of the bottle prior to extraction and contained floating particles. Sediment and particulates were loaded with the water onto the columns and eluted.
 - Samples Inf02 20230911, Inf07 20230911, Inf08 20230911, Inf11 20230911, and Inf18 20230911 were yellow in color following extraction for pre-TOP assay.
- Select sample QLs were outside of the ranges of QLs suggested in the SAB of 2-5 ng/L and 1-5 ug/kg per individual PFAS due to sample volume and/or low total solids. For sample Bio B 20230912, the QLs for pre-TOP assay PFOS were raised by the laboratory due to matrix interferences; as a result, the MDL and QL for pre-TOP assay PFOS were raised to be equal to the matrix interferences. The laboratory qualified this result with a "G"; however, this qualifier was removed during validation. No validation actions were required on this basis.

- The following dilutions and/or reduced volumes were performed on the samples in this data set for PFAS.
 - Bio A-22-20230912 (total PFAS): 1 gram of sample (versus the typical 5 grams of sample) were extracted due to low isotopically labeled surrogate recoveries in the original analysis. No validation actions were required on this basis.
 - Inf11 20230911 (total PFAS): a 10-fold analytical dilution was performed due to the sample matrix affecting the recovery of the internal standard in the undiluted extract. No validation actions were required on this basis since the full sample volume was extracted.
- The QLs for TSS in samples Inf Comp 20230911, Inf02 20230911, Inf07 20230911, Inf08 20230911, Inf11 20230911, and Inf18 20230911 were 5.6-7.2x higher than the associated method blank due to a reduced volume (70-90 mLs versus the typical 500 mL) used in the sample analyses. There is no adverse impact on the data usability due to this issue since TSS was detected above the QL in these samples. No validation action was required on this basis.
- The results for the following PFAS in the samples listed below were flagged with an “I” by the laboratory indicating that the ion transition ratio did not meet the acceptance limits; thus, the positive results for the listed PFAS in the samples listed below were qualified as estimated (J).
 - Total PFBS in sample Inf Comp 20230911;
 - Total PFOS in sample Bio B 20230912;
 - Total PFHxA* in sample EB01 20230912;
 - Total PFBS*, total PFDS, pre-TOP assay PFTeA*, pre-TOP assay PFHxS, and pre-TOP assay PFOS in sample Bio A-22-20230912;
 - Total PFBS, pre-TOP assay PFTeA*, and pre-TOP assay PFBS* in sample Eff 20230912;
 - Total PFHxA and total PFBS* in sample Inf02 20230911;
 - Pre-TOP assay PFBS* and pre-TOP assay PFHxS* in sample Inf08 20230911;
 - Total PFHxA* in sample Inf11 20230911; and
 - Pre-TOP assay PFPeS* in sample Inf18 20230911.

* These results were also qualified as estimated (J) by the laboratory due to detection between the MDL and QL.
- The percent moisture for both biosolids samples (Bio A-22-20230912 and Bio B 20230912) was high (>70% moisture). The laboratory has been contacted during previous rounds of validation review regarding this issue and stated that the biosolids samples were agitated and then immediately aliquoted for extraction after agitation, indicating that a representative sample was extracted for PFAS analysis. No validation actions were taken on this basis.
- The laboratory noted select continuing calibration verification (CCV) nonconformances in the case narrative. No validation actions were taken on this basis since the actual CCV results were not provided for review.

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf Comp 20230911

Lab Sample ID: 320-104868-1

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	5.6		4.4	2.1	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluoropentanoic acid (PFPA)	4.9		1.8	0.43	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorohexanoic acid (PFHxA)	9.6		1.8	0.51	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluoroheptanoic acid (PFHpA)	1.8		1.8	0.22	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorooctanoic acid (PFOA)	5.0		1.8	0.75	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorononanoic acid (PFNA)	0.53	J	1.8	0.24	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorodecanoic acid (PFDA)	0.52	J	1.8	0.27	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.97	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.48	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.1	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.64	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorobutanesulfonic acid (PFBS)	3.8	-J	1.8	0.18	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluoropentanesulfonic acid (PFPeS)	0.83	J	1.8	0.26	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorohexanesulfonic acid (PFHxS)	7.9		1.8	0.50	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorooctanesulfonic acid (PFOS)	5.0		1.8	0.48	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.33	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.28	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.85	ng/L		09/25/23 20:23	09/27/23 15:13	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.86	ng/L		09/25/23 20:23	09/27/23 15:13	1
NEtFOSA	ND		1.8	0.77	ng/L		09/25/23 20:23	09/27/23 15:13	1
NMeFOSA	ND		1.8	0.38	ng/L		09/25/23 20:23	09/27/23 15:13	1
NMeFOSAA	ND		4.4	1.1	ng/L		09/25/23 20:23	09/27/23 15:13	1
NEtFOSAA	ND		4.4	1.1	ng/L		09/25/23 20:23	09/27/23 15:13	1
NMeFOSE	1.4	J	3.5	1.2	ng/L		09/25/23 20:23	09/27/23 15:13	1
NEtFOSE	ND		1.8	0.75	ng/L		09/25/23 20:23	09/27/23 15:13	1
4:2 FTS	ND		1.8	0.21	ng/L		09/25/23 20:23	09/27/23 15:13	1
6:2 FTS	ND		4.4	2.2	ng/L		09/25/23 20:23	09/27/23 15:13	1
8:2 FTS	0.43	-J	1.8	0.41	ng/L		09/25/23 20:23	09/27/23 15:13	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.35	ng/L		09/25/23 20:23	09/27/23 15:13	1
HFPO-DA (GenX)	ND		3.5	1.3	ng/L		09/25/23 20:23	09/27/23 15:13	1
9CI-PF3ONS	ND		1.8	0.21	ng/L		09/25/23 20:23	09/27/23 15:13	1
11CI-PF3OUdS	ND		1.8	0.28	ng/L		09/25/23 20:23	09/27/23 15:13	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	51		25 - 150				09/25/23 20:23	09/27/23 15:13	1
13C5 PFPeA	53		25 - 150				09/25/23 20:23	09/27/23 15:13	1
13C2 PFHxA	75		25 - 150				09/25/23 20:23	09/27/23 15:13	1
13C4 PFHpA	125		25 - 150				09/25/23 20:23	09/27/23 15:13	1
13C4 PFOA	101		25 - 150				09/25/23 20:23	09/27/23 15:13	1
13C5 PFNA	123		25 - 150				09/25/23 20:23	09/27/23 15:13	1
13C2 PFDA	132		25 - 150				09/25/23 20:23	09/27/23 15:13	1
13C2 PFUnA	113		25 - 150				09/25/23 20:23	09/27/23 15:13	1
13C2 PFDoA	77		25 - 150				09/25/23 20:23	09/27/23 15:13	1
13C2 PFTeDA	42		25 - 150				09/25/23 20:23	09/27/23 15:13	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf Comp 20230911

Lab Sample ID: 320-104868-1

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	72		25 - 150	09/25/23 20:23	09/27/23 15:13	1
18O2 PFHxS	110		25 - 150	09/25/23 20:23	09/27/23 15:13	1
13C4 PFOS	139		25 - 150	09/25/23 20:23	09/27/23 15:13	1
13C8 FOSA	95		10 - 150	09/25/23 20:23	09/27/23 15:13	1
d3-NMeFOSAA	41		25 - 150	09/25/23 20:23	09/27/23 15:13	1
d5-NEtFOSAA	70		25 - 150	09/25/23 20:23	09/27/23 15:13	1
d-N-MeFOSA-M	23		10 - 150	09/25/23 20:23	09/27/23 15:13	1
d-N-EtFOSA-M	33		10 - 150	09/25/23 20:23	09/27/23 15:13	1
d7-N-MeFOSE-M	32		10 - 150	09/25/23 20:23	09/27/23 15:13	1
d9-N-EtFOSE-M	63		10 - 150	09/25/23 20:23	09/27/23 15:13	1
M2-4:2 FTS	74		25 - 150	09/25/23 20:23	09/27/23 15:13	1
M2-6:2 FTS	181	*5+	25 - 150	09/25/23 20:23	09/27/23 15:13	1
M2-8:2 FTS	159	*5+	25 - 150	09/25/23 20:23	09/27/23 15:13	1
13C3 HFPO-DA	110		25 - 150	09/25/23 20:23	09/27/23 15:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	230		36	14	mg/L			09/17/23 21:32	1

Client Sample ID: Bio B 20230912

Lab Sample ID: 320-104868-2

Date Collected: 09/12/23 07:45

Matrix: Solid

Date Received: 09/14/23 09:30

Percent Solids: 6.4

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.1	0.70	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluoropentanoic acid (PFPA)	ND		3.1	0.63	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluorohexanoic acid (PFHxA)	1.2	J	3.1	0.47	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluoroheptanoic acid (PFHpA)	ND		3.1	0.58	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluorooctanoic acid (PFOA)	0.92	J	3.1	0.81	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluorononanoic acid (PFNA)	0.58	J	3.1	0.34	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluorodecanoic acid (PFDA)	4.3		3.1	0.74	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluoroundecanoic acid (PFUnA)	0.95	J	3.1	0.64	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluorododecanoic acid (PFDoA)	2.8	J	3.1	0.46	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluorotridecanoic acid (PFTrDA)	ND		3.1	0.32	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluorotetradecanoic acid (PFTeA)	0.67	-J- J	3.1	0.57	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluorobutanesulfonic acid (PFBS)	ND		3.1	0.58	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.1	0.57	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluorohexanesulfonic acid (PFHxS)	0.95	J	3.1	0.44	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.1	0.75	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluorooctanesulfonic acid (PFOS)	8.9	-+ J	3.1	0.66	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluorononanesulfonic acid (PFNS)	ND		3.1	0.44	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluorodecanesulfonic acid (PFDS)	1.3	J	3.1	0.80	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Bio B 20230912

Lab Sample ID: 320-104868-2

Date Collected: 09/12/23 07:45

Matrix: Solid

Date Received: 09/14/23 09:30

Percent Solids: 6.4

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanesulfonic acid (PFDoS)	ND		3.1	0.72	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Perfluorooctanesulfonamide (FOSA)	0.52	J	3.1	0.51	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
NEtFOSA	ND		3.1	0.72	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
NMeFOSA	ND		3.1	0.75	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
NMeFOSAA	11		3.1	0.35	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
NEtFOSAA	6.7		3.1	0.74	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
NMeFOSE	7.1		3.1	0.72	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
NEtFOSE	1.4	J	3.1	0.43	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
4:2 FTS	ND		3.1	0.78	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
6:2 FTS	ND		3.1	0.41	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
8:2 FTS	ND		3.1	0.54	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.1	0.60	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
HFPO-DA (GenX)	ND		3.1	0.63	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
9Cl-PF3ONS	ND		3.1	0.54	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
11Cl-PF3OUdS	ND		3.1	0.47	ug/Kg	☼	09/18/23 20:20	09/19/23 14:57	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	68		25 - 150				09/18/23 20:20	09/19/23 14:57	1
13C5 PFPeA	59		25 - 150				09/18/23 20:20	09/19/23 14:57	1
13C2 PFHxA	44		25 - 150				09/18/23 20:20	09/19/23 14:57	1
13C4 PFHpA	90		25 - 150				09/18/23 20:20	09/19/23 14:57	1
13C4 PFOA	113		25 - 150				09/18/23 20:20	09/19/23 14:57	1
13C5 PFNA	88		25 - 150				09/18/23 20:20	09/19/23 14:57	1
13C2 PFDA	56		25 - 150				09/18/23 20:20	09/19/23 14:57	1
13C2 PFUnA	74		25 - 150				09/18/23 20:20	09/19/23 14:57	1
13C2 PFDoA	72		25 - 150				09/18/23 20:20	09/19/23 14:57	1
13C2 PFTeDA	24	*5-	25 - 150				09/18/23 20:20	09/19/23 14:57	1
13C3 PFBS	75		25 - 150				09/18/23 20:20	09/19/23 14:57	1
18O2 PFHxS	87		25 - 150				09/18/23 20:20	09/19/23 14:57	1
13C4 PFOS	81		25 - 150				09/18/23 20:20	09/19/23 14:57	1
13C8 FOSA	59		10 - 150				09/18/23 20:20	09/19/23 14:57	1
d3-NMeFOSAA	37		25 - 150				09/18/23 20:20	09/19/23 14:57	1
d5-NEtFOSAA	56		25 - 150				09/18/23 20:20	09/19/23 14:57	1
d-N-MeFOSA-M	12		10 - 150				09/18/23 20:20	09/19/23 14:57	1
d-N-EtFOSA-M	22		10 - 150				09/18/23 20:20	09/19/23 14:57	1
d7-N-MeFOSE-M	23		10 - 150				09/18/23 20:20	09/19/23 14:57	1
d9-N-EtFOSE-M	41		10 - 150				09/18/23 20:20	09/19/23 14:57	1
M2-4:2 FTS	51		25 - 150				09/18/23 20:20	09/19/23 14:57	1
M2-6:2 FTS	89		25 - 150				09/18/23 20:20	09/19/23 14:57	1
M2-8:2 FTS	52		25 - 150				09/18/23 20:20	09/19/23 14:57	1
13C3 HFPO-DA	67		25 - 150				09/18/23 20:20	09/19/23 14:57	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		15	3.4	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluoropentanoic acid (PFPA)	ND		15	3.0	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluorohexanoic acid (PFHxA)	3.2	J	15	2.3	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluoroheptanoic acid (PFHpA)	ND		15	2.8	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Bio B 20230912

Lab Sample ID: 320-104868-2

Date Collected: 09/12/23 07:45

Matrix: Solid

Date Received: 09/14/23 09:30

Percent Solids: 6.4

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	ND		15	3.9	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluorononanoic acid (PFNA)	ND		15	1.6	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluorodecanoic acid (PFDA)	4.0	J	15	3.5	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluoroundecanoic acid (PFUnA)	ND		15	3.1	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluorododecanoic acid (PFDoA)	2.7	J	15	2.2	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluorotridecanoic acid (PFTTrDA)	ND	***	15	1.5	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluorotetradecanoic acid (PFTeA)	ND	UJ	15	2.7	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluorobutanesulfonic acid (PFBS)	3.2	J	15	2.8	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluoropentanesulfonic acid (PFPeS)	ND		15	2.7	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluorohexanesulfonic acid (PFHxS)	ND		15	2.1	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		15	3.6	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluorooctanesulfonic acid (PFOS)	ND	G---	36	36	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluorononanesulfonic acid (PFNS)	ND		15	2.1	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluorodecanesulfonic acid (PFDS)	ND		15	3.8	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluorododecanesulfonic acid (PFDoS)	ND		15	3.4	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
Perfluorooctanesulfonamide (FOSA)	ND		15	2.4	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
NMeFOSA	ND		15	3.6	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
NEtFOSA	ND		15	3.4	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
NMeFOSAA	7.6	J	15	1.7	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
NEtFOSAA	ND		15	3.5	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
NMeFOSE	6.6	J	15	3.4	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
NEtFOSE	6.2	J	15	2.0	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
4:2 FTS	ND		15	3.7	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
6:2 FTS	ND		15	2.0	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
8:2 FTS	ND		15	2.6	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
HFPO-DA (GenX)	ND		15	3.0	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
9CI-PF3ONS	ND		15	2.6	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
11CI-PF3OUdS	ND		15	2.3	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		15	2.8	ug/Kg	☼	09/19/23 21:36	09/28/23 14:21	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	64		25 - 150	09/19/23 21:36	09/28/23 14:21	1
13C5 PFPeA	97		25 - 150	09/19/23 21:36	09/28/23 14:21	1
13C2 PFHxA	101		25 - 150	09/19/23 21:36	09/28/23 14:21	1
13C4 PFHpA	103		25 - 150	09/19/23 21:36	09/28/23 14:21	1
13C4 PFOA	102		25 - 150	09/19/23 21:36	09/28/23 14:21	1
13C5 PFNA	106		25 - 150	09/19/23 21:36	09/28/23 14:21	1
13C2 PFDA	109		25 - 150	09/19/23 21:36	09/28/23 14:21	1
13C2 PFUnA	106		25 - 150	09/19/23 21:36	09/28/23 14:21	1
13C2 PFDoA	52		25 - 150	09/19/23 21:36	09/28/23 14:21	1
13C2 PFTeDA	14	*5-	25 - 150	09/19/23 21:36	09/28/23 14:21	1
13C3 PFBS	96		25 - 150	09/19/23 21:36	09/28/23 14:21	1
18O2 PFHxS	104		25 - 150	09/19/23 21:36	09/28/23 14:21	1
13C4 PFOS	97		25 - 150	09/19/23 21:36	09/28/23 14:21	1
13C8 FOSA	117		25 - 150	09/19/23 21:36	09/28/23 14:21	1
M2-4:2 FTS	128		25 - 150	09/19/23 21:36	09/28/23 14:21	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Bio B 20230912

Lab Sample ID: 320-104868-2

Date Collected: 09/12/23 07:45

Matrix: Solid

Date Received: 09/14/23 09:30

Percent Solids: 6.4

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	129		25 - 150	09/19/23 21:36	09/28/23 14:21	1
M2-8:2 FTS	136		25 - 150	09/19/23 21:36	09/28/23 14:21	1
13C3 HFPO-DA	92		25 - 150	09/19/23 21:36	09/28/23 14:21	1
d3-NMeFOSAA	100		25 - 150	09/19/23 21:36	09/28/23 14:21	1
d5-NEtFOSAA	116		25 - 150	09/19/23 21:36	09/28/23 14:21	1
d-N-MeFOSA-M	76		25 - 150	09/19/23 21:36	09/28/23 14:21	1
d-N-EtFOSA-M	59		25 - 150	09/19/23 21:36	09/28/23 14:21	1
d7-N-MeFOSE-M	57		25 - 150	09/19/23 21:36	09/28/23 14:21	1
d9-N-EtFOSE-M	48		25 - 150	09/19/23 21:36	09/28/23 14:21	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	170		16	3.6	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluoropentanoic acid (PFPA)	120	B-*	16	3.2	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorohexanoic acid (PFHxA)	64	**+	16	2.4	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluoroheptanoic acid (PFHpA)	42	**+	16	3.0	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorooctanoic acid (PFOA)	44		16	4.1	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorononanoic acid (PFNA)	19	**+	16	1.7	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorodecanoic acid (PFDA)	16	**+	16	3.7	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluoroundecanoic acid (PFUnA)	9.3	J	16	3.3	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorododecanoic acid (PFDoA)	8.2	J	16	2.3	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorotridecanoic acid (PFTrDA)	3.0	J	16	1.6	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorotetradecanoic acid (PFTeA)	4.0	J	16	2.9	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorobutanesulfonic acid (PFBS)	13	J	16	3.0	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluoropentanesulfonic acid (PFPeS)	ND		16	2.9	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorohexanesulfonic acid (PFHxS)	3.3	J	16	2.3	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		16	3.8	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorooctanesulfonic acid (PFOS)	15	J	16	3.4	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorononanesulfonic acid (PFNS)	ND		16	2.3	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorodecanesulfonic acid (PFDS)	ND		16	4.1	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorododecanesulfonic acid (PFDoS)	ND		16	3.7	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Perfluorooctanesulfonamide (FOSA)	ND		16	2.6	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
NMeFOSAA	ND		16	1.8	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
NEtFOSAA	ND		16	3.7	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
4:2 FTS	ND		16	4.0	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
6:2 FTS	ND		16	2.1	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
8:2 FTS	ND		16	2.7	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
NEtFOSA	ND		16	3.7	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
NMeFOSA	ND		16	3.8	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
NMeFOSE	ND		16	3.7	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
NEtFOSE	ND		16	2.2	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
HFPO-DA (GenX)	ND		16	3.2	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Bio B 20230912

Lab Sample ID: 320-104868-2

Date Collected: 09/12/23 07:45

Matrix: Solid

Date Received: 09/14/23 09:30

Percent Solids: 6.4

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
9CI-PF3ONS	ND		16	2.7	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
11CI-PF3OUdS	ND		16	2.4	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		16	3.0	ug/Kg	☼	09/19/23 21:36	09/28/23 12:29	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	121		25 - 150				09/19/23 21:36	09/28/23 12:29	1
13C4 PFBA	93		25 - 150				09/19/23 21:36	09/28/23 12:29	1
13C5 PFPeA	97		25 - 150				09/19/23 21:36	09/28/23 12:29	1
13C2 PFHxA	91		25 - 150				09/19/23 21:36	09/28/23 12:29	1
13C4 PFHpA	102		25 - 150				09/19/23 21:36	09/28/23 12:29	1
13C4 PFOA	96		25 - 150				09/19/23 21:36	09/28/23 12:29	1
13C5 PFNA	102		25 - 150				09/19/23 21:36	09/28/23 12:29	1
13C2 PFDA	93		25 - 150				09/19/23 21:36	09/28/23 12:29	1
13C2 PFUnA	112		25 - 150				09/19/23 21:36	09/28/23 12:29	1
13C2 PFDoA	104		25 - 150				09/19/23 21:36	09/28/23 12:29	1
13C2 PFTeDA	97		25 - 150				09/19/23 21:36	09/28/23 12:29	1
13C3 PFBS	100		25 - 150				09/19/23 21:36	09/28/23 12:29	1
18O2 PFHxS	103		25 - 150				09/19/23 21:36	09/28/23 12:29	1
13C4 PFOS	97		25 - 150				09/19/23 21:36	09/28/23 12:29	1
d3-NMeFOSAA	108		25 - 150				09/19/23 21:36	09/28/23 12:29	1
d5-NEtFOSAA	125		25 - 150				09/19/23 21:36	09/28/23 12:29	1
M2-4:2 FTS	0		0 - 10				09/19/23 21:36	09/28/23 12:29	1
M2-6:2 FTS	99		25 - 150				09/19/23 21:36	09/28/23 12:29	1
M2-8:2 FTS	98		25 - 150				09/19/23 21:36	09/28/23 12:29	1
d-N-MeFOSA-M	85		25 - 150				09/19/23 21:36	09/28/23 12:29	1
d-N-EtFOSA-M	90		25 - 150				09/19/23 21:36	09/28/23 12:29	1
d7-N-MeFOSE-M	85		25 - 150				09/19/23 21:36	09/28/23 12:29	1
d9-N-EtFOSE-M	84		25 - 150				09/19/23 21:36	09/28/23 12:29	1
13C3 HFPO-DA	89		25 - 150				09/19/23 21:36	09/28/23 12:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	93.6		0.1	0.1	%			09/14/23 15:00	1
Percent Solids (ASTM D 2216)	6.4		0.1	0.1	%			09/14/23 15:00	1

Client Sample ID: EB01 20230912

Lab Sample ID: 320-104868-3

Date Collected: 09/12/23 08:05

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.6	2.2	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluoropentanoic acid (PFPA)	ND		1.9	0.45	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluorohexanoic acid (PFHxA)	0.72	-J-I---- J	1.9	0.54	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.23	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.79	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.51	ng/L		09/25/23 20:23	09/26/23 12:41	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: EB01 20230912

Lab Sample ID: 320-104868-3

Date Collected: 09/12/23 08:05

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.9	0.28	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.53	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.50	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.34	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.90	ng/L		09/25/23 20:23	09/26/23 12:41	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.91	ng/L		09/25/23 20:23	09/26/23 12:41	1
NEtFOSA	ND		1.9	0.81	ng/L		09/25/23 20:23	09/26/23 12:41	1
NMeFOSA	ND		1.9	0.40	ng/L		09/25/23 20:23	09/26/23 12:41	1
NMeFOSAA	ND		4.6	1.1	ng/L		09/25/23 20:23	09/26/23 12:41	1
NEtFOSAA	ND		4.6	1.2	ng/L		09/25/23 20:23	09/26/23 12:41	1
NMeFOSE	ND		3.7	1.3	ng/L		09/25/23 20:23	09/26/23 12:41	1
NEtFOSE	ND		1.9	0.79	ng/L		09/25/23 20:23	09/26/23 12:41	1
4:2 FTS	ND		1.9	0.22	ng/L		09/25/23 20:23	09/26/23 12:41	1
6:2 FTS	ND		4.6	2.3	ng/L		09/25/23 20:23	09/26/23 12:41	1
8:2 FTS	ND		1.9	0.43	ng/L		09/25/23 20:23	09/26/23 12:41	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.40	J	1.9	0.37	ng/L		09/25/23 20:23	09/26/23 12:41	1
HFPO-DA (GenX)	ND		3.7	1.4	ng/L		09/25/23 20:23	09/26/23 12:41	1
9CI-PF3ONS	ND		1.9	0.22	ng/L		09/25/23 20:23	09/26/23 12:41	1
11CI-PF3OUdS	ND		1.9	0.30	ng/L		09/25/23 20:23	09/26/23 12:41	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	87		25 - 150	09/25/23 20:23	09/26/23 12:41	1
13C5 PFPeA	106		25 - 150	09/25/23 20:23	09/26/23 12:41	1
13C2 PFHxA	95		25 - 150	09/25/23 20:23	09/26/23 12:41	1
13C4 PFHpA	103		25 - 150	09/25/23 20:23	09/26/23 12:41	1
13C4 PFOA	96		25 - 150	09/25/23 20:23	09/26/23 12:41	1
13C5 PFNA	99		25 - 150	09/25/23 20:23	09/26/23 12:41	1
13C2 PFDA	112		25 - 150	09/25/23 20:23	09/26/23 12:41	1
13C2 PFUnA	102		25 - 150	09/25/23 20:23	09/26/23 12:41	1
13C2 PFDoA	97		25 - 150	09/25/23 20:23	09/26/23 12:41	1
13C2 PFTeDA	85		25 - 150	09/25/23 20:23	09/26/23 12:41	1
13C3 PFBS	104		25 - 150	09/25/23 20:23	09/26/23 12:41	1
18O2 PFHxS	102		25 - 150	09/25/23 20:23	09/26/23 12:41	1
13C4 PFOS	101		25 - 150	09/25/23 20:23	09/26/23 12:41	1
13C8 FOSA	100		10 - 150	09/25/23 20:23	09/26/23 12:41	1
d3-NMeFOSAA	79		25 - 150	09/25/23 20:23	09/26/23 12:41	1
d5-NEtFOSAA	89		25 - 150	09/25/23 20:23	09/26/23 12:41	1
d-N-MeFOSA-M	61		10 - 150	09/25/23 20:23	09/26/23 12:41	1
d-N-EtFOSA-M	59		10 - 150	09/25/23 20:23	09/26/23 12:41	1
d7-N-MeFOSE-M	81		10 - 150	09/25/23 20:23	09/26/23 12:41	1
d9-N-EtFOSE-M	77		10 - 150	09/25/23 20:23	09/26/23 12:41	1
M2-4:2 FTS	96		25 - 150	09/25/23 20:23	09/26/23 12:41	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: EB01 20230912

Lab Sample ID: 320-104868-3

Date Collected: 09/12/23 08:05

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	102		25 - 150	09/25/23 20:23	09/26/23 12:41	1
M2-8:2 FTS	114		25 - 150	09/25/23 20:23	09/26/23 12:41	1
13C3 HFPO-DA	84		25 - 150	09/25/23 20:23	09/26/23 12:41	1

Client Sample ID: Bio A-22-20230912

Lab Sample ID: 320-104868-4

Date Collected: 09/12/23 08:23

Matrix: Solid

Date Received: 09/14/23 09:30

Percent Solids: 27.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	3.0		3.0	0.68	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluoropentanoic acid (PFPA)	7.6		3.0	0.61	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorohexanoic acid (PFHxA)	15	B-	3.0	0.46	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluoroheptanoic acid (PFHpA)	1.2	J	3.0	0.57	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorooctanoic acid (PFOA)	9.2		3.0	0.79	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorononanoic acid (PFNA)	0.90	J	3.0	0.33	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorodecanoic acid (PFDA)	7.4		3.0	0.71	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluoroundecanoic acid (PFUnA)	1.0	J	3.0	0.62	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorododecanoic acid (PFDoA)	3.0		3.0	0.45	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorotridecanoic acid (PFTTrDA)	ND	F1 UJ	3.0	0.31	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorotetradecanoic acid (PFTTeA)	0.71	J	3.0	0.55	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorobutanesulfonic acid (PFBS)	1.1	J1 J	3.0	0.57	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.0	0.55	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorohexanesulfonic acid (PFHxS)	ND		3.0	0.43	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.0	0.73	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorooctanesulfonic acid (PFOS)	9.9		3.0	0.64	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorononanesulfonic acid (PFNS)	ND		3.0	0.43	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorodecanesulfonic acid (PFDS)	1.4	J+ J	3.0	0.77	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.0	0.70	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Perfluorooctanesulfonamide (FOSA)	1.1	J	3.0	0.49	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
NEtFOSA	ND		3.0	0.70	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
NMeFOSA	ND		3.0	0.73	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
NMeFOSAA	20		3.0	0.34	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
NEtFOSAA	6.5		3.0	0.71	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
NMeFOSE	19		3.0	0.70	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
NEtFOSE	10	F1 J+	3.0	0.42	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
4:2 FTS	ND		3.0	0.76	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
6:2 FTS	0.90	J	3.0	0.40	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
8:2 FTS	0.88	J	3.0	0.52	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.0	0.58	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
HFPO-DA (GenX)	ND		3.0	0.61	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
9CI-PF3ONS	ND		3.0	0.52	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Bio A-22-20230912

Lab Sample ID: 320-104868-4

Date Collected: 09/12/23 08:23

Matrix: Solid

Date Received: 09/14/23 09:30

Percent Solids: 27.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
11CI-PF3OUdS	ND	F1-- UJ	3.0	0.46	ug/Kg	☼	09/27/23 20:00	09/29/23 02:45	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	82		25 - 150				09/27/23 20:00	09/29/23 02:45	1
13C5 PFPeA	83		25 - 150				09/27/23 20:00	09/29/23 02:45	1
13C2 PFHxA	82		25 - 150				09/27/23 20:00	09/29/23 02:45	1
13C4 PFHpA	92		25 - 150				09/27/23 20:00	09/29/23 02:45	1
13C4 PFOA	94		25 - 150				09/27/23 20:00	09/29/23 02:45	1
13C5 PFNA	91		25 - 150				09/27/23 20:00	09/29/23 02:45	1
13C2 PFDA	80		25 - 150				09/27/23 20:00	09/29/23 02:45	1
13C2 PFUnA	79		25 - 150				09/27/23 20:00	09/29/23 02:45	1
13C2 PFDoA	47		25 - 150				09/27/23 20:00	09/29/23 02:45	1
13C2 PFTeDA	40		25 - 150				09/27/23 20:00	09/29/23 02:45	1
13C3 PFBS	84		25 - 150				09/27/23 20:00	09/29/23 02:45	1
18O2 PFHxS	93		25 - 150				09/27/23 20:00	09/29/23 02:45	1
13C4 PFOS	90		25 - 150				09/27/23 20:00	09/29/23 02:45	1
13C8 FOSA	85		10 - 150				09/27/23 20:00	09/29/23 02:45	1
d3-NMeFOSAA	51		25 - 150				09/27/23 20:00	09/29/23 02:45	1
d5-NEtFOSAA	58		25 - 150				09/27/23 20:00	09/29/23 02:45	1
d-N-MeFOSA-M	32		10 - 150				09/27/23 20:00	09/29/23 02:45	1
d-N-EtFOSA-M	44		10 - 150				09/27/23 20:00	09/29/23 02:45	1
d7-N-MeFOSE-M	35		10 - 150				09/27/23 20:00	09/29/23 02:45	1
d9-N-EtFOSE-M	26		10 - 150				09/27/23 20:00	09/29/23 02:45	1
M2-4:2 FTS	110		25 - 150				09/27/23 20:00	09/29/23 02:45	1
M2-6:2 FTS	133		25 - 150				09/27/23 20:00	09/29/23 02:45	1
M2-8:2 FTS	82		25 - 150				09/27/23 20:00	09/29/23 02:45	1
13C3 HFPO-DA	83		25 - 150				09/27/23 20:00	09/29/23 02:45	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	3.4	J	3.5	0.80	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluoropentanoic acid (PFPA)	10		3.5	0.72	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluorohexanoic acid (PFHxA)	18		3.5	0.54	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluoroheptanoic acid (PFHpA)	1.4	J	3.5	0.66	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluorooctanoic acid (PFOA)	9.5		3.5	0.93	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluorononanoic acid (PFNA)	1.0	J	3.5	0.38	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluorodecanoic acid (PFDA)	7.7		3.5	0.84	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluoroundecanoic acid (PFUnA)	1.3	J	3.5	0.73	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluorododecanoic acid (PFDoA)	3.5		3.5	0.52	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluorotridecanoic acid (PFTTrDA)	ND	*±	3.5	0.37	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluorotetradecanoic acid (PFTeA)	1.0	J+-- J	3.5	0.65	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluorobutanesulfonic acid (PFBS)	4.4		3.5	0.66	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.5	0.65	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluorohexanesulfonic acid (PFHxS)	4.1	+-- J	3.5	0.51	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.5	0.86	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Bio A-22-20230912

Lab Sample ID: 320-104868-4

Date Collected: 09/12/23 08:23

Matrix: Solid

Date Received: 09/14/23 09:30

Percent Solids: 27.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	21	J	3.5	0.75	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluorononanesulfonic acid (PFNS)	ND		3.5	0.51	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluorodecanesulfonic acid (PFDS)	1.6	J	3.5	0.91	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.5	0.82	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
Perfluorooctanesulfonamide (FOSA)	1.0	J	3.5	0.58	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
NMeFOSA	ND		3.5	0.86	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
NEtFOSA	ND		3.5	0.82	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
NMeFOSAA	15		3.5	0.40	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
NEtFOSAA	4.3		3.5	0.84	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
NMeFOSE	7.5		3.5	0.82	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
NEtFOSE	7.8		3.5	0.49	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
4:2 FTS	ND		3.5	0.89	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
6:2 FTS	1.6	J	3.5	0.47	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
8:2 FTS	1.1	J	3.5	0.61	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
HFPO-DA (GenX)	ND		3.5	0.72	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
9CI-PF3ONS	ND		3.5	0.61	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
11CI-PF3OUdS	ND		3.5	0.54	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.5	0.68	ug/Kg	☼	09/19/23 21:36	09/28/23 14:32	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	96		25 - 150	09/19/23 21:36	09/28/23 14:32	1
13C5 PFPeA	96		25 - 150	09/19/23 21:36	09/28/23 14:32	1
13C2 PFHxA	100		25 - 150	09/19/23 21:36	09/28/23 14:32	1
13C4 PFHpA	105		25 - 150	09/19/23 21:36	09/28/23 14:32	1
13C4 PFOA	105		25 - 150	09/19/23 21:36	09/28/23 14:32	1
13C5 PFNA	104		25 - 150	09/19/23 21:36	09/28/23 14:32	1
13C2 PFDA	94		25 - 150	09/19/23 21:36	09/28/23 14:32	1
13C2 PFUnA	89		25 - 150	09/19/23 21:36	09/28/23 14:32	1
13C2 PFDoA	42		25 - 150	09/19/23 21:36	09/28/23 14:32	1
13C2 PFTeDA	12	*5-	25 - 150	09/19/23 21:36	09/28/23 14:32	1
13C3 PFBS	107		25 - 150	09/19/23 21:36	09/28/23 14:32	1
18O2 PFHxS	102		25 - 150	09/19/23 21:36	09/28/23 14:32	1
13C4 PFOS	98		25 - 150	09/19/23 21:36	09/28/23 14:32	1
13C8 FOSA	101		25 - 150	09/19/23 21:36	09/28/23 14:32	1
M2-4:2 FTS	128		25 - 150	09/19/23 21:36	09/28/23 14:32	1
M2-6:2 FTS	137		25 - 150	09/19/23 21:36	09/28/23 14:32	1
M2-8:2 FTS	140		25 - 150	09/19/23 21:36	09/28/23 14:32	1
13C3 HFPO-DA	91		25 - 150	09/19/23 21:36	09/28/23 14:32	1
d3-NMeFOSAA	79		25 - 150	09/19/23 21:36	09/28/23 14:32	1
d5-NEtFOSAA	103		25 - 150	09/19/23 21:36	09/28/23 14:32	1
d-N-MeFOSA-M	50		25 - 150	09/19/23 21:36	09/28/23 14:32	1
d-N-EtFOSA-M	46		25 - 150	09/19/23 21:36	09/28/23 14:32	1
d7-N-MeFOSE-M	56		25 - 150	09/19/23 21:36	09/28/23 14:32	1
d9-N-EtFOSE-M	41		25 - 150	09/19/23 21:36	09/28/23 14:32	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Bio A-22-20230912

Lab Sample ID: 320-104868-4

Date Collected: 09/12/23 08:23

Matrix: Solid

Date Received: 09/14/23 09:30

Percent Solids: 27.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	170		3.6	0.83	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluoropentanoic acid (PFPA)	91	B-*	3.6	0.74	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorohexanoic acid (PFHxA)	70	*+	3.6	0.56	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluoroheptanoic acid (PFHpA)	31	*+	3.6	0.68	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorooctanoic acid (PFOA)	52		3.6	0.96	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorononanoic acid (PFNA)	15	*+	3.6	0.40	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorodecanoic acid (PFDA)	17	*+	3.6	0.86	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluoroundecanoic acid (PFUnA)	5.8		3.6	0.75	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorododecanoic acid (PFDoA)	6.0		3.6	0.54	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorotridecanoic acid (PFTrDA)	1.5	J	3.6	0.38	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorotetradecanoic acid (PFTeA)	2.1	J	3.6	0.66	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorobutanesulfonic acid (PFBS)	28		3.6	0.68	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.6	0.66	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorohexanesulfonic acid (PFHxS)	3.3	J	3.6	0.52	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.6	0.88	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorooctanesulfonic acid (PFOS)	21		3.6	0.78	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorononanesulfonic acid (PFNS)	ND		3.6	0.52	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorodecanesulfonic acid (PFDS)	1.2	J	3.6	0.93	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.6	0.85	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Perfluorooctanesulfonamide (FOSA)	ND		3.6	0.59	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
NMeFOSAA	ND		3.6	0.41	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
NEtFOSAA	ND		3.6	0.86	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
4:2 FTS	ND		3.6	0.92	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
6:2 FTS	ND		3.6	0.49	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
8:2 FTS	ND		3.6	0.63	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
NEtFOSA	ND		3.6	0.85	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
NMeFOSA	ND		3.6	0.88	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
NMeFOSE	ND		3.6	0.85	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
NEtFOSE	ND		3.6	0.50	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
HFPO-DA (GenX)	ND		3.6	0.74	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
9Cl-PF3ONS	ND		3.6	0.63	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
11Cl-PF3OUdS	ND		3.6	0.56	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.6	0.70	ug/Kg	☼	09/19/23 21:36	09/28/23 12:40	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	119		25 - 150				09/19/23 21:36	09/28/23 12:40	1
13C4 PFBA	95		25 - 150				09/19/23 21:36	09/28/23 12:40	1
13C5 PFPeA	98		25 - 150				09/19/23 21:36	09/28/23 12:40	1
13C2 PFHxA	94		25 - 150				09/19/23 21:36	09/28/23 12:40	1
13C4 PFHpA	108		25 - 150				09/19/23 21:36	09/28/23 12:40	1
13C4 PFOA	101		25 - 150				09/19/23 21:36	09/28/23 12:40	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Bio A-22-20230912

Lab Sample ID: 320-104868-4

Date Collected: 09/12/23 08:23

Matrix: Solid

Date Received: 09/14/23 09:30

Percent Solids: 27.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFNA	101		25 - 150	09/19/23 21:36	09/28/23 12:40	1
13C2 PFDA	96		25 - 150	09/19/23 21:36	09/28/23 12:40	1
13C2 PFUnA	104		25 - 150	09/19/23 21:36	09/28/23 12:40	1
13C2 PFDoA	94		25 - 150	09/19/23 21:36	09/28/23 12:40	1
13C2 PFTeDA	87		25 - 150	09/19/23 21:36	09/28/23 12:40	1
13C3 PFBS	105		25 - 150	09/19/23 21:36	09/28/23 12:40	1
18O2 PFHxS	103		25 - 150	09/19/23 21:36	09/28/23 12:40	1
13C4 PFOS	95		25 - 150	09/19/23 21:36	09/28/23 12:40	1
d3-NMeFOSAA	105		25 - 150	09/19/23 21:36	09/28/23 12:40	1
d5-NEtFOSAA	126		25 - 150	09/19/23 21:36	09/28/23 12:40	1
M2-4:2 FTS	0		0 - 10	09/19/23 21:36	09/28/23 12:40	1
M2-6:2 FTS	91		25 - 150	09/19/23 21:36	09/28/23 12:40	1
M2-8:2 FTS	100		25 - 150	09/19/23 21:36	09/28/23 12:40	1
d-N-MeFOSA-M	85		25 - 150	09/19/23 21:36	09/28/23 12:40	1
d-N-EtFOSA-M	95		25 - 150	09/19/23 21:36	09/28/23 12:40	1
d7-N-MeFOSE-M	83		25 - 150	09/19/23 21:36	09/28/23 12:40	1
d9-N-EtFOSE-M	86		25 - 150	09/19/23 21:36	09/28/23 12:40	1
13C3 HFPO-DA	95		25 - 150	09/19/23 21:36	09/28/23 12:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	72.4		0.1	0.1	%			09/14/23 15:00	1
Percent Solids (ASTM D 2216)	27.6		0.1	0.1	%			09/14/23 15:00	1

Client Sample ID: Eff 20230912

Lab Sample ID: 320-104868-5

Date Collected: 09/12/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	6.6		4.8	2.3	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluoropentanoic acid (PFPA)	21		1.9	0.47	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluorohexanoic acid (PFHxA)	22		1.9	0.56	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluoroheptanoic acid (PFHpA)	2.1		1.9	0.24	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluorooctanoic acid (PFOA)	7.8		1.9	0.82	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluorononanoic acid (PFNA)	0.63	J	1.9	0.26	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluorodecanoic acid (PFDA)	1.1	J	1.9	0.30	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.9	1.3	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.71	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluorobutanesulfonic acid (PFBS)	6.8	---- J	1.9	0.19	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluoropentanesulfonic acid (PFPeS)	0.83	J	1.9	0.29	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluorohexanesulfonic acid (PFHxS)	7.3		1.9	0.55	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluorooctanesulfonic acid (PFOS)	5.2		1.9	0.52	ng/L		09/25/23 20:23	09/26/23 12:51	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Eff 20230912

Lab Sample ID: 320-104868-5

Date Collected: 09/12/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.36	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.31	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.94	ng/L		09/25/23 20:23	09/26/23 12:51	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.95	ng/L		09/25/23 20:23	09/26/23 12:51	1
NEtFOSA	ND		1.9	0.84	ng/L		09/25/23 20:23	09/26/23 12:51	1
NMeFOSA	ND		1.9	0.42	ng/L		09/25/23 20:23	09/26/23 12:51	1
NMeFOSAA	1.2	J	4.8	1.2	ng/L		09/25/23 20:23	09/26/23 12:51	1
NEtFOSAA	ND		4.8	1.3	ng/L		09/25/23 20:23	09/26/23 12:51	1
NMeFOSE	ND		3.9	1.4	ng/L		09/25/23 20:23	09/26/23 12:51	1
NEtFOSE	ND		1.9	0.82	ng/L		09/25/23 20:23	09/26/23 12:51	1
4:2 FTS	ND		1.9	0.23	ng/L		09/25/23 20:23	09/26/23 12:51	1
6:2 FTS	ND		4.8	2.4	ng/L		09/25/23 20:23	09/26/23 12:51	1
8:2 FTS	ND		1.9	0.45	ng/L		09/25/23 20:23	09/26/23 12:51	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.39	ng/L		09/25/23 20:23	09/26/23 12:51	1
HFPO-DA (GenX)	ND		3.9	1.5	ng/L		09/25/23 20:23	09/26/23 12:51	1
9CI-PF3ONS	ND		1.9	0.23	ng/L		09/25/23 20:23	09/26/23 12:51	1
11CI-PF3OUdS	ND		1.9	0.31	ng/L		09/25/23 20:23	09/26/23 12:51	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	44		25 - 150	09/25/23 20:23	09/26/23 12:51	1
13C5 PFPeA	54		25 - 150	09/25/23 20:23	09/26/23 12:51	1
13C2 PFHxA	87		25 - 150	09/25/23 20:23	09/26/23 12:51	1
13C4 PFHpA	104		25 - 150	09/25/23 20:23	09/26/23 12:51	1
13C4 PFOA	96		25 - 150	09/25/23 20:23	09/26/23 12:51	1
13C5 PFNA	95		25 - 150	09/25/23 20:23	09/26/23 12:51	1
13C2 PFDA	96		25 - 150	09/25/23 20:23	09/26/23 12:51	1
13C2 PFUnA	83		25 - 150	09/25/23 20:23	09/26/23 12:51	1
13C2 PFDoA	68		25 - 150	09/25/23 20:23	09/26/23 12:51	1
13C2 PFTeDA	44		25 - 150	09/25/23 20:23	09/26/23 12:51	1
13C3 PFBS	72		25 - 150	09/25/23 20:23	09/26/23 12:51	1
18O2 PFHxS	83		25 - 150	09/25/23 20:23	09/26/23 12:51	1
13C4 PFOS	87		25 - 150	09/25/23 20:23	09/26/23 12:51	1
13C8 FOSA	90		10 - 150	09/25/23 20:23	09/26/23 12:51	1
d3-NMeFOSAA	72		25 - 150	09/25/23 20:23	09/26/23 12:51	1
d5-NEtFOSAA	74		25 - 150	09/25/23 20:23	09/26/23 12:51	1
d-N-MeFOSA-M	57		10 - 150	09/25/23 20:23	09/26/23 12:51	1
d-N-EtFOSA-M	51		10 - 150	09/25/23 20:23	09/26/23 12:51	1
d7-N-MeFOSE-M	57		10 - 150	09/25/23 20:23	09/26/23 12:51	1
d9-N-EtFOSE-M	56		10 - 150	09/25/23 20:23	09/26/23 12:51	1
M2-4:2 FTS	90		25 - 150	09/25/23 20:23	09/26/23 12:51	1
M2-6:2 FTS	93		25 - 150	09/25/23 20:23	09/26/23 12:51	1
M2-8:2 FTS	86		25 - 150	09/25/23 20:23	09/26/23 12:51	1
13C3 HFPO-DA	81		25 - 150	09/25/23 20:23	09/26/23 12:51	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	8.3	J	13	6.0	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluoropentanoic acid (PFPA)	20		5.0	1.2	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorohexanoic acid (PFHxA)	20		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 21:50	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Eff 20230912

Lab Sample ID: 320-104868-5

Date Collected: 09/12/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	2.5	J	5.0	0.63	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorooctanoic acid (PFOA)	8.5		5.0	2.1	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorodecanoic acid (PFDA)	0.99	J	5.0	0.78	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorotetradecanoic acid (PFTeA)	1.2	J+J	5.0	0.73	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorobutanesulfonic acid (PFBS)	4.4	J+J	5.0	0.50	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorohexanesulfonic acid (PFHxS)	7.0		5.0	0.43	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorooctanesulfonic acid (PFOS)	5.1		5.0	0.80	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		09/19/23 23:06	09/28/23 21:50	1
Perfluorooctanesulfonamide (FOSA)	1.0	J	5.0	0.88	ng/L		09/19/23 23:06	09/28/23 21:50	1
NMeFOSAA	ND		13	3.0	ng/L		09/19/23 23:06	09/28/23 21:50	1
NEtFOSAA	ND		13	3.3	ng/L		09/19/23 23:06	09/28/23 21:50	1
4:2 FTS	ND		5.0	0.60	ng/L		09/19/23 23:06	09/28/23 21:50	1
6:2 FTS	ND		13	6.3	ng/L		09/19/23 23:06	09/28/23 21:50	1
8:2 FTS	ND		5.0	1.2	ng/L		09/19/23 23:06	09/28/23 21:50	1
NEtFOSA	ND		5.0	2.2	ng/L		09/19/23 23:06	09/28/23 21:50	1
NMeFOSA	ND		5.0	1.1	ng/L		09/19/23 23:06	09/28/23 21:50	1
NMeFOSE	ND		10	3.5	ng/L		09/19/23 23:06	09/28/23 21:50	1
NEtFOSE	4.5	J	5.0	2.2	ng/L		09/19/23 23:06	09/28/23 21:50	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		09/19/23 23:06	09/28/23 21:50	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		09/19/23 23:06	09/28/23 21:50	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		09/19/23 23:06	09/28/23 21:50	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		09/19/23 23:06	09/28/23 21:50	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	111		25 - 150	09/19/23 23:06	09/28/23 21:50	1
13C4 PFBA	82		25 - 150	09/19/23 23:06	09/28/23 21:50	1
13C5 PFPeA	94		25 - 150	09/19/23 23:06	09/28/23 21:50	1
13C2 PFHxA	95		25 - 150	09/19/23 23:06	09/28/23 21:50	1
13C4 PFHpA	103		25 - 150	09/19/23 23:06	09/28/23 21:50	1
13C4 PFOA	95		25 - 150	09/19/23 23:06	09/28/23 21:50	1
13C5 PFNA	101		25 - 150	09/19/23 23:06	09/28/23 21:50	1
13C2 PFDA	96		25 - 150	09/19/23 23:06	09/28/23 21:50	1
13C2 PFUnA	82		25 - 150	09/19/23 23:06	09/28/23 21:50	1
13C2 PFDoA	44		25 - 150	09/19/23 23:06	09/28/23 21:50	1
13C2 PFTeDA	50		25 - 150	09/19/23 23:06	09/28/23 21:50	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Eff 20230912

Lab Sample ID: 320-104868-5

Date Collected: 09/12/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	98		25 - 150	09/19/23 23:06	09/28/23 21:50	1
18O2 PFHxS	107		25 - 150	09/19/23 23:06	09/28/23 21:50	1
13C4 PFOS	91		25 - 150	09/19/23 23:06	09/28/23 21:50	1
d3-NMeFOSAA	81		25 - 150	09/19/23 23:06	09/28/23 21:50	1
d5-NEtFOSAA	96		25 - 150	09/19/23 23:06	09/28/23 21:50	1
M2-4:2 FTS	115		25 - 150	09/19/23 23:06	09/28/23 21:50	1
M2-6:2 FTS	120		25 - 150	09/19/23 23:06	09/28/23 21:50	1
M2-8:2 FTS	123		25 - 150	09/19/23 23:06	09/28/23 21:50	1
d-N-MeFOSA-M	70		25 - 150	09/19/23 23:06	09/28/23 21:50	1
d-N-EtFOSA-M	60		25 - 150	09/19/23 23:06	09/28/23 21:50	1
d7-N-MeFOSE-M	68		25 - 150	09/19/23 23:06	09/28/23 21:50	1
d9-N-EtFOSE-M	58		25 - 150	09/19/23 23:06	09/28/23 21:50	1
13C3 HFPO-DA	78		25 - 150	09/19/23 23:06	09/28/23 21:50	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	37	B**+ U	13	6.0	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluoropentanoic acid (PFPA)	25	**+	5.0	1.2	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorohexanoic acid (PFHxA)	21	**+	5.0	1.4	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluoroheptanoic acid (PFHpA)	3.3	J**+	5.0	0.63	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorooctanoic acid (PFOA)	9.3		5.0	2.1	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorononanoic acid (PFNA)	0.69	J**+	5.0	0.68	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorodecanoic acid (PFDA)	1.1	J**+	5.0	0.78	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorododecanoic acid (PFDoA)	ND	**+---	5.0	1.4	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorotridecanoic acid (PFTrDA)	ND	**+---	5.0	3.2	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorobutanesulfonic acid (PFBS)	2.7	J	5.0	0.50	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorohexanesulfonic acid (PFHxS)	6.8		5.0	0.43	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorooctanesulfonic acid (PFOS)	4.2	J	5.0	0.80	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		09/19/23 20:05	09/28/23 16:24	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		09/19/23 20:05	09/28/23 16:24	1
NMeFOSAA	ND		13	3.0	ng/L		09/19/23 20:05	09/28/23 16:24	1
NEtFOSAA	ND		13	3.3	ng/L		09/19/23 20:05	09/28/23 16:24	1
4:2 FTS	ND		5.0	0.60	ng/L		09/19/23 20:05	09/28/23 16:24	1
6:2 FTS	ND		13	6.3	ng/L		09/19/23 20:05	09/28/23 16:24	1
8:2 FTS	ND		5.0	1.2	ng/L		09/19/23 20:05	09/28/23 16:24	1
NEtFOSA	ND		5.0	2.2	ng/L		09/19/23 20:05	09/28/23 16:24	1
NMeFOSA	ND		5.0	1.1	ng/L		09/19/23 20:05	09/28/23 16:24	1
NMeFOSE	ND		10	3.5	ng/L		09/19/23 20:05	09/28/23 16:24	1
NEtFOSE	ND		5.0	2.2	ng/L		09/19/23 20:05	09/28/23 16:24	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Eff 20230912

Lab Sample ID: 320-104868-5

Date Collected: 09/12/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA (GenX)	ND		10	3.8	ng/L		09/19/23 20:05	09/28/23 16:24	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		09/19/23 20:05	09/28/23 16:24	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		09/19/23 20:05	09/28/23 16:24	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		09/19/23 20:05	09/28/23 16:24	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	110		25 - 150				09/19/23 20:05	09/28/23 16:24	1
13C4 PFBA	50		25 - 150				09/19/23 20:05	09/28/23 16:24	1
13C5 PFPeA	97		25 - 150				09/19/23 20:05	09/28/23 16:24	1
13C2 PFHxA	95		25 - 150				09/19/23 20:05	09/28/23 16:24	1
13C4 PFHpA	97		25 - 150				09/19/23 20:05	09/28/23 16:24	1
13C4 PFOA	94		25 - 150				09/19/23 20:05	09/28/23 16:24	1
13C5 PFNA	92		25 - 150				09/19/23 20:05	09/28/23 16:24	1
13C2 PFDA	92		25 - 150				09/19/23 20:05	09/28/23 16:24	1
13C2 PFUnA	93		25 - 150				09/19/23 20:05	09/28/23 16:24	1
13C2 PFDoA	73		25 - 150				09/19/23 20:05	09/28/23 16:24	1
13C2 PFTeDA	94		25 - 150				09/19/23 20:05	09/28/23 16:24	1
13C3 PFBS	100		25 - 150				09/19/23 20:05	09/28/23 16:24	1
18O2 PFHxS	98		25 - 150				09/19/23 20:05	09/28/23 16:24	1
13C4 PFOS	89		25 - 150				09/19/23 20:05	09/28/23 16:24	1
d3-NMeFOSAA	88		25 - 150				09/19/23 20:05	09/28/23 16:24	1
d5-NEtFOSAA	109		25 - 150				09/19/23 20:05	09/28/23 16:24	1
M2-4:2 FTS	0		0 - 10				09/19/23 20:05	09/28/23 16:24	1
M2-6:2 FTS	89		25 - 150				09/19/23 20:05	09/28/23 16:24	1
M2-8:2 FTS	97		25 - 150				09/19/23 20:05	09/28/23 16:24	1
d-N-MeFOSA-M	89		25 - 150				09/19/23 20:05	09/28/23 16:24	1
d-N-EtFOSA-M	82		25 - 150				09/19/23 20:05	09/28/23 16:24	1
d7-N-MeFOSE-M	79		25 - 150				09/19/23 20:05	09/28/23 16:24	1
d9-N-EtFOSE-M	76		25 - 150				09/19/23 20:05	09/28/23 16:24	1
13C3 HFPO-DA	88		25 - 150				09/19/23 20:05	09/28/23 16:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	5.8		5.0	1.9	mg/L			09/19/23 15:53	1

Client Sample ID: Inf02 20230911

Lab Sample ID: 320-104869-1

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	3.3	J	4.9	2.3	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluoropentanoic acid (PFPA)	3.4		2.0	0.48	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluorohexanoic acid (PFHxA)	6.4	---- J	2.0	0.57	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluoroheptanoic acid (PFHpA)	1.4	J	2.0	0.24	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluorooctanoic acid (PFOA)	3.0		2.0	0.83	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluorononanoic acid (PFNA)	0.64	J	2.0	0.26	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluorodecanoic acid (PFDA)	0.69	J	2.0	0.30	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		09/25/23 20:23	09/28/23 21:00	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf02 20230911

Lab Sample ID: 320-104869-1

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.54	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.71	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluorobutanesulfonic acid (PFBS)	1.7	J	2.0	0.20	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.29	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluorohexanesulfonic acid (PFHxS)	3.5		2.0	0.56	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.19	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.53	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.36	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.31	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.95	ng/L		09/25/23 20:23	09/28/23 21:00	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.96	ng/L		09/25/23 20:23	09/28/23 21:00	1
NEtFOSA	ND		2.0	0.85	ng/L		09/25/23 20:23	09/28/23 21:00	1
NMeFOSA	ND		2.0	0.42	ng/L		09/25/23 20:23	09/28/23 21:00	1
NMeFOSAA	ND		4.9	1.2	ng/L		09/25/23 20:23	09/28/23 21:00	1
NEtFOSAA	ND		4.9	1.3	ng/L		09/25/23 20:23	09/28/23 21:00	1
NMeFOSE	ND		3.9	1.4	ng/L		09/25/23 20:23	09/28/23 21:00	1
NEtFOSE	ND		2.0	0.83	ng/L		09/25/23 20:23	09/28/23 21:00	1
4:2 FTS	ND		2.0	0.23	ng/L		09/25/23 20:23	09/28/23 21:00	1
6:2 FTS	ND		4.9	2.4	ng/L		09/25/23 20:23	09/28/23 21:00	1
8:2 FTS	ND		2.0	0.45	ng/L		09/25/23 20:23	09/28/23 21:00	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.39	ng/L		09/25/23 20:23	09/28/23 21:00	1
HFPO-DA (GenX)	ND		3.9	1.5	ng/L		09/25/23 20:23	09/28/23 21:00	1
9Cl-PF3ONS	ND		2.0	0.23	ng/L		09/25/23 20:23	09/28/23 21:00	1
11Cl-PF3OUdS	ND		2.0	0.31	ng/L		09/25/23 20:23	09/28/23 21:00	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	39		25 - 150				09/25/23 20:23	09/28/23 21:00	1
13C5 PFPeA	46		25 - 150				09/25/23 20:23	09/28/23 21:00	1
13C2 PFHxA	60		25 - 150				09/25/23 20:23	09/28/23 21:00	1
13C4 PFHpA	112		25 - 150				09/25/23 20:23	09/28/23 21:00	1
13C4 PFOA	100		25 - 150				09/25/23 20:23	09/28/23 21:00	1
13C5 PFNA	102		25 - 150				09/25/23 20:23	09/28/23 21:00	1
13C2 PFDA	99		25 - 150				09/25/23 20:23	09/28/23 21:00	1
13C2 PFUnA	74		25 - 150				09/25/23 20:23	09/28/23 21:00	1
13C2 PFDoA	55		25 - 150				09/25/23 20:23	09/28/23 21:00	1
13C2 PFTeDA	35		25 - 150				09/25/23 20:23	09/28/23 21:00	1
13C3 PFBS	61		25 - 150				09/25/23 20:23	09/28/23 21:00	1
18O2 PFHxS	89		25 - 150				09/25/23 20:23	09/28/23 21:00	1
13C4 PFOS	94		25 - 150				09/25/23 20:23	09/28/23 21:00	1
13C8 FOSA	74		10 - 150				09/25/23 20:23	09/28/23 21:00	1
d3-NMeFOSAA	39		25 - 150				09/25/23 20:23	09/28/23 21:00	1
d5-NEtFOSAA	58		25 - 150				09/25/23 20:23	09/28/23 21:00	1
d-N-MeFOSA-M	15		10 - 150				09/25/23 20:23	09/28/23 21:00	1
d-N-EtFOSA-M	30		10 - 150				09/25/23 20:23	09/28/23 21:00	1
d7-N-MeFOSE-M	25		10 - 150				09/25/23 20:23	09/28/23 21:00	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf02 20230911

Lab Sample ID: 320-104869-1

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d9-N-EtFOSE-M	50		10 - 150	09/25/23 20:23	09/28/23 21:00	1
M2-4:2 FTS	51		25 - 150	09/25/23 20:23	09/28/23 21:00	1
M2-6:2 FTS	147		25 - 150	09/25/23 20:23	09/28/23 21:00	1
M2-8:2 FTS	124		25 - 150	09/25/23 20:23	09/28/23 21:00	1
13C3 HFPO-DA	89		25 - 150	09/25/23 20:23	09/28/23 21:00	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		13	6.0	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluoropentanoic acid (PFPA)	4.9	J	5.0	1.2	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorohexanoic acid (PFHxA)	5.4		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluoroheptanoic acid (PFHpA)	1.7	J	5.0	0.63	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorooctanoic acid (PFOA)	3.3	J	5.0	2.1	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorodecanoic acid (PFDA)	0.97	J	5.0	0.78	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0	0.50	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0	0.43	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.0	0.80	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		09/19/23 23:06	09/28/23 22:01	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		09/19/23 23:06	09/28/23 22:01	1
NMeFOSAA	ND		13	3.0	ng/L		09/19/23 23:06	09/28/23 22:01	1
NEtFOSAA	ND		13	3.3	ng/L		09/19/23 23:06	09/28/23 22:01	1
4:2 FTS	ND		5.0	0.60	ng/L		09/19/23 23:06	09/28/23 22:01	1
6:2 FTS	ND		13	6.3	ng/L		09/19/23 23:06	09/28/23 22:01	1
8:2 FTS	ND		5.0	1.2	ng/L		09/19/23 23:06	09/28/23 22:01	1
NEtFOSA	ND		5.0	2.2	ng/L		09/19/23 23:06	09/28/23 22:01	1
NMeFOSA	ND		5.0	1.1	ng/L		09/19/23 23:06	09/28/23 22:01	1
NMeFOSE	4.8	J	10	3.5	ng/L		09/19/23 23:06	09/28/23 22:01	1
NEtFOSE	9.4		5.0	2.2	ng/L		09/19/23 23:06	09/28/23 22:01	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		09/19/23 23:06	09/28/23 22:01	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		09/19/23 23:06	09/28/23 22:01	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		09/19/23 23:06	09/28/23 22:01	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		09/19/23 23:06	09/28/23 22:01	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	82		25 - 150	09/19/23 23:06	09/28/23 22:01	1
13C4 PFBA	76		25 - 150	09/19/23 23:06	09/28/23 22:01	1
13C5 PFPeA	86		25 - 150	09/19/23 23:06	09/28/23 22:01	1
13C2 PFHxA	92		25 - 150	09/19/23 23:06	09/28/23 22:01	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf02 20230911

Lab Sample ID: 320-104869-1

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFHpA	93		25 - 150	09/19/23 23:06	09/28/23 22:01	1
13C4 PFOA	94		25 - 150	09/19/23 23:06	09/28/23 22:01	1
13C5 PFNA	96		25 - 150	09/19/23 23:06	09/28/23 22:01	1
13C2 PFDA	84		25 - 150	09/19/23 23:06	09/28/23 22:01	1
13C2 PFUnA	71		25 - 150	09/19/23 23:06	09/28/23 22:01	1
13C2 PFDoA	38		25 - 150	09/19/23 23:06	09/28/23 22:01	1
13C2 PFTeDA	34		25 - 150	09/19/23 23:06	09/28/23 22:01	1
13C3 PFBS	89		25 - 150	09/19/23 23:06	09/28/23 22:01	1
18O2 PFHxS	92		25 - 150	09/19/23 23:06	09/28/23 22:01	1
13C4 PFOS	86		25 - 150	09/19/23 23:06	09/28/23 22:01	1
d3-NMeFOSAA	58		25 - 150	09/19/23 23:06	09/28/23 22:01	1
d5-NEtFOSAA	63		25 - 150	09/19/23 23:06	09/28/23 22:01	1
M2-4:2 FTS	105		25 - 150	09/19/23 23:06	09/28/23 22:01	1
M2-6:2 FTS	132		25 - 150	09/19/23 23:06	09/28/23 22:01	1
M2-8:2 FTS	97		25 - 150	09/19/23 23:06	09/28/23 22:01	1
d-N-MeFOSA-M	50		25 - 150	09/19/23 23:06	09/28/23 22:01	1
d-N-EtFOSA-M	46		25 - 150	09/19/23 23:06	09/28/23 22:01	1
d7-N-MeFOSE-M	57		25 - 150	09/19/23 23:06	09/28/23 22:01	1
d9-N-EtFOSE-M	43		25 - 150	09/19/23 23:06	09/28/23 22:01	1
13C3 HFPO-DA	74		25 - 150	09/19/23 23:06	09/28/23 22:01	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	33	B,+-, U	13	6.0	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluoropentanoic acid (PFPA)	33	+-	5.0	1.2	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorohexanoic acid (PFHxA)	18	+-	5.0	1.4	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluoroheptanoic acid (PFHpA)	7.3	+-	5.0	0.63	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorooctanoic acid (PFOA)	7.2		5.0	2.1	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorononanoic acid (PFNA)	1.8	J,+-	5.0	0.68	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorodecanoic acid (PFDA)	1.6	J,+-	5.0	0.78	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorododecanoic acid (PFDoA)	ND	+-	5.0	1.4	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorotridecanoic acid (PFTrDA)	ND	+-	5.0	3.2	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorobutanesulfonic acid (PFBS)	1.6	J	5.0	0.50	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorohexanesulfonic acid (PFHxS)	3.1	J	5.0	0.43	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorooctanesulfonic acid (PFOS)	2.8	J	5.0	0.80	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		09/19/23 20:05	09/28/23 16:35	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		09/19/23 20:05	09/28/23 16:35	1
NMeFOSAA	ND		13	3.0	ng/L		09/19/23 20:05	09/28/23 16:35	1
NEtFOSAA	ND		13	3.3	ng/L		09/19/23 20:05	09/28/23 16:35	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf02 20230911

Lab Sample ID: 320-104869-1

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 FTS	ND		5.0	0.60	ng/L		09/19/23 20:05	09/28/23 16:35	1
6:2 FTS	ND		13	6.3	ng/L		09/19/23 20:05	09/28/23 16:35	1
8:2 FTS	ND		5.0	1.2	ng/L		09/19/23 20:05	09/28/23 16:35	1
NEtFOSA	ND		5.0	2.2	ng/L		09/19/23 20:05	09/28/23 16:35	1
NMeFOSA	ND		5.0	1.1	ng/L		09/19/23 20:05	09/28/23 16:35	1
NMeFOSE	ND		10	3.5	ng/L		09/19/23 20:05	09/28/23 16:35	1
NEtFOSE	ND		5.0	2.2	ng/L		09/19/23 20:05	09/28/23 16:35	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		09/19/23 20:05	09/28/23 16:35	1
9CI-PF3ONS	ND		5.0	0.60	ng/L		09/19/23 20:05	09/28/23 16:35	1
11CI-PF3OUdS	ND		5.0	0.80	ng/L		09/19/23 20:05	09/28/23 16:35	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		09/19/23 20:05	09/28/23 16:35	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	102		25 - 150	09/19/23 20:05	09/28/23 16:35	1
13C4 PFBA	101		25 - 150	09/19/23 20:05	09/28/23 16:35	1
13C5 PFPeA	96		25 - 150	09/19/23 20:05	09/28/23 16:35	1
13C2 PFHxA	98		25 - 150	09/19/23 20:05	09/28/23 16:35	1
13C4 PFHpA	105		25 - 150	09/19/23 20:05	09/28/23 16:35	1
13C4 PFOA	101		25 - 150	09/19/23 20:05	09/28/23 16:35	1
13C5 PFNA	104		25 - 150	09/19/23 20:05	09/28/23 16:35	1
13C2 PFDA	94		25 - 150	09/19/23 20:05	09/28/23 16:35	1
13C2 PFUnA	88		25 - 150	09/19/23 20:05	09/28/23 16:35	1
13C2 PFDaA	70		25 - 150	09/19/23 20:05	09/28/23 16:35	1
13C2 PFTeDA	89		25 - 150	09/19/23 20:05	09/28/23 16:35	1
13C3 PFBS	105		25 - 150	09/19/23 20:05	09/28/23 16:35	1
18O2 PFHxS	103		25 - 150	09/19/23 20:05	09/28/23 16:35	1
13C4 PFOS	90		25 - 150	09/19/23 20:05	09/28/23 16:35	1
d3-NMeFOSAA	87		25 - 150	09/19/23 20:05	09/28/23 16:35	1
d5-NEtFOSAA	100		25 - 150	09/19/23 20:05	09/28/23 16:35	1
M2-4:2 FTS	0		0 - 10	09/19/23 20:05	09/28/23 16:35	1
M2-6:2 FTS	89		25 - 150	09/19/23 20:05	09/28/23 16:35	1
M2-8:2 FTS	93		25 - 150	09/19/23 20:05	09/28/23 16:35	1
d-N-MeFOSA-M	66		25 - 150	09/19/23 20:05	09/28/23 16:35	1
d-N-EtFOSA-M	57		25 - 150	09/19/23 20:05	09/28/23 16:35	1
d7-N-MeFOSE-M	66		25 - 150	09/19/23 20:05	09/28/23 16:35	1
d9-N-EtFOSE-M	55		25 - 150	09/19/23 20:05	09/28/23 16:35	1
13C3 HFPO-DA	95		25 - 150	09/19/23 20:05	09/28/23 16:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	220		33	13	mg/L			09/17/23 21:35	1

Client Sample ID: Inf07 20230911

Lab Sample ID: 320-104869-2

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	9.8		4.9	2.3	ng/L		09/25/23 20:23	09/27/23 15:23	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf07 20230911

Lab Sample ID: 320-104869-2

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanoic acid (PFPA)	7.0		2.0	0.48	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorohexanoic acid (PFHxA)	16		2.0	0.57	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluoroheptanoic acid (PFHpA)	3.0		2.0	0.24	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorooctanoic acid (PFOA)	9.2		2.0	0.83	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorononanoic acid (PFNA)	0.78	J	2.0	0.26	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorodecanoic acid (PFDA)	0.63	J	2.0	0.30	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.54	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.71	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorobutanesulfonic acid (PFBS)	5.8		2.0	0.20	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluoropentanesulfonic acid (PFPeS)	1.4	J	2.0	0.29	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorohexanesulfonic acid (PFHxS)	12		2.0	0.56	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.19	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorooctanesulfonic acid (PFOS)	6.8		2.0	0.53	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.36	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.31	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.95	ng/L		09/25/23 20:23	09/27/23 15:23	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.96	ng/L		09/25/23 20:23	09/27/23 15:23	1
NEtFOSA	ND		2.0	0.85	ng/L		09/25/23 20:23	09/27/23 15:23	1
NMeFOSA	ND		2.0	0.42	ng/L		09/25/23 20:23	09/27/23 15:23	1
NMeFOSAA	ND		4.9	1.2	ng/L		09/25/23 20:23	09/27/23 15:23	1
NEtFOSAA	ND		4.9	1.3	ng/L		09/25/23 20:23	09/27/23 15:23	1
NMeFOSE	1.9	J	3.9	1.4	ng/L		09/25/23 20:23	09/27/23 15:23	1
NEtFOSE	ND		2.0	0.83	ng/L		09/25/23 20:23	09/27/23 15:23	1
4:2 FTS	ND		2.0	0.23	ng/L		09/25/23 20:23	09/27/23 15:23	1
6:2 FTS	3.1	J J	4.9	2.4	ng/L		09/25/23 20:23	09/27/23 15:23	1
8:2 FTS	0.49	J J	2.0	0.45	ng/L		09/25/23 20:23	09/27/23 15:23	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.39	ng/L		09/25/23 20:23	09/27/23 15:23	1
HFPO-DA (GenX)	ND		3.9	1.5	ng/L		09/25/23 20:23	09/27/23 15:23	1
9CI-PF3ONS	ND		2.0	0.23	ng/L		09/25/23 20:23	09/27/23 15:23	1
11CI-PF3OUdS	ND		2.0	0.31	ng/L		09/25/23 20:23	09/27/23 15:23	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	56		25 - 150				09/25/23 20:23	09/27/23 15:23	1
13C5 PFPeA	51		25 - 150				09/25/23 20:23	09/27/23 15:23	1
13C2 PFHxA	74		25 - 150				09/25/23 20:23	09/27/23 15:23	1
13C4 PFHpA	120		25 - 150				09/25/23 20:23	09/27/23 15:23	1
13C4 PFOA	103		25 - 150				09/25/23 20:23	09/27/23 15:23	1
13C5 PFNA	134		25 - 150				09/25/23 20:23	09/27/23 15:23	1
13C2 PFDA	144		25 - 150				09/25/23 20:23	09/27/23 15:23	1
13C2 PFUnA	122		25 - 150				09/25/23 20:23	09/27/23 15:23	1
13C2 PFDoA	88		25 - 150				09/25/23 20:23	09/27/23 15:23	1
13C2 PFTeDA	48		25 - 150				09/25/23 20:23	09/27/23 15:23	1
13C3 PFBS	67		25 - 150				09/25/23 20:23	09/27/23 15:23	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf07 20230911

Lab Sample ID: 320-104869-2

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	111		25 - 150	09/25/23 20:23	09/27/23 15:23	1
13C4 PFOS	139		25 - 150	09/25/23 20:23	09/27/23 15:23	1
13C8 FOSA	111		10 - 150	09/25/23 20:23	09/27/23 15:23	1
d3-NMeFOSAA	49		25 - 150	09/25/23 20:23	09/27/23 15:23	1
d5-NEtFOSAA	88		25 - 150	09/25/23 20:23	09/27/23 15:23	1
d-N-MeFOSA-M	24		10 - 150	09/25/23 20:23	09/27/23 15:23	1
d-N-EtFOSA-M	40		10 - 150	09/25/23 20:23	09/27/23 15:23	1
d7-N-MeFOSE-M	38		10 - 150	09/25/23 20:23	09/27/23 15:23	1
d9-N-EtFOSE-M	80		10 - 150	09/25/23 20:23	09/27/23 15:23	1
M2-4:2 FTS	68		25 - 150	09/25/23 20:23	09/27/23 15:23	1
M2-6:2 FTS	177	*5+	25 - 150	09/25/23 20:23	09/27/23 15:23	1
M2-8:2 FTS	176	*5+	25 - 150	09/25/23 20:23	09/27/23 15:23	1
13C3 HFPO-DA	113		25 - 150	09/25/23 20:23	09/27/23 15:23	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	15		13	6.0	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluoropentanoic acid (PFPA)	9.4		5.0	1.2	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorohexanoic acid (PFHxA)	15		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluoroheptanoic acid (PFHpA)	3.2	J	5.0	0.63	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorooctanoic acid (PFOA)	8.8		5.0	2.1	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorodecanoic acid (PFDA)	ND		5.0	0.78	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorobutanesulfonic acid (PFBS)	3.8	J	5.0	0.50	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorohexanesulfonic acid (PFHxS)	12		5.0	0.43	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorooctanesulfonic acid (PFOS)	6.4		5.0	0.80	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		09/19/23 23:06	09/28/23 22:12	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		09/19/23 23:06	09/28/23 22:12	1
NMeFOSAA	ND		13	3.0	ng/L		09/19/23 23:06	09/28/23 22:12	1
NEtFOSAA	ND		13	3.3	ng/L		09/19/23 23:06	09/28/23 22:12	1
4:2 FTS	ND		5.0	0.60	ng/L		09/19/23 23:06	09/28/23 22:12	1
6:2 FTS	ND		13	6.3	ng/L		09/19/23 23:06	09/28/23 22:12	1
8:2 FTS	ND		5.0	1.2	ng/L		09/19/23 23:06	09/28/23 22:12	1
NEtFOSA	ND		5.0	2.2	ng/L		09/19/23 23:06	09/28/23 22:12	1
NMeFOSA	ND		5.0	1.1	ng/L		09/19/23 23:06	09/28/23 22:12	1
NMeFOSE	ND		10	3.5	ng/L		09/19/23 23:06	09/28/23 22:12	1
NEtFOSE	ND		5.0	2.2	ng/L		09/19/23 23:06	09/28/23 22:12	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf07 20230911

Lab Sample ID: 320-104869-2

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA (GenX)	ND		10	3.8	ng/L		09/19/23 23:06	09/28/23 22:12	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		09/19/23 23:06	09/28/23 22:12	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		09/19/23 23:06	09/28/23 22:12	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		09/19/23 23:06	09/28/23 22:12	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	98		25 - 150				09/19/23 23:06	09/28/23 22:12	1
13C4 PFBA	91		25 - 150				09/19/23 23:06	09/28/23 22:12	1
13C5 PFPeA	92		25 - 150				09/19/23 23:06	09/28/23 22:12	1
13C2 PFHxA	94		25 - 150				09/19/23 23:06	09/28/23 22:12	1
13C4 PFHpA	100		25 - 150				09/19/23 23:06	09/28/23 22:12	1
13C4 PFOA	99		25 - 150				09/19/23 23:06	09/28/23 22:12	1
13C5 PFNA	108		25 - 150				09/19/23 23:06	09/28/23 22:12	1
13C2 PFDA	99		25 - 150				09/19/23 23:06	09/28/23 22:12	1
13C2 PFUnA	84		25 - 150				09/19/23 23:06	09/28/23 22:12	1
13C2 PFDoA	48		25 - 150				09/19/23 23:06	09/28/23 22:12	1
13C2 PFTeDA	38		25 - 150				09/19/23 23:06	09/28/23 22:12	1
13C3 PFBS	103		25 - 150				09/19/23 23:06	09/28/23 22:12	1
18O2 PFHxS	102		25 - 150				09/19/23 23:06	09/28/23 22:12	1
13C4 PFOS	95		25 - 150				09/19/23 23:06	09/28/23 22:12	1
d3-NMeFOSAA	64		25 - 150				09/19/23 23:06	09/28/23 22:12	1
d5-NEtFOSAA	79		25 - 150				09/19/23 23:06	09/28/23 22:12	1
M2-4:2 FTS	96		25 - 150				09/19/23 23:06	09/28/23 22:12	1
M2-6:2 FTS	135		25 - 150				09/19/23 23:06	09/28/23 22:12	1
M2-8:2 FTS	107		25 - 150				09/19/23 23:06	09/28/23 22:12	1
d-N-MeFOSA-M	58		25 - 150				09/19/23 23:06	09/28/23 22:12	1
d-N-EtFOSA-M	51		25 - 150				09/19/23 23:06	09/28/23 22:12	1
d7-N-MeFOSE-M	70		25 - 150				09/19/23 23:06	09/28/23 22:12	1
d9-N-EtFOSE-M	62		25 - 150				09/19/23 23:06	09/28/23 22:12	1
13C3 HFPO-DA	95		25 - 150				09/19/23 23:06	09/28/23 22:12	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	59	B*+ U	13	6.0	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluoropentanoic acid (PFPA)	63	*+	5.0	1.2	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorohexanoic acid (PFHxA)	45	*+	5.0	1.4	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluoroheptanoic acid (PFHpA)	14	*+	5.0	0.63	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorooctanoic acid (PFOA)	16		5.0	2.1	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorononanoic acid (PFNA)	2.8	J *+	5.0	0.68	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorodecanoic acid (PFDA)	2.9	J *+	5.0	0.78	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorododecanoic acid (PFDoA)	ND	*+	5.0	1.4	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorotridecanoic acid (PFTTrDA)	ND	*+	5.0	3.2	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorobutanesulfonic acid (PFBS)	3.9	J	5.0	0.50	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluoropentanesulfonic acid (PFPeS)	0.85	J	5.0	0.75	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorohexanesulfonic acid (PFHxS)	11		5.0	0.43	ng/L		09/19/23 20:05	09/28/23 16:46	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf07 20230911

Lab Sample ID: 320-104869-2

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorooctanesulfonic acid (PFOS)	5.0		5.0	0.80	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		09/19/23 20:05	09/28/23 16:46	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		09/19/23 20:05	09/28/23 16:46	1
NMeFOSAA	ND		13	3.0	ng/L		09/19/23 20:05	09/28/23 16:46	1
NEtFOSAA	ND		13	3.3	ng/L		09/19/23 20:05	09/28/23 16:46	1
4:2 FTS	ND		5.0	0.60	ng/L		09/19/23 20:05	09/28/23 16:46	1
6:2 FTS	ND		13	6.3	ng/L		09/19/23 20:05	09/28/23 16:46	1
8:2 FTS	ND		5.0	1.2	ng/L		09/19/23 20:05	09/28/23 16:46	1
NEtFOSA	ND		5.0	2.2	ng/L		09/19/23 20:05	09/28/23 16:46	1
NMeFOSA	ND		5.0	1.1	ng/L		09/19/23 20:05	09/28/23 16:46	1
NMeFOSE	ND		10	3.5	ng/L		09/19/23 20:05	09/28/23 16:46	1
NEtFOSE	ND		5.0	2.2	ng/L		09/19/23 20:05	09/28/23 16:46	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		09/19/23 20:05	09/28/23 16:46	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		09/19/23 20:05	09/28/23 16:46	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		09/19/23 20:05	09/28/23 16:46	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		09/19/23 20:05	09/28/23 16:46	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	83		25 - 150	09/19/23 20:05	09/28/23 16:46	1
13C4 PFBA	68		25 - 150	09/19/23 20:05	09/28/23 16:46	1
13C5 PFPeA	71		25 - 150	09/19/23 20:05	09/28/23 16:46	1
13C2 PFHxA	72		25 - 150	09/19/23 20:05	09/28/23 16:46	1
13C4 PFHpA	75		25 - 150	09/19/23 20:05	09/28/23 16:46	1
13C4 PFOA	73		25 - 150	09/19/23 20:05	09/28/23 16:46	1
13C5 PFNA	75		25 - 150	09/19/23 20:05	09/28/23 16:46	1
13C2 PFDA	73		25 - 150	09/19/23 20:05	09/28/23 16:46	1
13C2 PFUnA	69		25 - 150	09/19/23 20:05	09/28/23 16:46	1
13C2 PFDoA	52		25 - 150	09/19/23 20:05	09/28/23 16:46	1
13C2 PFTeDA	62		25 - 150	09/19/23 20:05	09/28/23 16:46	1
13C3 PFBS	76		25 - 150	09/19/23 20:05	09/28/23 16:46	1
18O2 PFHxS	70		25 - 150	09/19/23 20:05	09/28/23 16:46	1
13C4 PFOS	66		25 - 150	09/19/23 20:05	09/28/23 16:46	1
d3-NMeFOSAA	66		25 - 150	09/19/23 20:05	09/28/23 16:46	1
d5-NEtFOSAA	84		25 - 150	09/19/23 20:05	09/28/23 16:46	1
M2-4:2 FTS	0		0 - 10	09/19/23 20:05	09/28/23 16:46	1
M2-6:2 FTS	65		25 - 150	09/19/23 20:05	09/28/23 16:46	1
M2-8:2 FTS	67		25 - 150	09/19/23 20:05	09/28/23 16:46	1
d-N-MeFOSA-M	49		25 - 150	09/19/23 20:05	09/28/23 16:46	1
d-N-EtFOSA-M	41		25 - 150	09/19/23 20:05	09/28/23 16:46	1
d7-N-MeFOSE-M	49		25 - 150	09/19/23 20:05	09/28/23 16:46	1
d9-N-EtFOSE-M	42		25 - 150	09/19/23 20:05	09/28/23 16:46	1
13C3 HFPO-DA	71		25 - 150	09/19/23 20:05	09/28/23 16:46	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf07 20230911

Lab Sample ID: 320-104869-2

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	230		36	14	mg/L			09/17/23 21:39	1

Client Sample ID: Inf08 20230911

Lab Sample ID: 320-104869-3

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	4.3	J	4.8	2.3	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluoropentanoic acid (PFPA)	4.5		1.9	0.47	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorohexanoic acid (PFHxA)	9.3		1.9	0.56	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluoroheptanoic acid (PFHpA)	1.2	J	1.9	0.24	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorooctanoic acid (PFOA)	2.4		1.9	0.82	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorononanoic acid (PFNA)	0.44	J	1.9	0.26	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorodecanoic acid (PFDA)	0.58	J	1.9	0.30	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorododecanoic acid (PFDoA)	0.62	J	1.9	0.53	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.9	1.3	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorotetradecanoic acid (PFTeA)	2.8		1.9	0.71	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorobutanesulfonic acid (PFBS)	1.8	J	1.9	0.19	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.9	0.29	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorohexanesulfonic acid (PFHxS)	4.1		1.9	0.55	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorooctanesulfonic acid (PFOS)	3.1		1.9	0.52	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.36	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.31	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.94	ng/L		09/25/23 20:23	09/28/23 21:10	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.95	ng/L		09/25/23 20:23	09/28/23 21:10	1
NEtFOSA	ND		1.9	0.84	ng/L		09/25/23 20:23	09/28/23 21:10	1
NMeFOSA	ND		1.9	0.42	ng/L		09/25/23 20:23	09/28/23 21:10	1
NMeFOSAA	ND		4.8	1.2	ng/L		09/25/23 20:23	09/28/23 21:10	1
NEtFOSAA	ND		4.8	1.3	ng/L		09/25/23 20:23	09/28/23 21:10	1
NMeFOSE	ND		3.9	1.4	ng/L		09/25/23 20:23	09/28/23 21:10	1
NEtFOSE	ND		1.9	0.82	ng/L		09/25/23 20:23	09/28/23 21:10	1
4:2 FTS	ND		1.9	0.23	ng/L		09/25/23 20:23	09/28/23 21:10	1
6:2 FTS	ND		4.8	2.4	ng/L		09/25/23 20:23	09/28/23 21:10	1
8:2 FTS	0.52	J	1.9	0.45	ng/L		09/25/23 20:23	09/28/23 21:10	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.39	ng/L		09/25/23 20:23	09/28/23 21:10	1
HFPO-DA (GenX)	ND		3.9	1.5	ng/L		09/25/23 20:23	09/28/23 21:10	1
9CI-PF3ONS	ND		1.9	0.23	ng/L		09/25/23 20:23	09/28/23 21:10	1
11CI-PF3OUdS	ND		1.9	0.31	ng/L		09/25/23 20:23	09/28/23 21:10	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf08 20230911

Lab Sample ID: 320-104869-3

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	35		25 - 150	09/25/23 20:23	09/28/23 21:10	1
13C5 PFPeA	42		25 - 150	09/25/23 20:23	09/28/23 21:10	1
13C2 PFHxA	60		25 - 150	09/25/23 20:23	09/28/23 21:10	1
13C4 PFHpA	110		25 - 150	09/25/23 20:23	09/28/23 21:10	1
13C4 PFOA	100		25 - 150	09/25/23 20:23	09/28/23 21:10	1
13C5 PFNA	102		25 - 150	09/25/23 20:23	09/28/23 21:10	1
13C2 PFDA	96		25 - 150	09/25/23 20:23	09/28/23 21:10	1
13C2 PFUnA	76		25 - 150	09/25/23 20:23	09/28/23 21:10	1
13C2 PFDoA	56		25 - 150	09/25/23 20:23	09/28/23 21:10	1
13C2 PFTeDA	26		25 - 150	09/25/23 20:23	09/28/23 21:10	1
13C3 PFBS	63		25 - 150	09/25/23 20:23	09/28/23 21:10	1
18O2 PFHxS	86		25 - 150	09/25/23 20:23	09/28/23 21:10	1
13C4 PFOS	95		25 - 150	09/25/23 20:23	09/28/23 21:10	1
13C8 FOSA	78		10 - 150	09/25/23 20:23	09/28/23 21:10	1
d3-NMeFOSAA	36		25 - 150	09/25/23 20:23	09/28/23 21:10	1
d5-NEtFOSAA	56		25 - 150	09/25/23 20:23	09/28/23 21:10	1
d-N-MeFOSA-M	14		10 - 150	09/25/23 20:23	09/28/23 21:10	1
d-N-EtFOSA-M	28		10 - 150	09/25/23 20:23	09/28/23 21:10	1
d7-N-MeFOSE-M	24		10 - 150	09/25/23 20:23	09/28/23 21:10	1
d9-N-EtFOSE-M	48		10 - 150	09/25/23 20:23	09/28/23 21:10	1
M2-4:2 FTS	60		25 - 150	09/25/23 20:23	09/28/23 21:10	1
M2-6:2 FTS	153	*5+	25 - 150	09/25/23 20:23	09/28/23 21:10	1
M2-8:2 FTS	106		25 - 150	09/25/23 20:23	09/28/23 21:10	1
13C3 HFPO-DA	82		25 - 150	09/25/23 20:23	09/28/23 21:10	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		13	6.0	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluoropentanoic acid (PFPA)	6.1		5.0	1.2	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorohexanoic acid (PFHxA)	8.5		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluoroheptanoic acid (PFHpA)	1.4	J	5.0	0.63	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorooctanoic acid (PFOA)	2.4	J	5.0	2.1	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorodecanoic acid (PFDA)	ND		5.0	0.78	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorotridecanoic acid (PFTTrDA)	ND		5.0	3.2	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorobutanesulfonic acid (PFBS)	1.6	JL---	5.0	0.50	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorohexanesulfonic acid (PFHxS)	3.8	JL---	5.0	0.43	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.0	0.80	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		09/19/23 23:06	09/28/23 22:24	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		09/19/23 23:06	09/28/23 22:24	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf08 20230911

Lab Sample ID: 320-104869-3

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NMeFOSAA	ND		13	3.0	ng/L		09/19/23 23:06	09/28/23 22:24	1
NEtFOSAA	ND		13	3.3	ng/L		09/19/23 23:06	09/28/23 22:24	1
4:2 FTS	ND		5.0	0.60	ng/L		09/19/23 23:06	09/28/23 22:24	1
6:2 FTS	ND		13	6.3	ng/L		09/19/23 23:06	09/28/23 22:24	1
8:2 FTS	ND		5.0	1.2	ng/L		09/19/23 23:06	09/28/23 22:24	1
NEtFOSA	ND		5.0	2.2	ng/L		09/19/23 23:06	09/28/23 22:24	1
NMeFOSA	ND		5.0	1.1	ng/L		09/19/23 23:06	09/28/23 22:24	1
NMeFOSE	ND		10	3.5	ng/L		09/19/23 23:06	09/28/23 22:24	1
NEtFOSE	ND		5.0	2.2	ng/L		09/19/23 23:06	09/28/23 22:24	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		09/19/23 23:06	09/28/23 22:24	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		09/19/23 23:06	09/28/23 22:24	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		09/19/23 23:06	09/28/23 22:24	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		09/19/23 23:06	09/28/23 22:24	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	88		25 - 150	09/19/23 23:06	09/28/23 22:24	1
13C4 PFBA	78		25 - 150	09/19/23 23:06	09/28/23 22:24	1
13C5 PFPeA	89		25 - 150	09/19/23 23:06	09/28/23 22:24	1
13C2 PFHxA	88		25 - 150	09/19/23 23:06	09/28/23 22:24	1
13C4 PFHpA	100		25 - 150	09/19/23 23:06	09/28/23 22:24	1
13C4 PFOA	98		25 - 150	09/19/23 23:06	09/28/23 22:24	1
13C5 PFNA	98		25 - 150	09/19/23 23:06	09/28/23 22:24	1
13C2 PFDA	90		25 - 150	09/19/23 23:06	09/28/23 22:24	1
13C2 PFUnA	71		25 - 150	09/19/23 23:06	09/28/23 22:24	1
13C2 PFDoA	44		25 - 150	09/19/23 23:06	09/28/23 22:24	1
13C2 PFTeDA	30		25 - 150	09/19/23 23:06	09/28/23 22:24	1
13C3 PFBS	94		25 - 150	09/19/23 23:06	09/28/23 22:24	1
18O2 PFHxS	98		25 - 150	09/19/23 23:06	09/28/23 22:24	1
13C4 PFOS	90		25 - 150	09/19/23 23:06	09/28/23 22:24	1
d3-NMeFOSAA	58		25 - 150	09/19/23 23:06	09/28/23 22:24	1
d5-NEtFOSAA	69		25 - 150	09/19/23 23:06	09/28/23 22:24	1
M2-4:2 FTS	102		25 - 150	09/19/23 23:06	09/28/23 22:24	1
M2-6:2 FTS	137		25 - 150	09/19/23 23:06	09/28/23 22:24	1
M2-8:2 FTS	110		25 - 150	09/19/23 23:06	09/28/23 22:24	1
d-N-MeFOSA-M	52		25 - 150	09/19/23 23:06	09/28/23 22:24	1
d-N-EtFOSA-M	50		25 - 150	09/19/23 23:06	09/28/23 22:24	1
d7-N-MeFOSE-M	55		25 - 150	09/19/23 23:06	09/28/23 22:24	1
d9-N-EtFOSE-M	38		25 - 150	09/19/23 23:06	09/28/23 22:24	1
13C3 HFPO-DA	76		25 - 150	09/19/23 23:06	09/28/23 22:24	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	32	B**+ U	13	6.0	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluoropentanoic acid (PFPA)	32	**+	5.0	1.2	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluorohexanoic acid (PFHxA)	27	**+	5.0	1.4	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluoroheptanoic acid (PFHpA)	8.6	**+	5.0	0.63	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluorooctanoic acid (PFOA)	8.6		5.0	2.1	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluorononanoic acid (PFNA)	2.5	J **	5.0	0.68	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluorodecanoic acid (PFDA)	2.2	J **	5.0	0.78	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		09/19/23 20:05	09/28/23 16:58	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf08 20230911

Lab Sample ID: 320-104869-3

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	ND	*+	5.0	1.4	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluorotridecanoic acid (PFTrDA)	ND	*+	5.0	3.2	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluorobutanesulfonic acid (PFBS)	1.3	J	5.0	0.50	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluorohexanesulfonic acid (PFHxS)	3.0	J	5.0	0.43	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluorooctanesulfonic acid (PFOS)	3.0	J	5.0	0.80	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		09/19/23 20:05	09/28/23 16:58	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		09/19/23 20:05	09/28/23 16:58	1
NMeFOSAA	ND		13	3.0	ng/L		09/19/23 20:05	09/28/23 16:58	1
NEtFOSAA	ND		13	3.3	ng/L		09/19/23 20:05	09/28/23 16:58	1
4:2 FTS	ND		5.0	0.60	ng/L		09/19/23 20:05	09/28/23 16:58	1
6:2 FTS	ND		13	6.3	ng/L		09/19/23 20:05	09/28/23 16:58	1
8:2 FTS	ND		5.0	1.2	ng/L		09/19/23 20:05	09/28/23 16:58	1
NEtFOSA	ND		5.0	2.2	ng/L		09/19/23 20:05	09/28/23 16:58	1
NMeFOSA	ND		5.0	1.1	ng/L		09/19/23 20:05	09/28/23 16:58	1
NMeFOSE	ND		10	3.5	ng/L		09/19/23 20:05	09/28/23 16:58	1
NEtFOSE	ND	UJ	5.0	2.2	ng/L		09/19/23 20:05	09/28/23 16:58	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		09/19/23 20:05	09/28/23 16:58	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		09/19/23 20:05	09/28/23 16:58	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		09/19/23 20:05	09/28/23 16:58	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		09/19/23 20:05	09/28/23 16:58	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	69		25 - 150	09/19/23 20:05	09/28/23 16:58	1
13C4 PFBA	60		25 - 150	09/19/23 20:05	09/28/23 16:58	1
13C5 PFPeA	63		25 - 150	09/19/23 20:05	09/28/23 16:58	1
13C2 PFHxA	62		25 - 150	09/19/23 20:05	09/28/23 16:58	1
13C4 PFHpA	67		25 - 150	09/19/23 20:05	09/28/23 16:58	1
13C4 PFOA	63		25 - 150	09/19/23 20:05	09/28/23 16:58	1
13C5 PFNA	58		25 - 150	09/19/23 20:05	09/28/23 16:58	1
13C2 PFDA	54		25 - 150	09/19/23 20:05	09/28/23 16:58	1
13C2 PFUnA	46		25 - 150	09/19/23 20:05	09/28/23 16:58	1
13C2 PFDoA	34		25 - 150	09/19/23 20:05	09/28/23 16:58	1
13C2 PFTeDA	42		25 - 150	09/19/23 20:05	09/28/23 16:58	1
13C3 PFBS	59		25 - 150	09/19/23 20:05	09/28/23 16:58	1
18O2 PFHxS	60		25 - 150	09/19/23 20:05	09/28/23 16:58	1
13C4 PFOS	50		25 - 150	09/19/23 20:05	09/28/23 16:58	1
d3-NMeFOSAA	51		25 - 150	09/19/23 20:05	09/28/23 16:58	1
d5-NEtFOSAA	52		25 - 150	09/19/23 20:05	09/28/23 16:58	1
M2-4:2 FTS	0		0 - 10	09/19/23 20:05	09/28/23 16:58	1
M2-6:2 FTS	54		25 - 150	09/19/23 20:05	09/28/23 16:58	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf08 20230911

Lab Sample ID: 320-104869-3

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-8:2 FTS	53		25 - 150	09/19/23 20:05	09/28/23 16:58	1
d-N-MeFOSA-M	44		25 - 150	09/19/23 20:05	09/28/23 16:58	1
d-N-EtFOSA-M	34		25 - 150	09/19/23 20:05	09/28/23 16:58	1
d7-N-MeFOSE-M	39		25 - 150	09/19/23 20:05	09/28/23 16:58	1
d9-N-EtFOSE-M	20	*5-	25 - 150	09/19/23 20:05	09/28/23 16:58	1
13C3 HFPO-DA	56		25 - 150	09/19/23 20:05	09/28/23 16:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	200		28	11	mg/L			09/17/23 21:42	1

Client Sample ID: Inf11 20230911

Lab Sample ID: 320-104869-4

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		49	24	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluoropentanoic acid (PFPA)	ND		20	4.8	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorohexanoic acid (PFHxA)	7.8	J.L. J	20	5.7	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluoroheptanoic acid (PFHpA)	ND		20	2.5	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorooctanoic acid (PFOA)	ND		20	8.4	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorononanoic acid (PFNA)	ND		20	2.7	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorodecanoic acid (PFDA)	ND		20	3.1	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluoroundecanoic acid (PFUnA)	ND		20	11	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorododecanoic acid (PFDoA)	ND		20	5.4	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorotridecanoic acid (PFTrDA)	ND		20	13	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorotetradecanoic acid (PFTeA)	ND		20	7.2	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorobutanesulfonic acid (PFBS)	ND		20	2.0	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluoropentanesulfonic acid (PFPeS)	ND		20	3.0	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorohexanesulfonic acid (PFHxS)	ND		20	5.6	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluoroheptanesulfonic acid (PFHpS)	ND		20	1.9	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorooctanesulfonic acid (PFOS)	6.5	J	20	5.3	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorononanesulfonic acid (PFNS)	ND		20	3.7	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorodecanesulfonic acid (PFDS)	ND		20	3.2	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorododecanesulfonic acid (PFDoS)	ND		20	9.6	ng/L		09/25/23 20:23	10/02/23 23:43	10
Perfluorooctanesulfonamide (FOSA)	ND		20	9.7	ng/L		09/25/23 20:23	10/02/23 23:43	10
NEtFOSA	ND		20	8.6	ng/L		09/25/23 20:23	10/02/23 23:43	10
NMeFOSA	ND		20	4.2	ng/L		09/25/23 20:23	10/02/23 23:43	10
NMeFOSAA	ND		49	12	ng/L		09/25/23 20:23	10/02/23 23:43	10
NEtFOSAA	ND		49	13	ng/L		09/25/23 20:23	10/02/23 23:43	10
NMeFOSE	ND		39	14	ng/L		09/25/23 20:23	10/02/23 23:43	10
NEtFOSE	ND		20	8.4	ng/L		09/25/23 20:23	10/02/23 23:43	10
4:2 FTS	ND		20	2.4	ng/L		09/25/23 20:23	10/02/23 23:43	10
6:2 FTS	ND		49	25	ng/L		09/25/23 20:23	10/02/23 23:43	10
8:2 FTS	ND		20	4.5	ng/L		09/25/23 20:23	10/02/23 23:43	10

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf11 20230911

Lab Sample ID: 320-104869-4

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		20	3.9	ng/L		09/25/23 20:23	10/02/23 23:43	10
HFPO-DA (GenX)	ND		39	15	ng/L		09/25/23 20:23	10/02/23 23:43	10
9CI-PF3ONS	ND		20	2.4	ng/L		09/25/23 20:23	10/02/23 23:43	10
11CI-PF3OUdS	ND		20	3.2	ng/L		09/25/23 20:23	10/02/23 23:43	10
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	114		25 - 150				09/25/23 20:23	10/02/23 23:43	10
13C5 PFPeA	110		25 - 150				09/25/23 20:23	10/02/23 23:43	10
13C2 PFHxA	114		25 - 150				09/25/23 20:23	10/02/23 23:43	10
13C4 PFHpA	111		25 - 150				09/25/23 20:23	10/02/23 23:43	10
13C4 PFOA	100		25 - 150				09/25/23 20:23	10/02/23 23:43	10
13C5 PFNA	101		25 - 150				09/25/23 20:23	10/02/23 23:43	10
13C2 PFDA	94		25 - 150				09/25/23 20:23	10/02/23 23:43	10
13C2 PFUnA	92		25 - 150				09/25/23 20:23	10/02/23 23:43	10
13C2 PFDoA	62		25 - 150				09/25/23 20:23	10/02/23 23:43	10
13C2 PFTeDA	48		25 - 150				09/25/23 20:23	10/02/23 23:43	10
13C3 PFBS	106		25 - 150				09/25/23 20:23	10/02/23 23:43	10
18O2 PFHxS	114		25 - 150				09/25/23 20:23	10/02/23 23:43	10
13C4 PFOS	99		25 - 150				09/25/23 20:23	10/02/23 23:43	10
13C8 FOSA	89		10 - 150				09/25/23 20:23	10/02/23 23:43	10
d3-NMeFOSAA	69		25 - 150				09/25/23 20:23	10/02/23 23:43	10
d5-NEtFOSAA	88		25 - 150				09/25/23 20:23	10/02/23 23:43	10
d-N-MeFOSA-M	43		10 - 150				09/25/23 20:23	10/02/23 23:43	10
d-N-EtFOSA-M	67		10 - 150				09/25/23 20:23	10/02/23 23:43	10
d7-N-MeFOSE-M	62		10 - 150				09/25/23 20:23	10/02/23 23:43	10
d9-N-EtFOSE-M	67		10 - 150				09/25/23 20:23	10/02/23 23:43	10
M2-4:2 FTS	142		25 - 150				09/25/23 20:23	10/02/23 23:43	10
M2-6:2 FTS	127		25 - 150				09/25/23 20:23	10/02/23 23:43	10
M2-8:2 FTS	108		25 - 150				09/25/23 20:23	10/02/23 23:43	10
13C3 HFPO-DA	99		25 - 150				09/25/23 20:23	10/02/23 23:43	10

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		13	6.0	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluoropentanoic acid (PFPA)	ND		5.0	1.2	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorohexanoic acid (PFHxA)	5.1		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluoroheptanoic acid (PFHpA)	0.92 J		5.0	0.63	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorooctanoic acid (PFOA)	2.1 J		5.0	2.1	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorodecanoic acid (PFDA)	ND		5.0	0.78	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorobutanesulfonic acid (PFBS)	0.88 J		5.0	0.50	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0	0.43	ng/L		09/19/23 23:06	09/28/23 22:46	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf11 20230911

Lab Sample ID: 320-104869-4

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorooctanesulfonic acid (PFOS)	3.6	J	5.0	0.80	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		09/19/23 23:06	09/28/23 22:46	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		09/19/23 23:06	09/28/23 22:46	1
NMeFOSAA	ND		13	3.0	ng/L		09/19/23 23:06	09/28/23 22:46	1
NEtFOSAA	ND		13	3.3	ng/L		09/19/23 23:06	09/28/23 22:46	1
4:2 FTS	ND		5.0	0.60	ng/L		09/19/23 23:06	09/28/23 22:46	1
6:2 FTS	ND		13	6.3	ng/L		09/19/23 23:06	09/28/23 22:46	1
8:2 FTS	ND		5.0	1.2	ng/L		09/19/23 23:06	09/28/23 22:46	1
NEtFOSA	ND		5.0	2.2	ng/L		09/19/23 23:06	09/28/23 22:46	1
NMeFOSA	ND		5.0	1.1	ng/L		09/19/23 23:06	09/28/23 22:46	1
NMeFOSE	ND		10	3.5	ng/L		09/19/23 23:06	09/28/23 22:46	1
NEtFOSE	ND		5.0	2.2	ng/L		09/19/23 23:06	09/28/23 22:46	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		09/19/23 23:06	09/28/23 22:46	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		09/19/23 23:06	09/28/23 22:46	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		09/19/23 23:06	09/28/23 22:46	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		09/19/23 23:06	09/28/23 22:46	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	86		25 - 150				09/19/23 23:06	09/28/23 22:46	1
13C4 PFBA	92		25 - 150				09/19/23 23:06	09/28/23 22:46	1
13C5 PFPeA	99		25 - 150				09/19/23 23:06	09/28/23 22:46	1
13C2 PFHxA	105		25 - 150				09/19/23 23:06	09/28/23 22:46	1
13C4 PFHpA	106		25 - 150				09/19/23 23:06	09/28/23 22:46	1
13C4 PFOA	96		25 - 150				09/19/23 23:06	09/28/23 22:46	1
13C5 PFNA	111		25 - 150				09/19/23 23:06	09/28/23 22:46	1
13C2 PFDA	93		25 - 150				09/19/23 23:06	09/28/23 22:46	1
13C2 PFUnA	78		25 - 150				09/19/23 23:06	09/28/23 22:46	1
13C2 PFDoA	38		25 - 150				09/19/23 23:06	09/28/23 22:46	1
13C2 PFTeDA	27		25 - 150				09/19/23 23:06	09/28/23 22:46	1
13C3 PFBS	106		25 - 150				09/19/23 23:06	09/28/23 22:46	1
18O2 PFHxS	107		25 - 150				09/19/23 23:06	09/28/23 22:46	1
13C4 PFOS	104		25 - 150				09/19/23 23:06	09/28/23 22:46	1
d3-NMeFOSAA	52		25 - 150				09/19/23 23:06	09/28/23 22:46	1
d5-NEtFOSAA	73		25 - 150				09/19/23 23:06	09/28/23 22:46	1
M2-4:2 FTS	122		25 - 150				09/19/23 23:06	09/28/23 22:46	1
M2-6:2 FTS	141		25 - 150				09/19/23 23:06	09/28/23 22:46	1
M2-8:2 FTS	102		25 - 150				09/19/23 23:06	09/28/23 22:46	1
d-N-MeFOSA-M	48		25 - 150				09/19/23 23:06	09/28/23 22:46	1
d-N-EtFOSA-M	63		25 - 150				09/19/23 23:06	09/28/23 22:46	1
d7-N-MeFOSE-M	64		25 - 150				09/19/23 23:06	09/28/23 22:46	1
d9-N-EtFOSE-M	61		25 - 150				09/19/23 23:06	09/28/23 22:46	1
13C3 HFPO-DA	96		25 - 150				09/19/23 23:06	09/28/23 22:46	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf11 20230911

Lab Sample ID: 320-104869-4

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	40	B**+ U	13	6.0	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluoropentanoic acid (PFPA)	44	**+	5.0	1.2	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorohexanoic acid (PFHxA)	25	**+	5.0	1.4	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluoroheptanoic acid (PFHpA)	12	**+	5.0	0.63	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorooctanoic acid (PFOA)	13		5.0	2.1	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorononanoic acid (PFNA)	2.7	J**	5.0	0.68	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorodecanoic acid (PFDA)	2.2	J**	5.0	0.78	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorododecanoic acid (PFDoA)	ND	**+	5.0	1.4	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorotridecanoic acid (PFTrDA)	ND	**+	5.0	3.2	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorobutanesulfonic acid (PFBS)	1.6	J	5.0	0.50	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.75	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorohexanesulfonic acid (PFHxS)	2.1	J	5.0	0.43	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorooctanesulfonic acid (PFOS)	2.8	J	5.0	0.80	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		09/19/23 20:05	09/28/23 17:09	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		09/19/23 20:05	09/28/23 17:09	1
NMeFOSAA	ND		13	3.0	ng/L		09/19/23 20:05	09/28/23 17:09	1
NEtFOSAA	ND		13	3.3	ng/L		09/19/23 20:05	09/28/23 17:09	1
4:2 FTS	ND		5.0	0.60	ng/L		09/19/23 20:05	09/28/23 17:09	1
6:2 FTS	ND		13	6.3	ng/L		09/19/23 20:05	09/28/23 17:09	1
8:2 FTS	ND		5.0	1.2	ng/L		09/19/23 20:05	09/28/23 17:09	1
NEtFOSA	ND		5.0	2.2	ng/L		09/19/23 20:05	09/28/23 17:09	1
NMeFOSA	ND		5.0	1.1	ng/L		09/19/23 20:05	09/28/23 17:09	1
NMeFOSE	ND		10	3.5	ng/L		09/19/23 20:05	09/28/23 17:09	1
NEtFOSE	ND		5.0	2.2	ng/L		09/19/23 20:05	09/28/23 17:09	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		09/19/23 20:05	09/28/23 17:09	1
9CI-PF3ONS	ND		5.0	0.60	ng/L		09/19/23 20:05	09/28/23 17:09	1
11CI-PF3OUdS	ND		5.0	0.80	ng/L		09/19/23 20:05	09/28/23 17:09	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		09/19/23 20:05	09/28/23 17:09	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	117		25 - 150	09/19/23 20:05	09/28/23 17:09	1
13C4 PFBA	103		25 - 150	09/19/23 20:05	09/28/23 17:09	1
13C5 PFPeA	102		25 - 150	09/19/23 20:05	09/28/23 17:09	1
13C2 PFHxA	105		25 - 150	09/19/23 20:05	09/28/23 17:09	1
13C4 PFHpA	108		25 - 150	09/19/23 20:05	09/28/23 17:09	1
13C4 PFOA	105		25 - 150	09/19/23 20:05	09/28/23 17:09	1
13C5 PFNA	109		25 - 150	09/19/23 20:05	09/28/23 17:09	1
13C2 PFDA	114		25 - 150	09/19/23 20:05	09/28/23 17:09	1
13C2 PFUnA	102		25 - 150	09/19/23 20:05	09/28/23 17:09	1
13C2 PFDoA	83		25 - 150	09/19/23 20:05	09/28/23 17:09	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf11 20230911

Lab Sample ID: 320-104869-4

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFTeDA	100		25 - 150	09/19/23 20:05	09/28/23 17:09	1
13C3 PFBS	108		25 - 150	09/19/23 20:05	09/28/23 17:09	1
18O2 PFHxS	101		25 - 150	09/19/23 20:05	09/28/23 17:09	1
13C4 PFOS	99		25 - 150	09/19/23 20:05	09/28/23 17:09	1
d3-NMeFOSAA	99		25 - 150	09/19/23 20:05	09/28/23 17:09	1
d5-NEtFOSAA	110		25 - 150	09/19/23 20:05	09/28/23 17:09	1
M2-4:2 FTS	0		0 - 10	09/19/23 20:05	09/28/23 17:09	1
M2-6:2 FTS	101		25 - 150	09/19/23 20:05	09/28/23 17:09	1
M2-8:2 FTS	102		25 - 150	09/19/23 20:05	09/28/23 17:09	1
d-N-MeFOSA-M	84		25 - 150	09/19/23 20:05	09/28/23 17:09	1
d-N-EtFOSA-M	75		25 - 150	09/19/23 20:05	09/28/23 17:09	1
d7-N-MeFOSE-M	82		25 - 150	09/19/23 20:05	09/28/23 17:09	1
d9-N-EtFOSE-M	70		25 - 150	09/19/23 20:05	09/28/23 17:09	1
13C3 HFPO-DA	106		25 - 150	09/19/23 20:05	09/28/23 17:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	260		33	13	mg/L			09/17/23 21:46	1

Client Sample ID: Inf18 20230911

Lab Sample ID: 320-104869-5

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	7.8		4.9	2.3	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluoropentanoic acid (PFPA)	5.9		1.9	0.48	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorohexanoic acid (PFHxA)	10		1.9	0.56	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluoroheptanoic acid (PFHpA)	2.2		1.9	0.24	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorooctanoic acid (PFOA)	8.3		1.9	0.82	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorononanoic acid (PFNA)	0.50	J	1.9	0.26	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorodecanoic acid (PFDA)	0.37	J	1.9	0.30	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.3	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.71	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorobutanesulfonic acid (PFBS)	4.0		1.9	0.19	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluoropentanesulfonic acid (PFPeS)	3.3		1.9	0.29	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorohexanesulfonic acid (PFHxS)	17		1.9	0.55	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorooctanesulfonic acid (PFOS)	7.1		1.9	0.52	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.36	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.31	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.94	ng/L		09/25/23 20:23	09/27/23 15:44	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.95	ng/L		09/25/23 20:23	09/27/23 15:44	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf18 20230911

Lab Sample ID: 320-104869-5

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSA	ND		1.9	0.84	ng/L		09/25/23 20:23	09/27/23 15:44	1
NMeFOSA	ND		1.9	0.42	ng/L		09/25/23 20:23	09/27/23 15:44	1
NMeFOSAA	ND		4.9	1.2	ng/L		09/25/23 20:23	09/27/23 15:44	1
NEtFOSAA	ND		4.9	1.3	ng/L		09/25/23 20:23	09/27/23 15:44	1
NMeFOSE	1.8	J	3.9	1.4	ng/L		09/25/23 20:23	09/27/23 15:44	1
NEtFOSE	ND		1.9	0.82	ng/L		09/25/23 20:23	09/27/23 15:44	1
4:2 FTS	ND		1.9	0.23	ng/L		09/25/23 20:23	09/27/23 15:44	1
6:2 FTS	2.6	J-- J	4.9	2.4	ng/L		09/25/23 20:23	09/27/23 15:44	1
8:2 FTS	ND		1.9	0.45	ng/L		09/25/23 20:23	09/27/23 15:44	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.39	ng/L		09/25/23 20:23	09/27/23 15:44	1
HFPO-DA (GenX)	ND		3.9	1.5	ng/L		09/25/23 20:23	09/27/23 15:44	1
9Cl-PF3ONS	ND		1.9	0.23	ng/L		09/25/23 20:23	09/27/23 15:44	1
11Cl-PF3OUdS	ND		1.9	0.31	ng/L		09/25/23 20:23	09/27/23 15:44	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	52		25 - 150				09/25/23 20:23	09/27/23 15:44	1
13C5 PFPeA	46		25 - 150				09/25/23 20:23	09/27/23 15:44	1
13C2 PFHxA	69		25 - 150				09/25/23 20:23	09/27/23 15:44	1
13C4 PFHpA	110		25 - 150				09/25/23 20:23	09/27/23 15:44	1
13C4 PFOA	100		25 - 150				09/25/23 20:23	09/27/23 15:44	1
13C5 PFNA	129		25 - 150				09/25/23 20:23	09/27/23 15:44	1
13C2 PFDA	137		25 - 150				09/25/23 20:23	09/27/23 15:44	1
13C2 PFUnA	121		25 - 150				09/25/23 20:23	09/27/23 15:44	1
13C2 PFDoA	82		25 - 150				09/25/23 20:23	09/27/23 15:44	1
13C2 PFTeDA	49		25 - 150				09/25/23 20:23	09/27/23 15:44	1
13C3 PFBS	60		25 - 150				09/25/23 20:23	09/27/23 15:44	1
18O2 PFHxS	103		25 - 150				09/25/23 20:23	09/27/23 15:44	1
13C4 PFOS	138		25 - 150				09/25/23 20:23	09/27/23 15:44	1
13C8 FOSA	88		10 - 150				09/25/23 20:23	09/27/23 15:44	1
d3-NMeFOSAA	45		25 - 150				09/25/23 20:23	09/27/23 15:44	1
d5-NEtFOSAA	95		25 - 150				09/25/23 20:23	09/27/23 15:44	1
d-N-MeFOSA-M	22		10 - 150				09/25/23 20:23	09/27/23 15:44	1
d-N-EtFOSA-M	33		10 - 150				09/25/23 20:23	09/27/23 15:44	1
d7-N-MeFOSE-M	33		10 - 150				09/25/23 20:23	09/27/23 15:44	1
d9-N-EtFOSE-M	59		10 - 150				09/25/23 20:23	09/27/23 15:44	1
M2-4:2 FTS	65		25 - 150				09/25/23 20:23	09/27/23 15:44	1
M2-6:2 FTS	176	*5+	25 - 150				09/25/23 20:23	09/27/23 15:44	1
M2-8:2 FTS	182	*5+	25 - 150				09/25/23 20:23	09/27/23 15:44	1
13C3 HFPO-DA	106		25 - 150				09/25/23 20:23	09/27/23 15:44	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	14		13	6.0	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluoropentanoic acid (PFPA)	6.4		5.0	1.2	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluorohexanoic acid (PFHxA)	10		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluoroheptanoic acid (PFHpA)	2.7	J	5.0	0.63	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluorooctanoic acid (PFOA)	8.4		5.0	2.1	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluorononanoic acid (PFNA)	ND		5.0	0.68	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluorodecanoic acid (PFDA)	ND		5.0	0.78	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		09/19/23 23:06	09/28/23 22:57	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf18 20230911

Lab Sample ID: 320-104869-5

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	ND		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0	3.2	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluorobutanesulfonic acid (PFBS)	3.3	J	5.0	0.50	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluoropentanesulfonic acid (PFPeS)	0.96	J+ J	5.0	0.75	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluorohexanesulfonic acid (PFHxS)	16		5.0	0.43	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluorooctanesulfonic acid (PFOS)	10		5.0	0.80	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		09/19/23 23:06	09/28/23 22:57	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		09/19/23 23:06	09/28/23 22:57	1
NMeFOSAA	ND		13	3.0	ng/L		09/19/23 23:06	09/28/23 22:57	1
NEtFOSAA	ND		13	3.3	ng/L		09/19/23 23:06	09/28/23 22:57	1
4:2 FTS	ND		5.0	0.60	ng/L		09/19/23 23:06	09/28/23 22:57	1
6:2 FTS	ND		13	6.3	ng/L		09/19/23 23:06	09/28/23 22:57	1
8:2 FTS	ND		5.0	1.2	ng/L		09/19/23 23:06	09/28/23 22:57	1
NEtFOSA	ND		5.0	2.2	ng/L		09/19/23 23:06	09/28/23 22:57	1
NMeFOSA	ND		5.0	1.1	ng/L		09/19/23 23:06	09/28/23 22:57	1
NMeFOSE	ND		10	3.5	ng/L		09/19/23 23:06	09/28/23 22:57	1
NEtFOSE	ND		5.0	2.2	ng/L		09/19/23 23:06	09/28/23 22:57	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		09/19/23 23:06	09/28/23 22:57	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		09/19/23 23:06	09/28/23 22:57	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		09/19/23 23:06	09/28/23 22:57	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		09/19/23 23:06	09/28/23 22:57	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	91		25 - 150	09/19/23 23:06	09/28/23 22:57	1
13C4 PFBA	91		25 - 150	09/19/23 23:06	09/28/23 22:57	1
13C5 PFPeA	94		25 - 150	09/19/23 23:06	09/28/23 22:57	1
13C2 PFHxA	93		25 - 150	09/19/23 23:06	09/28/23 22:57	1
13C4 PFHpA	100		25 - 150	09/19/23 23:06	09/28/23 22:57	1
13C4 PFOA	100		25 - 150	09/19/23 23:06	09/28/23 22:57	1
13C5 PFNA	109		25 - 150	09/19/23 23:06	09/28/23 22:57	1
13C2 PFDA	99		25 - 150	09/19/23 23:06	09/28/23 22:57	1
13C2 PFUnA	82		25 - 150	09/19/23 23:06	09/28/23 22:57	1
13C2 PFDoA	45		25 - 150	09/19/23 23:06	09/28/23 22:57	1
13C2 PFTeDA	43		25 - 150	09/19/23 23:06	09/28/23 22:57	1
13C3 PFBS	100		25 - 150	09/19/23 23:06	09/28/23 22:57	1
18O2 PFHxS	103		25 - 150	09/19/23 23:06	09/28/23 22:57	1
13C4 PFOS	96		25 - 150	09/19/23 23:06	09/28/23 22:57	1
d3-NMeFOSAA	66		25 - 150	09/19/23 23:06	09/28/23 22:57	1
d5-NEtFOSAA	77		25 - 150	09/19/23 23:06	09/28/23 22:57	1
M2-4:2 FTS	93		25 - 150	09/19/23 23:06	09/28/23 22:57	1
M2-6:2 FTS	136		25 - 150	09/19/23 23:06	09/28/23 22:57	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf18 20230911

Lab Sample ID: 320-104869-5

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-8:2 FTS	105		25 - 150	09/19/23 23:06	09/28/23 22:57	1
d-N-MeFOSA-M	52		25 - 150	09/19/23 23:06	09/28/23 22:57	1
d-N-EtFOSA-M	65		25 - 150	09/19/23 23:06	09/28/23 22:57	1
d7-N-MeFOSE-M	74		25 - 150	09/19/23 23:06	09/28/23 22:57	1
d9-N-EtFOSE-M	71		25 - 150	09/19/23 23:06	09/28/23 22:57	1
13C3 HFPO-DA	91		25 - 150	09/19/23 23:06	09/28/23 22:57	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	62	B*+ U	13	6.0	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluoropentanoic acid (PFPA)	73	*+	5.0	1.2	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorohexanoic acid (PFHxA)	47	*+	5.0	1.4	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluoroheptanoic acid (PFHpA)	14	*+	5.0	0.63	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorooctanoic acid (PFOA)	16		5.0	2.1	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorononanoic acid (PFNA)	2.5	J*+ U	5.0	0.68	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorodecanoic acid (PFDA)	2.4	J*+ U	5.0	0.78	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	2.8	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorododecanoic acid (PFDoA)	ND	*+	5.0	1.4	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorotridecanoic acid (PFTrDA)	ND	*+	5.0	3.2	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	0.73	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorobutanesulfonic acid (PFBS)	3.8	J	5.0	0.50	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluoropentanesulfonic acid (PFPeS)	1.1	J	5.0	0.75	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorohexanesulfonic acid (PFHxS)	14		5.0	0.43	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0	0.48	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorooctanesulfonic acid (PFOS)	7.0		5.0	0.80	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0	0.40	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	1.4	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0	2.4	ng/L		09/19/23 20:05	09/28/23 17:31	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0	0.88	ng/L		09/19/23 20:05	09/28/23 17:31	1
NMeFOSAA	ND		13	3.0	ng/L		09/19/23 20:05	09/28/23 17:31	1
NEtFOSAA	ND		13	3.3	ng/L		09/19/23 20:05	09/28/23 17:31	1
4:2 FTS	ND		5.0	0.60	ng/L		09/19/23 20:05	09/28/23 17:31	1
6:2 FTS	ND		13	6.3	ng/L		09/19/23 20:05	09/28/23 17:31	1
8:2 FTS	ND		5.0	1.2	ng/L		09/19/23 20:05	09/28/23 17:31	1
NEtFOSA	ND		5.0	2.2	ng/L		09/19/23 20:05	09/28/23 17:31	1
NMeFOSA	ND		5.0	1.1	ng/L		09/19/23 20:05	09/28/23 17:31	1
NMeFOSE	ND		10	3.5	ng/L		09/19/23 20:05	09/28/23 17:31	1
NEtFOSE	ND		5.0	2.2	ng/L		09/19/23 20:05	09/28/23 17:31	1
HFPO-DA (GenX)	ND		10	3.8	ng/L		09/19/23 20:05	09/28/23 17:31	1
9Cl-PF3ONS	ND		5.0	0.60	ng/L		09/19/23 20:05	09/28/23 17:31	1
11Cl-PF3OUdS	ND		5.0	0.80	ng/L		09/19/23 20:05	09/28/23 17:31	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0	1.0	ng/L		09/19/23 20:05	09/28/23 17:31	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	100		25 - 150				09/19/23 20:05	09/28/23 17:31	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-104868-1

Client Sample ID: Inf18 20230911

Lab Sample ID: 320-104869-5

Date Collected: 09/11/23 23:59

Matrix: Water

Date Received: 09/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFBA	86		25 - 150	09/19/23 20:05	09/28/23 17:31	1
13C5 PFPeA	90		25 - 150	09/19/23 20:05	09/28/23 17:31	1
13C2 PFHxA	91		25 - 150	09/19/23 20:05	09/28/23 17:31	1
13C4 PFHpA	93		25 - 150	09/19/23 20:05	09/28/23 17:31	1
13C4 PFOA	93		25 - 150	09/19/23 20:05	09/28/23 17:31	1
13C5 PFNA	94		25 - 150	09/19/23 20:05	09/28/23 17:31	1
13C2 PFDA	86		25 - 150	09/19/23 20:05	09/28/23 17:31	1
13C2 PFUnA	83		25 - 150	09/19/23 20:05	09/28/23 17:31	1
13C2 PFDoA	74		25 - 150	09/19/23 20:05	09/28/23 17:31	1
13C2 PFTeDA	85		25 - 150	09/19/23 20:05	09/28/23 17:31	1
13C3 PFBS	93		25 - 150	09/19/23 20:05	09/28/23 17:31	1
18O2 PFHxS	93		25 - 150	09/19/23 20:05	09/28/23 17:31	1
13C4 PFOS	79		25 - 150	09/19/23 20:05	09/28/23 17:31	1
d3-NMeFOSAA	83		25 - 150	09/19/23 20:05	09/28/23 17:31	1
d5-NEtFOSAA	98		25 - 150	09/19/23 20:05	09/28/23 17:31	1
M2-4:2 FTS	0		0 - 10	09/19/23 20:05	09/28/23 17:31	1
M2-6:2 FTS	80		25 - 150	09/19/23 20:05	09/28/23 17:31	1
M2-8:2 FTS	82		25 - 150	09/19/23 20:05	09/28/23 17:31	1
d-N-MeFOSA-M	53		25 - 150	09/19/23 20:05	09/28/23 17:31	1
d-N-EtFOSA-M	54		25 - 150	09/19/23 20:05	09/28/23 17:31	1
d7-N-MeFOSE-M	61		25 - 150	09/19/23 20:05	09/28/23 17:31	1
d9-N-EtFOSE-M	54		25 - 150	09/19/23 20:05	09/28/23 17:31	1
13C3 HFPO-DA	90		25 - 150	09/19/23 20:05	09/28/23 17:31	1

General Chemistry

<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Total Suspended Solids (SM 2540D)	200		31	12	mg/L			09/17/23 21:49	1

October 2023

Data Quality and Usability Review – October 2023

Data Reviewer: Kristen Morin

Peer Reviewer: Jeff Ramey

Date: 12/20/2023

Madison Metropolitan Sewerage District (MMSD) collected influent, effluent, and biosolids samples at the Nine Springs wastewater treatment plant on October 9-11, 2023 in conjunction with an additional characterization study conducted by TRC. Samples were analyzed for the standard list of Wisconsin's 33 per- and polyfluoroalkyl substances (PFAS) and total oxidizable precursor (TOP) assay PFAS by Eurofins in West Sacramento, California and total suspended solids (TSS) by Eurofins in Chicago, Illinois. The laboratory analytical results were reported in laboratory SDG 320-105928-1 (Revision 1, dated 12/11/23).

Samples included in this review are listed below:

- Bio A 23-D-2 20231011
- Bio A 23-S-1 20231010
- Bio A 23-S-3 20231010
- Bio A 23-S-C 20231010
- Eff 20231010
- Bio A 23-D-4 20231011
- Bio A 23-S-2 20231010
- Bio A 23-S-4 20231010
- InfComp 20231009
- EB01 20231010

Each sample was analyzed for one or more of the following constituents:

Analyte Group	Method
PFAS (33 Analytes)	Modified EPA Method 537 and laboratory standard operating procedure (SOP) using Isotope Dilution/WI Method Criteria
PFAS TOP Assay (33 Analytes)	Laboratory SOP using Isotope Dilution/WI Method Criteria
Total Suspended Solids (TSS)	Standard Method (SM) 2540D
Total Solids*	ASTM D 2216*

Notes:

* The laboratory does not hold NELAP accreditation for total solids.

TRC performed a limited validation of the laboratory data to assess data usability. The following sections summarize the data validation procedure and the results of the validation.

Data Usability Review Procedure

The analytical data were reviewed using the USEPA Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537 (EPA 910-R-18-001), November 2018, USEPA National Functional Guidelines for High Resolution Superfund Methods Data Review (EPA 542-R-20-007), November 2020, and Wisconsin PFAS Aqueous (Non-Potable Water) and Non-Aqueous Matrices Method Expectations, Document # EA-19-0001, WDNR, December 2019 as guidance for data review. EPA 910-R-18-001 applies to method 537 and drinking water matrices only but the guidance can be applied in part or in whole to evaluate data

in non-drinking water matrices. The following items were specifically included in the evaluation of the data:

- Data completeness;
- Sample receipt, as noted in the cover page or case narrative;
- Technical holding times for analyses;
- Quantitation limits (QLs) compared to the ranges of QLs suggested in the Sampling and Analysis Blueprint (SAB) of 2-5 ng/L and 1-5 ug/kg per individual PFAS, as appropriate;
- Data for method blanks, equipment blanks, and field blanks. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Field and equipment blanks are used to assess potential contamination arising from field procedures;
- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCSs and/or LCSDs are used to assess the accuracy and precision of the analytical method using a clean matrix;
- Percent recoveries for matrix spike (MS) and matrix spike duplicate (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Percent recoveries for isotopically labeled surrogates. Percent recoveries are calculated for each surrogate and used to assess the accuracy of the extraction procedure and bias due to sample matrix effects;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;
- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and
- Overall usability of the data.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

Review Summary

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances, and issues identified in this evaluation are noted below.

- The reviewed PFAS and TSS data will be utilized for the purposes of an additional characterization.
- The issues noted in the QA/QC sample summary below have a minor impact on the data usability.

QA/QC Sample Summary

- The revised data package was found to be complete as received from the laboratory.
- The laboratory noted the following discrepancies in the case narrative regarding the sample IDs and/or collection dates listed on the sample containers when compared to the chain-of-custody (COC). With the exception of sample Eff 20231010, the samples were logged in and labeled according to the IDs and dates listed on the COC. Sample Eff 20231010 was logged in according to the sample containers per request from the project staff.
 - The containers submitted for sample Eff 20231010 have an ID ending in “20231010”.
 - The containers submitted for sample Bio A 23-D-2 20231011 have an ID ending in “20231010” and a collection date of 10/10/23. The collection date was confirmed to be 10/11/23 during this review.
 - The containers submitted for sample Bio A 23-D-4 20231011 have an ID ending in “20231010” and a collection date of 10/10/23. The collection date was confirmed to be 10/11/23 during this review. (It should be noted that the laboratory left off the “Bio A” portion of the sample ID in a portion of the case narrative comment for this sample; the sample was identified using the laboratory ID). The laboratory was not contacted about this issue.
- The laboratory noted on the Sample Receiving Notes that sample EB01 20231010 was received with approximately 600 mL (which was likely a 1-liter container submitted for TSS analysis, although not requested on the COC). However, the Lab Chronicle for this sample indicated that the appropriate volume (approximately 250 mL) was extracted for total PFAS. There is no adverse impact on the data usability due to the reduced volume noted for this sample as the laboratory had adequate volume to perform the PFAS analysis. The laboratory was not contacted about this issue. No validation actions were required.
- The cooler temperatures upon receipt at the laboratories were within the acceptance criteria (< 10°C).
 - Select samples were not shipped to the laboratory until one to two days after collection. The samples were stored in coolers, on ice, at the site until delivery to the laboratory. No validation actions were required on this basis since the samples were kept in coolers, on ice, prior to delivery to the laboratory and were received at acceptable temperatures by the laboratory.
- A method blank was analyzed with each analytical batch for PFAS (total and TOP assay) and TSS. The following table summarizes the compounds detected in the method blanks, the associated samples, and the validation actions.

Blank ID	Compound	Blank Concentration	Action
MB 320-715446/1-A (total PFAS)	NMeFOSE	3.35 J ng/L	No validation actions were required on this basis since total NMeFOSE and NEtFOSE were not detected in the associated sample.
	NEtFOSE	4.43 ng/L	
Associated sample: InfComp 20231009			
MB 320-713655/1-A (post-TOP assay)	PFBA	0.563 J ng/L	No validation actions were required on this basis since the post-TOP assay result for PFBA in the associated sample was > the QL and > 10x the blank concentration.
Associated sample: Bio A 23-S-C 20231010			

- One equipment blank (EB01 20231010) was collected and analyzed for total PFAS. No target compounds were detected in the equipment blank.
- All samples were extracted and/or prepared and analyzed within the holding time.
- The LCS and LCSD percent recoveries (%Rs) and relative percent differences (RPDs) for all analytes were within the laboratory's acceptance limits except as noted in the table below.

LCS/LCSD ID	Compound	LCS/LCSD %Rs	RPD (%)	LCS/LCSD %R/RPD Limits	Validation Actions
LCS 320-717647/2-A/ LCSD 320-717647/3-A (post-TOP assay)	HFPO-DA	-/47	32	53-158/30	The nondetect result for post-TOP HFPO-DA was qualified as estimated (UJ) in sample Bio A 23-S-C 20231010.
LCS 320-713655/2-A/ LCSD 320-713655/3-A (post-TOP assay)	PFHxA	170/160	-	92-152/-	The laboratory stated in the case narrative that the enhanced post-TOP assay LCS/LCSD %Rs for PFHxA and PFHpA (also known as perfluoroalkyl carboxylic acids [PFCAs]) were due to an increase in the number of precursor analytes (i.e., non-target compounds) included in the laboratory's spiking solution which transform to PFCAs during the TOP assay procedure (i.e., the results are consistent with the expected oxidation of the precursor analytes). Although the %Rs for the listed PFCAs were above the laboratory's acceptance criteria, the post-TOP LCS/LCSD %Rs were still considered to be in control as a result of the additional precursors added to the spiking solution. It should also be noted that the laboratory stated in the case narrative that zero %R of precursor analytes (i.e., ADONA, 4:2 FTS, 6:2 FTS, 8:2 FTS, FOSA, NMeFOSAA, NEtFOSAA, NEtFOSA, NMeFOSA, NMeFOSE, and NEtFOSE) is also expected due to the oxidation of these compounds during the TOP Assay procedure; 0 %R was observed for the listed precursors. No validation actions were taken on this basis.
	PFHpA	172/-	-	100-160/-	
Associated sample: Bio A 23-S-C 20231010					
-: Met criteria					

- MS/MSD analyses were performed on sample Bio A 23-D-4 20231011 for total PFAS. The RPDs were within the laboratory's acceptance limits. The MS and MSD %Rs were within the laboratory's acceptance limits except as noted in the table below.

Parent Sample ID	Compound	MS/MSD %Rs	MS/MSD %R Limits	Validation Actions
Bio A 23-D-4 20231011 (total PFAS)	PFTTrDA	56/60	70-130	The positive result for total PFTTrDA was qualified as estimated (J) in sample Bio A 23-D-4 20231011; low bias was not applied since this result was detected < the QL.

Parent Sample ID	Compound	MS/MSD %Rs	MS/MSD %R Limits	Validation Actions
Bio A 23-D-4 20231011 (total PFAS)	PFHpS	137/-	70-130	No validation actions were required on this basis since the listed compounds were not detected in the total PFAS analysis of sample Bio A 23-D-4 20231011.
	PFDS	131/-		
	9Cl-PF3ONS	158/145		
-: Met criteria				

- The reverse surrogate (M2-4:2 FTS) was within the laboratory's acceptance limits (0-10%) in the post-TOP assay analysis. The following table summarizes the remaining isotopically labeled surrogate %Rs that were outside of the laboratory's acceptance limits, the associated samples, and the validation actions.

Sample ID	Surrogate	%R	%R Acceptance Limits	Action*
InfComp 20231009 (total PFAS)	M2-6:2 FTS	157	25-150	No validation action was required on this basis since 6:2 FTS was not detected in the total PFAS analysis of this sample.
Bio A 23-S-1 20231010 (total PFAS)	13C2 PFTeDA	15		The positive results for total PFTeA were qualified as estimated (J) in samples Bio A 23-S-1 20231010, Bio A 23-S-3 20231010, Bio A 23-S-4 20231010, Bio A 23-S-C 20231010, Bio A 23-D-2 20231011, and Bio A 23-D-4 20231011.
Bio A 23-S-3 20231010 (total PFAS)		18		
Bio A 23-S-4 20231010 (total PFAS)		15		
Bio A 23-S-C 20231010 (total PFAS)		16		
Bio A 23-D-2 20231011 (total PFAS)		15		
Bio A 23-D-4 20231011 (total PFAS)		14		
Bio A 23-S-2 20231010 (total PFAS)		13C2 PFTeDA		
	M2-6:2 FTS	152		No validation action was required on this basis since 4:2 FTS was not detected in the total PFAS analysis of this sample.
	M2-4:2 FTS	159		
Bio A 23-S-C 20231010 (pre-TOP assay)	13C2 PFTeDA	18		The positive result for pre-TOP PFTeA was qualified as estimated (J) in sample Bio A 23-S-C 20231010.
	d-N- MeFOSA-M	17		Professional judgement was used and no validation actions were taken on this basis since the surrogates recovered within the applicable Wisconsin PFAS Aqueous (Non-Potable Water) and Non-Aqueous Matrices Method Expectations acceptance limits of 10-150%.
	d-N- EtFOSA-M	13		

* Note that select results were also qualified as estimated (J) by the laboratory due to detection between the method detection limit (MDL) and QL.

It should be noted that additional isotopically labeled surrogate %Rs were outside of the acceptance limits in one or more of the method blanks, LCSDs, and the MS/MSD performed on sample Bio A 23-D-4 20231011. However, no validation actions were required on this basis so these nonconformances are not summarized in the table above.

- A field duplicate pair was not collected with this sample set.
- A laboratory duplicate analysis was not performed on a sample from this data set.
- The laboratory noted the following observations in the case narrative. No validation actions were taken on this basis.
 - Sample InfComp 20231009 was observed to be yellow and contained floating particulates present in the sample bottle. In addition, the sample was yellow in color following concentration.
 - Sample Eff 20231010 was light brown in color and contained floating particulates present in the sample bottle. In addition, the sample was light green in color following extraction.
 - Sample Bio A 23-S-C 20231010 was yellow in color following extraction for pre-TOP assay.
- Select sample QLs were outside of the ranges of QLs suggested in the SAB of 2-5 ng/L and 1-5 ug/kg per individual PFAS due to sample volume and/or low total solids.
- No analytical dilutions were performed on the samples in this data set for PFAS. However, all biosolids samples were extracted for total PFAS using a reduced volume (approximately 1 gram versus the typical 5 grams). The laboratory was contacted about this issue and stated the reduced volume was due to the sample matrix (i.e., biosolids).
- The QL for TSS in sample InfComp 20231009 was 10x higher than the associated method blank due to a reduced volume (50 mLs versus the typical 500 mL) used in the sample analysis. There is no adverse impact on the data usability due to this issue since TSS was detected above the QL in this sample. No validation action was required on this basis.
- The results for the following PFAS in the samples listed below were flagged with an “I” by the laboratory indicating that the ion transition ratio did not meet the acceptance limits; thus, the positive results for the listed PFAS in the samples listed below were qualified as estimated (J).
 - Total PFBS in sample Eff 20231010; and
 - Pre-TOP assay PFOS in sample Bio A 23-S-C 20231010.
- The percent moisture for all biosolids samples in this data set was high (>70% moisture). The laboratory has been contacted during previous rounds of validation review regarding this issue and stated that the biosolids samples were agitated and then immediately aliquoted for extraction after agitation, indicating that a representative sample was extracted for PFAS analysis. No validation actions were taken on this basis.

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: InfComp 20231009

Lab Sample ID: 320-105928-1

Date Collected: 10/09/23 23:59

Matrix: Water

Date Received: 10/12/23 09:20

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	4.3		4.3	2.1	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluoropentanoic acid (PFPeA)	4.3		1.7	0.43	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorohexanoic acid (PFHxA)	6.0		1.7	0.50	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluoroheptanoic acid (PFHpA)	1.2	J	1.7	0.22	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorooctanoic acid (PFOA)	3.7		1.7	0.74	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorononanoic acid (PFNA)	0.51	J	1.7	0.23	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorodecanoic acid (PFDA)	0.44	J	1.7	0.27	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.96	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.48	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.7	1.1	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.64	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorobutanesulfonic acid (PFBS)	1.8		1.7	0.17	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.7	0.26	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorohexanesulfonic acid (PFHxS)	5.3		1.7	0.50	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.7	0.17	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorooctanesulfonic acid (PFOS)	2.6		1.7	0.47	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.32	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.28	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.84	ng/L		10/24/23 19:17	10/26/23 10:08	1
Perfluorooctanesulfonamide (FOSA)	ND		1.7	0.85	ng/L		10/24/23 19:17	10/26/23 10:08	1
NEtFOSA	ND		1.7	0.76	ng/L		10/24/23 19:17	10/26/23 10:08	1
NMeFOSA	ND		1.7	0.37	ng/L		10/24/23 19:17	10/26/23 10:08	1
NMeFOSAA	ND		4.3	1.0	ng/L		10/24/23 19:17	10/26/23 10:08	1
NMeFOSE	ND		3.5	1.2	ng/L		10/24/23 19:17	10/26/23 10:08	1
NEtFOSE	ND		1.7	0.74	ng/L		10/24/23 19:17	10/26/23 10:08	1
4:2 FTS	ND		1.7	0.21	ng/L		10/24/23 19:17	10/26/23 10:08	1
8:2 FTS	ND		1.7	0.40	ng/L		10/24/23 19:17	10/26/23 10:08	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.35	ng/L		10/24/23 19:17	10/26/23 10:08	1
HFPO-DA (GenX)	ND		3.5	1.3	ng/L		10/24/23 19:17	10/26/23 10:08	1
9CI-PF3ONS	ND		1.7	0.21	ng/L		10/24/23 19:17	10/26/23 10:08	1
11CI-PF3OUdS	ND		1.7	0.28	ng/L		10/24/23 19:17	10/26/23 10:08	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	53		25 - 150				10/24/23 19:17	10/26/23 10:08	1
13C5 PFPeA	54		25 - 150				10/24/23 19:17	10/26/23 10:08	1
13C2 PFHxA	64		25 - 150				10/24/23 19:17	10/26/23 10:08	1
13C4 PFHpA	84		25 - 150				10/24/23 19:17	10/26/23 10:08	1
13C4 PFOA	83		25 - 150				10/24/23 19:17	10/26/23 10:08	1
13C5 PFNA	80		25 - 150				10/24/23 19:17	10/26/23 10:08	1
13C2 PFDA	75		25 - 150				10/24/23 19:17	10/26/23 10:08	1
13C2 PFUnA	62		25 - 150				10/24/23 19:17	10/26/23 10:08	1
13C2 PFDoA	43		25 - 150				10/24/23 19:17	10/26/23 10:08	1
13C2 PFTeDA	36		25 - 150				10/24/23 19:17	10/26/23 10:08	1
13C3 PFBS	60		25 - 150				10/24/23 19:17	10/26/23 10:08	1
18O2 PFHxS	83		25 - 150				10/24/23 19:17	10/26/23 10:08	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: InfComp 20231009

Lab Sample ID: 320-105928-1

Date Collected: 10/09/23 23:59

Matrix: Water

Date Received: 10/12/23 09:20

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	75		25 - 150	10/24/23 19:17	10/26/23 10:08	1
13C8 FOSA	48		10 - 150	10/24/23 19:17	10/26/23 10:08	1
d3-NMeFOSAA	42		25 - 150	10/24/23 19:17	10/26/23 10:08	1
d-N-MeFOSA-M	37		10 - 150	10/24/23 19:17	10/26/23 10:08	1
d-N-EtFOSA-M	32		10 - 150	10/24/23 19:17	10/26/23 10:08	1
d7-N-MeFOSE-M	41		10 - 150	10/24/23 19:17	10/26/23 10:08	1
d9-N-EtFOSE-M	49		10 - 150	10/24/23 19:17	10/26/23 10:08	1
M2-4:2 FTS	92		25 - 150	10/24/23 19:17	10/26/23 10:08	1
M2-8:2 FTS	140		25 - 150	10/24/23 19:17	10/26/23 10:08	1
13C3 HFPO-DA	77		25 - 150	10/24/23 19:17	10/26/23 10:08	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	ND		4.3	1.1	ng/L		10/24/23 19:17	10/31/23 16:59	1
6:2 FTS	ND		4.3	2.2	ng/L		10/24/23 19:17	10/31/23 16:59	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
d5-NEtFOSAA	40		25 - 150	10/24/23 19:17	10/31/23 16:59	1			
M2-6:2 FTS	157	*5+	25 - 150	10/24/23 19:17	10/31/23 16:59	1			

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	280		50	19	mg/L			10/13/23 15:39	1

Client Sample ID: Eff 20231010

Lab Sample ID: 320-105928-2

Date Collected: 10/10/23 23:59

Matrix: Water

Date Received: 10/12/23 09:20

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	7.2		4.5	2.1	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluoropentanoic acid (PFPeA)	30		1.8	0.44	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluorohexanoic acid (PFHxA)	17		1.8	0.52	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluoroheptanoic acid (PFHpA)	2.0		1.8	0.22	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluorooctanoic acid (PFOA)	7.2		1.8	0.76	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluorononanoic acid (PFNA)	0.60	J	1.8	0.24	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluorodecanoic acid (PFDA)	1.0	J	1.8	0.28	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.99	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.8	1.2	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluorobutanesulfonic acid (PFBS)	6.4	----- J	1.8	0.18	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluoropentanesulfonic acid (PFPeS)	0.49	J	1.8	0.27	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluorohexanesulfonic acid (PFHxS)	6.3		1.8	0.51	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluorooctanesulfonic acid (PFOS)	3.2		1.8	0.48	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.33	ng/L		10/26/23 05:30	10/31/23 05:49	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Eff 20231010

Lab Sample ID: 320-105928-2

Date Collected: 10/10/23 23:59

Matrix: Water

Date Received: 10/12/23 09:20

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.87	ng/L		10/26/23 05:30	10/31/23 05:49	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.88	ng/L		10/26/23 05:30	10/31/23 05:49	1
NEtFOSA	ND		1.8	0.78	ng/L		10/26/23 05:30	10/31/23 05:49	1
NMeFOSA	ND		1.8	0.39	ng/L		10/26/23 05:30	10/31/23 05:49	1
NMeFOSAA	1.4	J	4.5	1.1	ng/L		10/26/23 05:30	10/31/23 05:49	1
NEtFOSAA	ND		4.5	1.2	ng/L		10/26/23 05:30	10/31/23 05:49	1
NMeFOSE	ND		3.6	1.3	ng/L		10/26/23 05:30	10/31/23 05:49	1
NEtFOSE	ND		1.8	0.76	ng/L		10/26/23 05:30	10/31/23 05:49	1
4:2 FTS	ND		1.8	0.21	ng/L		10/26/23 05:30	10/31/23 05:49	1
6:2 FTS	ND		4.5	2.2	ng/L		10/26/23 05:30	10/31/23 05:49	1
8:2 FTS	ND		1.8	0.41	ng/L		10/26/23 05:30	10/31/23 05:49	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		10/26/23 05:30	10/31/23 05:49	1
HFPO-DA (GenX)	ND		3.6	1.3	ng/L		10/26/23 05:30	10/31/23 05:49	1
9CI-PF3ONS	ND		1.8	0.21	ng/L		10/26/23 05:30	10/31/23 05:49	1
11CI-PF3OUdS	ND		1.8	0.29	ng/L		10/26/23 05:30	10/31/23 05:49	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	89		25 - 150	10/26/23 05:30	10/31/23 05:49	1
13C5 PFPeA	95		25 - 150	10/26/23 05:30	10/31/23 05:49	1
13C2 PFHxA	96		25 - 150	10/26/23 05:30	10/31/23 05:49	1
13C4 PFHpA	112		25 - 150	10/26/23 05:30	10/31/23 05:49	1
13C4 PFOA	102		25 - 150	10/26/23 05:30	10/31/23 05:49	1
13C5 PFNA	101		25 - 150	10/26/23 05:30	10/31/23 05:49	1
13C2 PFDA	100		25 - 150	10/26/23 05:30	10/31/23 05:49	1
13C2 PFUnA	94		25 - 150	10/26/23 05:30	10/31/23 05:49	1
13C2 PFDoA	91		25 - 150	10/26/23 05:30	10/31/23 05:49	1
13C2 PFTeDA	57		25 - 150	10/26/23 05:30	10/31/23 05:49	1
13C3 PFBS	97		25 - 150	10/26/23 05:30	10/31/23 05:49	1
18O2 PFHxS	89		25 - 150	10/26/23 05:30	10/31/23 05:49	1
13C4 PFOS	99		25 - 150	10/26/23 05:30	10/31/23 05:49	1
13C8 FOSA	92		10 - 150	10/26/23 05:30	10/31/23 05:49	1
d3-NMeFOSAA	89		25 - 150	10/26/23 05:30	10/31/23 05:49	1
d5-NEtFOSAA	104		25 - 150	10/26/23 05:30	10/31/23 05:49	1
d-N-MeFOSA-M	82		10 - 150	10/26/23 05:30	10/31/23 05:49	1
d-N-EtFOSA-M	81		10 - 150	10/26/23 05:30	10/31/23 05:49	1
d7-N-MeFOSE-M	81		10 - 150	10/26/23 05:30	10/31/23 05:49	1
d9-N-EtFOSE-M	78		10 - 150	10/26/23 05:30	10/31/23 05:49	1
M2-4:2 FTS	132		25 - 150	10/26/23 05:30	10/31/23 05:49	1
M2-6:2 FTS	123		25 - 150	10/26/23 05:30	10/31/23 05:49	1
M2-8:2 FTS	112		25 - 150	10/26/23 05:30	10/31/23 05:49	1
13C3 HFPO-DA	98		25 - 150	10/26/23 05:30	10/31/23 05:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	6.0		5.0	1.9	mg/L			10/17/23 13:03	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-1 20231010

Lab Sample ID: 320-105928-3

Date Collected: 10/10/23 13:27

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 25.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	2.6	J	2.7	0.62	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluoropentanoic acid (PFPeA)	8.4		2.7	0.56	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorohexanoic acid (PFHxA)	13		2.7	0.42	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluoroheptanoic acid (PFHpA)	0.63	J	2.7	0.52	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorooctanoic acid (PFOA)	6.0		2.7	0.72	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorononanoic acid (PFNA)	0.94	J	2.7	0.30	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorodecanoic acid (PFDA)	8.5		2.7	0.65	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluoroundecanoic acid (PFUnA)	1.5	J	2.7	0.57	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorododecanoic acid (PFDoA)	4.0		2.7	0.41	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorotridecanoic acid (PFTrDA)	0.37	J	2.7	0.28	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorotetradecanoic acid (PFTeA)	1.1	J----J	2.7	0.50	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorobutanesulfonic acid (PFBS)	0.71	J	2.7	0.52	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.7	0.50	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.7	0.39	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.7	0.66	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorooctanesulfonic acid (PFOS)	13		2.7	0.58	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorononanesulfonic acid (PFNS)	ND		2.7	0.39	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.7	0.70	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.7	0.64	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Perfluorooctanesulfonamide (FOSA)	1.5	J	2.7	0.45	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
NEtFOSA	ND		2.7	0.64	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
NMeFOSA	ND		2.7	0.66	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
NMeFOSAA	26		2.7	0.31	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
NEtFOSAA	9.8		2.7	0.65	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
NMeFOSE	14		2.7	0.64	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
NEtFOSE	4.3		2.7	0.38	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
4:2 FTS	ND		2.7	0.69	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
6:2 FTS	0.89	J	2.7	0.37	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
8:2 FTS	1.3	J	2.7	0.47	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.7	0.53	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
HFPO-DA (GenX)	ND		2.7	0.56	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
9Cl-PF3ONS	ND		2.7	0.47	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
11Cl-PF3OUdS	ND		2.7	0.42	ug/Kg	☼	10/19/23 11:23	10/21/23 07:11	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	78		25 - 150				10/19/23 11:23	10/21/23 07:11	1
13C5 PFPeA	64		25 - 150				10/19/23 11:23	10/21/23 07:11	1
13C2 PFHxA	94		25 - 150				10/19/23 11:23	10/21/23 07:11	1
13C4 PFHpA	95		25 - 150				10/19/23 11:23	10/21/23 07:11	1
13C4 PFOA	93		25 - 150				10/19/23 11:23	10/21/23 07:11	1
13C5 PFNA	72		25 - 150				10/19/23 11:23	10/21/23 07:11	1
13C2 PFDA	75		25 - 150				10/19/23 11:23	10/21/23 07:11	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-1 20231010

Lab Sample ID: 320-105928-3

Date Collected: 10/10/23 13:27

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 25.6

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFUnA	70		25 - 150	10/19/23 11:23	10/21/23 07:11	1
13C2 PFDoA	43		25 - 150	10/19/23 11:23	10/21/23 07:11	1
13C2 PFTeDA	15	*5-	25 - 150	10/19/23 11:23	10/21/23 07:11	1
13C3 PFBS	80		25 - 150	10/19/23 11:23	10/21/23 07:11	1
18O2 PFHxS	91		25 - 150	10/19/23 11:23	10/21/23 07:11	1
13C4 PFOS	69		25 - 150	10/19/23 11:23	10/21/23 07:11	1
13C8 FOSA	70		10 - 150	10/19/23 11:23	10/21/23 07:11	1
d3-NMeFOSAA	44		25 - 150	10/19/23 11:23	10/21/23 07:11	1
d5-NEtFOSAA	63		25 - 150	10/19/23 11:23	10/21/23 07:11	1
d-N-MeFOSA-M	18		10 - 150	10/19/23 11:23	10/21/23 07:11	1
d-N-EtFOSA-M	45		10 - 150	10/19/23 11:23	10/21/23 07:11	1
d7-N-MeFOSE-M	27		10 - 150	10/19/23 11:23	10/21/23 07:11	1
d9-N-EtFOSE-M	46		10 - 150	10/19/23 11:23	10/21/23 07:11	1
M2-4:2 FTS	149		25 - 150	10/19/23 11:23	10/21/23 07:11	1
M2-6:2 FTS	145		25 - 150	10/19/23 11:23	10/21/23 07:11	1
M2-8:2 FTS	73		25 - 150	10/19/23 11:23	10/21/23 07:11	1
13C3 HFPO-DA	81		25 - 150	10/19/23 11:23	10/21/23 07:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	74.4		0.1	0.1	%			10/13/23 15:20	1
Percent Solids (ASTM D 2216)	25.6		0.1	0.1	%			10/13/23 15:20	1

Client Sample ID: Bio A 23-S-2 20231010

Lab Sample ID: 320-105928-4

Date Collected: 10/10/23 13:33

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 23.5

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1.4	J	2.9	0.67	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluoropentanoic acid (PFPeA)	4.7		2.9	0.59	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluorohexanoic acid (PFHxA)	7.0		2.9	0.45	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluoroheptanoic acid (PFHpA)	ND		2.9	0.55	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluorooctanoic acid (PFOA)	3.2		2.9	0.77	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluorononanoic acid (PFNA)	0.95	J	2.9	0.32	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluorodecanoic acid (PFDA)	8.2		2.9	0.69	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluoroundecanoic acid (PFUnA)	1.3	J	2.9	0.61	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluorododecanoic acid (PFDoA)	4.3		2.9	0.43	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluorotridecanoic acid (PFTTrDA)	0.39	J	2.9	0.30	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluorotetradecanoic acid (PFTeA)	0.79	J--- J	2.9	0.54	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.9	0.55	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.9	0.54	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.9	0.42	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.9	0.71	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluorooctanesulfonic acid (PFOS)	14		2.9	0.62	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-2 20231010

Lab Sample ID: 320-105928-4

Date Collected: 10/10/23 13:33

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 23.5

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanesulfonic acid (PFNS)	ND		2.9	0.42	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.9	0.75	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.9	0.68	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Perfluorooctanesulfonamide (FOSA)	1.6	J	2.9	0.48	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
NEtFOSA	ND		2.9	0.68	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
NMeFOSA	ND		2.9	0.71	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
NMeFOSAA	26		2.9	0.33	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
NEtFOSAA	9.6		2.9	0.69	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
NMeFOSE	15		2.9	0.68	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
NEtFOSE	5.5		2.9	0.41	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
4:2 FTS	ND		2.9	0.74	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
6:2 FTS	0.60	J	2.9	0.39	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
8:2 FTS	1.6	J	2.9	0.51	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.9	0.56	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
HFPO-DA (GenX)	ND		2.9	0.59	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
9Cl-PF3ONS	ND		2.9	0.51	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
11Cl-PF3OUdS	0.63	J	2.9	0.45	ug/Kg	☼	10/19/23 11:23	10/21/23 07:22	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	74		25 - 150				10/19/23 11:23	10/21/23 07:22	1
13C5 PFPeA	64		25 - 150				10/19/23 11:23	10/21/23 07:22	1
13C2 PFHxA	90		25 - 150				10/19/23 11:23	10/21/23 07:22	1
13C4 PFHpA	93		25 - 150				10/19/23 11:23	10/21/23 07:22	1
13C4 PFOA	97		25 - 150				10/19/23 11:23	10/21/23 07:22	1
13C5 PFNA	79		25 - 150				10/19/23 11:23	10/21/23 07:22	1
13C2 PFDA	79		25 - 150				10/19/23 11:23	10/21/23 07:22	1
13C2 PFUnA	70		25 - 150				10/19/23 11:23	10/21/23 07:22	1
13C2 PFDoA	45		25 - 150				10/19/23 11:23	10/21/23 07:22	1
13C2 PFTeDA	14	*5-	25 - 150				10/19/23 11:23	10/21/23 07:22	1
13C3 PFBS	77		25 - 150				10/19/23 11:23	10/21/23 07:22	1
18O2 PFHxS	91		25 - 150				10/19/23 11:23	10/21/23 07:22	1
13C4 PFOS	70		25 - 150				10/19/23 11:23	10/21/23 07:22	1
13C8 FOSA	73		10 - 150				10/19/23 11:23	10/21/23 07:22	1
d3-NMeFOSAA	39		25 - 150				10/19/23 11:23	10/21/23 07:22	1
d5-NEtFOSAA	58		25 - 150				10/19/23 11:23	10/21/23 07:22	1
d-N-MeFOSA-M	18		10 - 150				10/19/23 11:23	10/21/23 07:22	1
d-N-EtFOSA-M	42		10 - 150				10/19/23 11:23	10/21/23 07:22	1
d7-N-MeFOSE-M	26		10 - 150				10/19/23 11:23	10/21/23 07:22	1
d9-N-EtFOSE-M	40		10 - 150				10/19/23 11:23	10/21/23 07:22	1
M2-4:2 FTS	159	*5+	25 - 150				10/19/23 11:23	10/21/23 07:22	1
M2-6:2 FTS	152	*5+	25 - 150				10/19/23 11:23	10/21/23 07:22	1
M2-8:2 FTS	76		25 - 150				10/19/23 11:23	10/21/23 07:22	1
13C3 HFPO-DA	81		25 - 150				10/19/23 11:23	10/21/23 07:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	76.5		0.1	0.1	%			10/13/23 15:20	1
Percent Solids (ASTM D 2216)	23.5		0.1	0.1	%			10/13/23 15:20	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-3 20231010

Lab Sample ID: 320-105928-5

Date Collected: 10/10/23 13:37

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 28.8

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.69	J	2.7	0.63	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluoropentanoic acid (PFPeA)	1.3	J	2.7	0.56	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorohexanoic acid (PFHxA)	3.5		2.7	0.42	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluoroheptanoic acid (PFHpA)	ND		2.7	0.52	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorooctanoic acid (PFOA)	2.3	J	2.7	0.73	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorononanoic acid (PFNA)	0.77	J	2.7	0.30	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorodecanoic acid (PFDA)	6.6		2.7	0.66	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluoroundecanoic acid (PFUnA)	1.1	J	2.7	0.57	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorododecanoic acid (PFDoA)	3.5		2.7	0.41	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorotridecanoic acid (PFTrDA)	0.33	J	2.7	0.29	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorotetradecanoic acid (PFTeA)	1.1	J-----J	2.7	0.51	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.7	0.52	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.7	0.51	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.7	0.40	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.7	0.67	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorooctanesulfonic acid (PFOS)	12		2.7	0.59	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorononanesulfonic acid (PFNS)	ND		2.7	0.40	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.7	0.71	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.7	0.64	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Perfluorooctanesulfonamide (FOSA)	1.3	J	2.7	0.45	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
NEtFOSA	ND		2.7	0.64	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
NMeFOSA	ND		2.7	0.67	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
NMeFOSAA	21		2.7	0.31	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
NEtFOSAA	8.0		2.7	0.66	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
NMeFOSE	13		2.7	0.64	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
NEtFOSE	4.4		2.7	0.38	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
4:2 FTS	ND		2.7	0.70	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
6:2 FTS	0.40	J	2.7	0.37	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
8:2 FTS	1.1	J	2.7	0.48	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.7	0.53	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
HFPO-DA (GenX)	ND		2.7	0.56	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
9CI-PF3ONS	ND		2.7	0.48	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
11CI-PF3OUds	0.51	J	2.7	0.42	ug/Kg	☼	10/19/23 11:23	10/21/23 07:33	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	71		25 - 150				10/19/23 11:23	10/21/23 07:33	1
13C5 PFPeA	63		25 - 150				10/19/23 11:23	10/21/23 07:33	1
13C2 PFHxA	88		25 - 150				10/19/23 11:23	10/21/23 07:33	1
13C4 PFHpA	93		25 - 150				10/19/23 11:23	10/21/23 07:33	1
13C4 PFOA	96		25 - 150				10/19/23 11:23	10/21/23 07:33	1
13C5 PFNA	76		25 - 150				10/19/23 11:23	10/21/23 07:33	1
13C2 PFDA	81		25 - 150				10/19/23 11:23	10/21/23 07:33	1
13C2 PFUnA	75		25 - 150				10/19/23 11:23	10/21/23 07:33	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-3 20231010

Lab Sample ID: 320-105928-5

Date Collected: 10/10/23 13:37

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 28.8

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDoA	46		25 - 150	10/19/23 11:23	10/21/23 07:33	1
13C2 PFTeDA	18	*5-	25 - 150	10/19/23 11:23	10/21/23 07:33	1
13C3 PFBS	78		25 - 150	10/19/23 11:23	10/21/23 07:33	1
18O2 PFHxS	91		25 - 150	10/19/23 11:23	10/21/23 07:33	1
13C4 PFOS	67		25 - 150	10/19/23 11:23	10/21/23 07:33	1
13C8 FOSA	75		10 - 150	10/19/23 11:23	10/21/23 07:33	1
d3-NMeFOSAA	44		25 - 150	10/19/23 11:23	10/21/23 07:33	1
d5-NEtFOSAA	67		25 - 150	10/19/23 11:23	10/21/23 07:33	1
d-N-MeFOSA-M	20		10 - 150	10/19/23 11:23	10/21/23 07:33	1
d-N-EtFOSA-M	47		10 - 150	10/19/23 11:23	10/21/23 07:33	1
d7-N-MeFOSE-M	31		10 - 150	10/19/23 11:23	10/21/23 07:33	1
d9-N-EtFOSE-M	46		10 - 150	10/19/23 11:23	10/21/23 07:33	1
M2-4:2 FTS	135		25 - 150	10/19/23 11:23	10/21/23 07:33	1
M2-6:2 FTS	132		25 - 150	10/19/23 11:23	10/21/23 07:33	1
M2-8:2 FTS	79		25 - 150	10/19/23 11:23	10/21/23 07:33	1
13C3 HFPO-DA	83		25 - 150	10/19/23 11:23	10/21/23 07:33	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	71.2		0.1	0.1	%			10/13/23 15:20	1
Percent Solids (ASTM D 2216)	28.8		0.1	0.1	%			10/13/23 15:20	1

Client Sample ID: Bio A 23-S-4 20231010

Lab Sample ID: 320-105928-6

Date Collected: 10/10/23 13:42

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 24.4

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.1	0.71	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluoropentanoic acid (PFPeA)	1.1	J	3.1	0.64	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluorohexanoic acid (PFHxA)	3.2		3.1	0.48	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluoroheptanoic acid (PFHpA)	ND		3.1	0.59	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluorooctanoic acid (PFOA)	3.0	J	3.1	0.82	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluorononanoic acid (PFNA)	0.81	J	3.1	0.34	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluorodecanoic acid (PFDA)	8.5		3.1	0.74	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluoroundecanoic acid (PFUnA)	1.5	J	3.1	0.65	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluorododecanoic acid (PFDoA)	4.3		3.1	0.47	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluorotridecanoic acid (PFTTrDA)	0.33	J	3.1	0.33	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluorotetradecanoic acid (PFTTeA)	1.1	J	3.1	0.57	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluorobutanesulfonic acid (PFBS)	ND		3.1	0.59	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.1	0.57	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluorohexanesulfonic acid (PFHxS)	ND		3.1	0.45	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.1	0.76	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluorooctanesulfonic acid (PFOS)	13		3.1	0.67	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluorononanesulfonic acid (PFNS)	ND		3.1	0.45	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-4 20231010

Lab Sample ID: 320-105928-6

Date Collected: 10/10/23 13:42

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 24.4

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanesulfonic acid (PFDS)	ND		3.1	0.81	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.1	0.73	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Perfluorooctanesulfonamide (FOSA)	1.5	J	3.1	0.51	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
NEtFOSA	ND		3.1	0.73	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
NMeFOSA	ND		3.1	0.76	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
NMeFOSAA	26		3.1	0.36	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
NEtFOSAA	10		3.1	0.74	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
NMeFOSE	14		3.1	0.73	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
NEtFOSE	5.5		3.1	0.43	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
4:2 FTS	ND		3.1	0.79	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
6:2 FTS	0.55	J	3.1	0.42	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
8:2 FTS	1.3	J	3.1	0.54	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.1	0.61	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
HFPO-DA (GenX)	ND		3.1	0.64	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
9CI-PF3ONS	ND		3.1	0.54	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
11CI-PF3OUdS	0.52	J	3.1	0.48	ug/Kg	☼	10/19/23 11:23	10/21/23 07:44	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	69		25 - 150				10/19/23 11:23	10/21/23 07:44	1
13C5 PFPeA	59		25 - 150				10/19/23 11:23	10/21/23 07:44	1
13C2 PFHxA	88		25 - 150				10/19/23 11:23	10/21/23 07:44	1
13C4 PFHpA	87		25 - 150				10/19/23 11:23	10/21/23 07:44	1
13C4 PFOA	90		25 - 150				10/19/23 11:23	10/21/23 07:44	1
13C5 PFNA	73		25 - 150				10/19/23 11:23	10/21/23 07:44	1
13C2 PFDA	73		25 - 150				10/19/23 11:23	10/21/23 07:44	1
13C2 PFUnA	68		25 - 150				10/19/23 11:23	10/21/23 07:44	1
13C2 PFDoA	45		25 - 150				10/19/23 11:23	10/21/23 07:44	1
13C2 PFTeDA	15	*5-	25 - 150				10/19/23 11:23	10/21/23 07:44	1
13C3 PFBS	71		25 - 150				10/19/23 11:23	10/21/23 07:44	1
18O2 PFHxS	88		25 - 150				10/19/23 11:23	10/21/23 07:44	1
13C4 PFOS	64		25 - 150				10/19/23 11:23	10/21/23 07:44	1
13C8 FOSA	71		10 - 150				10/19/23 11:23	10/21/23 07:44	1
d3-NMeFOSAA	42		25 - 150				10/19/23 11:23	10/21/23 07:44	1
d5-NEtFOSAA	58		25 - 150				10/19/23 11:23	10/21/23 07:44	1
d-N-MeFOSA-M	19		10 - 150				10/19/23 11:23	10/21/23 07:44	1
d-N-EtFOSA-M	46		10 - 150				10/19/23 11:23	10/21/23 07:44	1
d7-N-MeFOSE-M	30		10 - 150				10/19/23 11:23	10/21/23 07:44	1
d9-N-EtFOSE-M	44		10 - 150				10/19/23 11:23	10/21/23 07:44	1
M2-4:2 FTS	144		25 - 150				10/19/23 11:23	10/21/23 07:44	1
M2-6:2 FTS	133		25 - 150				10/19/23 11:23	10/21/23 07:44	1
M2-8:2 FTS	70		25 - 150				10/19/23 11:23	10/21/23 07:44	1
13C3 HFPO-DA	79		25 - 150				10/19/23 11:23	10/21/23 07:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	75.6		0.1	0.1	%			10/13/23 15:20	1
Percent Solids (ASTM D 2216)	24.4		0.1	0.1	%			10/13/23 15:20	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-C 20231010

Lab Sample ID: 320-105928-7

Date Collected: 10/10/23 13:44

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 24.9

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1.7	J	2.7	0.62	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluoropentanoic acid (PFPeA)	6.0		2.7	0.55	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorohexanoic acid (PFHxA)	11		2.7	0.42	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluoroheptanoic acid (PFHpA)	ND		2.7	0.51	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorooctanoic acid (PFOA)	5.6		2.7	0.71	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorononanoic acid (PFNA)	1.0	J	2.7	0.30	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorodecanoic acid (PFDA)	8.9		2.7	0.65	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluoroundecanoic acid (PFUnA)	1.4	J	2.7	0.57	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorododecanoic acid (PFDoA)	4.5		2.7	0.40	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorotridecanoic acid (PFTrDA)	0.38	J	2.7	0.28	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorotetradecanoic acid (PFTeA)	1.3	J	2.7	0.50	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.7	0.51	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.7	0.50	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.7	0.39	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.7	0.66	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorooctanesulfonic acid (PFOS)	13		2.7	0.58	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorononanesulfonic acid (PFNS)	ND		2.7	0.39	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.7	0.70	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.7	0.63	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Perfluorooctanesulfonamide (FOSA)	1.5	J	2.7	0.44	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
NEtFOSA	ND		2.7	0.63	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
NMeFOSA	ND		2.7	0.66	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
NMeFOSAA	27		2.7	0.31	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
NEtFOSAA	9.8		2.7	0.65	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
NMeFOSE	14		2.7	0.63	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
NEtFOSE	4.7		2.7	0.38	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
4:2 FTS	ND		2.7	0.69	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
6:2 FTS	0.84	J	2.7	0.36	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
8:2 FTS	1.4	J	2.7	0.47	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.7	0.53	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
HFPO-DA (GenX)	ND		2.7	0.55	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
9CI-PF3ONS	ND		2.7	0.47	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
11CI-PF3OUds	0.49	J	2.7	0.42	ug/Kg	☼	10/19/23 11:23	10/21/23 07:56	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	67		25 - 150				10/19/23 11:23	10/21/23 07:56	1
13C5 PFPeA	63		25 - 150				10/19/23 11:23	10/21/23 07:56	1
13C2 PFHxA	85		25 - 150				10/19/23 11:23	10/21/23 07:56	1
13C4 PFHpA	88		25 - 150				10/19/23 11:23	10/21/23 07:56	1
13C4 PFOA	92		25 - 150				10/19/23 11:23	10/21/23 07:56	1
13C5 PFNA	71		25 - 150				10/19/23 11:23	10/21/23 07:56	1
13C2 PFDA	72		25 - 150				10/19/23 11:23	10/21/23 07:56	1
13C2 PFUnA	71		25 - 150				10/19/23 11:23	10/21/23 07:56	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-C 20231010

Lab Sample ID: 320-105928-7

Date Collected: 10/10/23 13:44

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 24.9

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDoA	45		25 - 150	10/19/23 11:23	10/21/23 07:56	1
13C2 PFTeDA	16	*5-	25 - 150	10/19/23 11:23	10/21/23 07:56	1
13C3 PFBS	72		25 - 150	10/19/23 11:23	10/21/23 07:56	1
18O2 PFHxS	88		25 - 150	10/19/23 11:23	10/21/23 07:56	1
13C4 PFOS	65		25 - 150	10/19/23 11:23	10/21/23 07:56	1
13C8 FOSA	67		10 - 150	10/19/23 11:23	10/21/23 07:56	1
d3-NMeFOSAA	43		25 - 150	10/19/23 11:23	10/21/23 07:56	1
d5-NEtFOSAA	65		25 - 150	10/19/23 11:23	10/21/23 07:56	1
d-N-MeFOSA-M	19		10 - 150	10/19/23 11:23	10/21/23 07:56	1
d-N-EtFOSA-M	43		10 - 150	10/19/23 11:23	10/21/23 07:56	1
d7-N-MeFOSE-M	30		10 - 150	10/19/23 11:23	10/21/23 07:56	1
d9-N-EtFOSE-M	43		10 - 150	10/19/23 11:23	10/21/23 07:56	1
M2-4:2 FTS	129		25 - 150	10/19/23 11:23	10/21/23 07:56	1
M2-6:2 FTS	135		25 - 150	10/19/23 11:23	10/21/23 07:56	1
M2-8:2 FTS	67		25 - 150	10/19/23 11:23	10/21/23 07:56	1
13C3 HFPO-DA	79		25 - 150	10/19/23 11:23	10/21/23 07:56	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	8.0		3.6	0.57	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluoroheptanoic acid (PFHpA)	ND		3.6	0.69	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluorooctanoic acid (PFOA)	4.1		3.6	0.97	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluorononanoic acid (PFNA)	0.76	J	3.6	0.40	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluorodecanoic acid (PFDA)	8.4		3.6	0.88	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluoroundecanoic acid (PFUnA)	1.4	J	3.6	0.77	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluorododecanoic acid (PFDoA)	3.7		3.6	0.55	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluorotridecanoic acid (PFTrDA)	0.45	J	3.6	0.38	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluorotetradecanoic acid (PFTeA)	0.96	J-----J	3.6	0.67	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluorobutanesulfonic acid (PFBS)	ND		3.6	0.69	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.6	0.67	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluorohexanesulfonic acid (PFHxS)	ND		3.6	0.53	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.6	0.90	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluorooctanesulfonic acid (PFOS)	14	-----J	3.6	0.79	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluorononanesulfonic acid (PFNS)	ND		3.6	0.53	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluorodecanesulfonic acid (PFDS)	1.6	J	3.6	0.95	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.6	0.86	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
Perfluorooctanesulfonamide (FOSA)	1.5	J	3.6	0.60	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
NMeFOSAA	21		3.6	0.42	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
NEtFOSAA	8.3		3.6	0.88	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
NMeFOSE	18		3.6	0.86	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
NEtFOSE	4.2		3.6	0.51	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
4:2 FTS	ND		3.6	0.93	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-C 20231010

Lab Sample ID: 320-105928-7

Date Collected: 10/10/23 13:44

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 24.9

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 FTS	0.72	J	3.6	0.49	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
8:2 FTS	1.4	J	3.6	0.64	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
HFPO-DA (GenX)	ND		3.6	0.75	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
9CI-PF3ONS	ND		3.6	0.64	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
11CI-PF3OUdS	ND		3.6	0.57	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.6	0.71	ug/Kg	☼	10/16/23 18:20	10/29/23 17:17	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	50		25 - 150	10/16/23 18:20	10/29/23 17:17	1
13C4 PFHpA	91		25 - 150	10/16/23 18:20	10/29/23 17:17	1
13C4 PFOA	92		25 - 150	10/16/23 18:20	10/29/23 17:17	1
13C5 PFNA	74		25 - 150	10/16/23 18:20	10/29/23 17:17	1
13C2 PFDA	50		25 - 150	10/16/23 18:20	10/29/23 17:17	1
13C2 PFUnA	75		25 - 150	10/16/23 18:20	10/29/23 17:17	1
13C2 PFDoA	51		25 - 150	10/16/23 18:20	10/29/23 17:17	1
13C2 PFTeDA	18	*5-	25 - 150	10/16/23 18:20	10/29/23 17:17	1
13C3 PFBS	70		25 - 150	10/16/23 18:20	10/29/23 17:17	1
18O2 PFHxS	82		25 - 150	10/16/23 18:20	10/29/23 17:17	1
13C4 PFOS	61		25 - 150	10/16/23 18:20	10/29/23 17:17	1
13C8 FOSA	59		25 - 150	10/16/23 18:20	10/29/23 17:17	1
M2-4:2 FTS	50		25 - 150	10/16/23 18:20	10/29/23 17:17	1
M2-6:2 FTS	119		25 - 150	10/16/23 18:20	10/29/23 17:17	1
M2-8:2 FTS	36		25 - 150	10/16/23 18:20	10/29/23 17:17	1
13C3 HFPO-DA	40		25 - 150	10/16/23 18:20	10/29/23 17:17	1
d3-NMeFOSAA	56		25 - 150	10/16/23 18:20	10/29/23 17:17	1
d5-NEtFOSAA	63		25 - 150	10/16/23 18:20	10/29/23 17:17	1
d-N-MeFOSA-M	27		25 - 150	10/16/23 18:20	10/29/23 17:17	1
d-N-EtFOSA-M	26		25 - 150	10/16/23 18:20	10/29/23 17:17	1
d7-N-MeFOSE-M	31		25 - 150	10/16/23 18:20	10/29/23 17:17	1
d9-N-EtFOSE-M	35		25 - 150	10/16/23 18:20	10/29/23 17:17	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1.7	J	3.8	0.87	ug/Kg	☼	11/02/23 21:25	11/18/23 04:52	1
Perfluoropentanoic acid (PFPeA)	5.0		3.8	0.78	ug/Kg	☼	11/02/23 21:25	11/18/23 04:52	1
NMeFOSA	ND		3.8	0.93	ug/Kg	☼	11/02/23 21:25	11/18/23 04:52	1
NEtFOSA	ND		3.8	0.89	ug/Kg	☼	11/02/23 21:25	11/18/23 04:52	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	96		25 - 150	11/02/23 21:25	11/18/23 04:52	1
13C5 PFPeA	97		25 - 150	11/02/23 21:25	11/18/23 04:52	1
d-N-MeFOSA-M	17	*5-	25 - 150	11/02/23 21:25	11/18/23 04:52	1
d-N-EtFOSA-M	13	*5-	25 - 150	11/02/23 21:25	11/18/23 04:52	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	190	B⁺	3.8	0.87	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluoropentanoic acid (PFPeA)	77		3.8	0.78	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluorohexanoic acid (PFHxA)	74	*⁺	3.8	0.59	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluoroheptanoic acid (PFHpA)	33	*⁺	3.8	0.72	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluorooctanoic acid (PFOA)	44		3.8	1.0	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-C 20231010

Lab Sample ID: 320-105928-7

Date Collected: 10/10/23 13:44

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 24.9

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	14		3.8	0.42	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluorodecanoic acid (PFDA)	17		3.8	0.91	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluoroundecanoic acid (PFUnA)	4.2		3.8	0.79	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluorododecanoic acid (PFDoA)	4.9		3.8	0.57	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluorotridecanoic acid (PFTrDA)	1.4	J	3.8	0.40	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluorotetradecanoic acid (PFTeA)	1.6	J	3.8	0.70	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluorobutanesulfonic acid (PFBS)	18		3.8	0.72	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.8	0.70	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluorohexanesulfonic acid (PFHxS)	1.9	J	3.8	0.55	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.8	0.93	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluorooctanesulfonic acid (PFOS)	14		3.8	0.82	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluorononanesulfonic acid (PFNS)	ND		3.8	0.55	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluorodecanesulfonic acid (PFDS)	0.99	J	3.8	0.98	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.8	0.89	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
Perfluorooctanesulfonamide (FOSA)	ND		3.8	0.62	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
NMeFOSAA	ND		3.8	0.44	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
NEtFOSAA	ND		3.8	0.91	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
4:2 FTS	ND		3.8	0.97	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
6:2 FTS	ND		3.8	0.51	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
8:2 FTS	ND		3.8	0.66	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
NEtFOSA	ND		3.8	0.89	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
NMeFOSA	ND		3.8	0.93	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
NMeFOSE	ND		3.8	0.89	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
NEtFOSE	ND		3.8	0.53	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
9CI-PF3ONS	ND		3.8	0.66	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
11CI-PF3OUdS	ND		3.8	0.59	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.8	0.74	ug/Kg	☼	10/16/23 18:05	10/29/23 13:01	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	85		25 - 150	10/16/23 18:05	10/29/23 13:01	1
13C4 PFBA	47		25 - 150	10/16/23 18:05	10/29/23 13:01	1
13C5 PFPeA	94		25 - 150	10/16/23 18:05	10/29/23 13:01	1
13C2 PFHxA	91		25 - 150	10/16/23 18:05	10/29/23 13:01	1
13C4 PFHpA	100		25 - 150	10/16/23 18:05	10/29/23 13:01	1
13C4 PFOA	99		25 - 150	10/16/23 18:05	10/29/23 13:01	1
13C5 PFNA	93		25 - 150	10/16/23 18:05	10/29/23 13:01	1
13C2 PFDA	94		25 - 150	10/16/23 18:05	10/29/23 13:01	1
13C2 PFUnA	88		25 - 150	10/16/23 18:05	10/29/23 13:01	1
13C2 PFDoA	81		25 - 150	10/16/23 18:05	10/29/23 13:01	1
13C2 PFTeDA	93		25 - 150	10/16/23 18:05	10/29/23 13:01	1
13C3 PFBS	85		25 - 150	10/16/23 18:05	10/29/23 13:01	1

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Client Sample Results

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Job ID: 320-105928-1

Client Sample ID: Bio A 23-S-C 20231010

Lab Sample ID: 320-105928-7

Date Collected: 10/10/23 13:44

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 24.9

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	88		25 - 150	10/16/23 18:05	10/29/23 13:01	1
13C4 PFOS	78		25 - 150	10/16/23 18:05	10/29/23 13:01	1
d3-NMeFOSAA	84		25 - 150	10/16/23 18:05	10/29/23 13:01	1
d5-NEtFOSAA	90		25 - 150	10/16/23 18:05	10/29/23 13:01	1
M2-4:2 FTS	0		0 - 10	10/16/23 18:05	10/29/23 13:01	1
M2-6:2 FTS	100		25 - 150	10/16/23 18:05	10/29/23 13:01	1
M2-8:2 FTS	108		25 - 150	10/16/23 18:05	10/29/23 13:01	1
d-N-MeFOSA-M	79		25 - 150	10/16/23 18:05	10/29/23 13:01	1
d-N-EtFOSA-M	76		25 - 150	10/16/23 18:05	10/29/23 13:01	1
d7-N-MeFOSE-M	77		25 - 150	10/16/23 18:05	10/29/23 13:01	1
d9-N-EtFOSE-M	76		25 - 150	10/16/23 18:05	10/29/23 13:01	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA (GenX)	ND	***1 UJ	3.9	0.81	ug/Kg	☼	11/02/23 21:25	11/17/23 02:07	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C3 HFPO-DA	100		25 - 150	11/02/23 21:25	11/17/23 02:07	1			

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	75.1		0.1	0.1	%			10/13/23 15:20	1
Percent Solids (ASTM D 2216)	24.9		0.1	0.1	%			10/13/23 15:20	1

Client Sample ID: EB01 20231010

Lab Sample ID: 320-105928-8

Date Collected: 10/10/23 12:15

Matrix: Water

Date Received: 10/12/23 09:20

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.9	2.3	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.48	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.57	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.24	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.83	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.26	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.30	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.54	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.71	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.29	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.56	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.19	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.53	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.36	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.31	ng/L		10/26/23 05:30	10/31/23 06:00	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.95	ng/L		10/26/23 05:30	10/31/23 06:00	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: EB01 20231010

Lab Sample ID: 320-105928-8

Date Collected: 10/10/23 12:15

Matrix: Water

Date Received: 10/12/23 09:20

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.96	ng/L		10/26/23 05:30	10/31/23 06:00	1
NEtFOSA	ND		2.0	0.85	ng/L		10/26/23 05:30	10/31/23 06:00	1
NMeFOSA	ND		2.0	0.42	ng/L		10/26/23 05:30	10/31/23 06:00	1
NMeFOSAA	ND		4.9	1.2	ng/L		10/26/23 05:30	10/31/23 06:00	1
NEtFOSAA	ND		4.9	1.3	ng/L		10/26/23 05:30	10/31/23 06:00	1
NMeFOSE	ND		3.9	1.4	ng/L		10/26/23 05:30	10/31/23 06:00	1
NEtFOSE	ND		2.0	0.83	ng/L		10/26/23 05:30	10/31/23 06:00	1
4:2 FTS	ND		2.0	0.23	ng/L		10/26/23 05:30	10/31/23 06:00	1
6:2 FTS	ND		4.9	2.4	ng/L		10/26/23 05:30	10/31/23 06:00	1
8:2 FTS	ND		2.0	0.45	ng/L		10/26/23 05:30	10/31/23 06:00	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.39	ng/L		10/26/23 05:30	10/31/23 06:00	1
HFPO-DA (GenX)	ND		3.9	1.5	ng/L		10/26/23 05:30	10/31/23 06:00	1
9Cl-PF3ONS	ND		2.0	0.23	ng/L		10/26/23 05:30	10/31/23 06:00	1
11Cl-PF3OUdS	ND		2.0	0.31	ng/L		10/26/23 05:30	10/31/23 06:00	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	92		25 - 150				10/26/23 05:30	10/31/23 06:00	1
13C5 PFPeA	92		25 - 150				10/26/23 05:30	10/31/23 06:00	1
13C2 PFHxA	91		25 - 150				10/26/23 05:30	10/31/23 06:00	1
13C4 PFHpA	98		25 - 150				10/26/23 05:30	10/31/23 06:00	1
13C4 PFOA	96		25 - 150				10/26/23 05:30	10/31/23 06:00	1
13C5 PFNA	96		25 - 150				10/26/23 05:30	10/31/23 06:00	1
13C2 PFDA	93		25 - 150				10/26/23 05:30	10/31/23 06:00	1
13C2 PFUnA	80		25 - 150				10/26/23 05:30	10/31/23 06:00	1
13C2 PFDaA	84		25 - 150				10/26/23 05:30	10/31/23 06:00	1
13C2 PFTeDA	88		25 - 150				10/26/23 05:30	10/31/23 06:00	1
13C3 PFBS	89		25 - 150				10/26/23 05:30	10/31/23 06:00	1
18O2 PFHxS	89		25 - 150				10/26/23 05:30	10/31/23 06:00	1
13C4 PFOS	94		25 - 150				10/26/23 05:30	10/31/23 06:00	1
13C8 FOSA	84		10 - 150				10/26/23 05:30	10/31/23 06:00	1
d3-NMeFOSAA	55		25 - 150				10/26/23 05:30	10/31/23 06:00	1
d5-NEtFOSAA	85		25 - 150				10/26/23 05:30	10/31/23 06:00	1
d-N-MeFOSA-M	58		10 - 150				10/26/23 05:30	10/31/23 06:00	1
d-N-EtFOSA-M	58		10 - 150				10/26/23 05:30	10/31/23 06:00	1
d7-N-MeFOSE-M	79		10 - 150				10/26/23 05:30	10/31/23 06:00	1
d9-N-EtFOSE-M	79		10 - 150				10/26/23 05:30	10/31/23 06:00	1
M2-4:2 FTS	86		25 - 150				10/26/23 05:30	10/31/23 06:00	1
M2-6:2 FTS	101		25 - 150				10/26/23 05:30	10/31/23 06:00	1
M2-8:2 FTS	85		25 - 150				10/26/23 05:30	10/31/23 06:00	1
13C3 HFPO-DA	88		25 - 150				10/26/23 05:30	10/31/23 06:00	1

Client Sample ID: Bio A 23-D-2 20231011

Lab Sample ID: 320-105928-9

Date Collected: 10/11/23 06:52

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 25.0

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.3	0.75	ug/Kg	☆	10/19/23 11:23	10/21/23 08:07	1
Perfluoropentanoic acid (PFPeA)	1.0	J	3.3	0.67	ug/Kg	☆	10/19/23 11:23	10/21/23 08:07	1
Perfluorohexanoic acid (PFHxA)	2.9	J	3.3	0.51	ug/Kg	☆	10/19/23 11:23	10/21/23 08:07	1

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Job ID: 320-105928-1

Client Sample ID: Bio A 23-D-2 20231011

Lab Sample ID: 320-105928-9

Date Collected: 10/11/23 06:52

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 25.0

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	ND		3.3	0.62	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluorooctanoic acid (PFOA)	3.0	J	3.3	0.87	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluorononanoic acid (PFNA)	0.85	J	3.3	0.36	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluorodecanoic acid (PFDA)	8.2		3.3	0.79	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluoroundecanoic acid (PFUnA)	1.3	J	3.3	0.69	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluorododecanoic acid (PFDoA)	4.7		3.3	0.49	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluorotridecanoic acid (PFTrDA)	0.38	J	3.3	0.34	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluorotetradecanoic acid (PFTeA)	1.4	J----J	3.3	0.61	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluorobutanesulfonic acid (PFBS)	ND		3.3	0.62	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.3	0.61	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluorohexanesulfonic acid (PFHxS)	ND		3.3	0.47	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		3.3	0.80	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluorooctanesulfonic acid (PFOS)	15		3.3	0.70	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluorononanesulfonic acid (PFNS)	ND		3.3	0.47	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluorodecanesulfonic acid (PFDS)	ND		3.3	0.85	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.3	0.77	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Perfluorooctanesulfonamide (FOSA)	1.5	J	3.3	0.54	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
NEtFOSA	ND		3.3	0.77	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
NMeFOSA	ND		3.3	0.80	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
NMeFOSAA	26		3.3	0.38	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
NEtFOSAA	10		3.3	0.79	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
NMeFOSE	17		3.3	0.77	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
NEtFOSE	5.3		3.3	0.46	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
4:2 FTS	ND		3.3	0.84	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
6:2 FTS	ND		3.3	0.44	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
8:2 FTS	1.2	J	3.3	0.57	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.3	0.64	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
HFPO-DA (GenX)	ND		3.3	0.67	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
9Cl-PF3ONS	ND		3.3	0.57	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
11Cl-PF3OUds	0.73	J	3.3	0.51	ug/Kg	☼	10/19/23 11:23	10/21/23 08:07	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	68		25 - 150				10/19/23 11:23	10/21/23 08:07	1
13C5 PFPeA	64		25 - 150				10/19/23 11:23	10/21/23 08:07	1
13C2 PFHxA	85		25 - 150				10/19/23 11:23	10/21/23 08:07	1
13C4 PFHpA	92		25 - 150				10/19/23 11:23	10/21/23 08:07	1
13C4 PFOA	92		25 - 150				10/19/23 11:23	10/21/23 08:07	1
13C5 PFNA	77		25 - 150				10/19/23 11:23	10/21/23 08:07	1
13C2 PFDA	86		25 - 150				10/19/23 11:23	10/21/23 08:07	1
13C2 PFUnA	76		25 - 150				10/19/23 11:23	10/21/23 08:07	1
13C2 PFDoA	46		25 - 150				10/19/23 11:23	10/21/23 08:07	1
13C2 PFTeDA	15	*5-	25 - 150				10/19/23 11:23	10/21/23 08:07	1
13C3 PFBS	74		25 - 150				10/19/23 11:23	10/21/23 08:07	1

Eurofins Sacramento

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Job ID: 320-105928-1

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Lab Sample ID: 320-105928-9

Date Collected: 10/11/23 06:52

Matrix: Solid

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Percent Solids: 25.0

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	88		25 - 150	10/19/23 11:23	10/21/23 08:07	1
13C4 PFOS	67		25 - 150	10/19/23 11:23	10/21/23 08:07	1
13C8 FOSA	77		10 - 150	10/19/23 11:23	10/21/23 08:07	1
d3-NMeFOSAA	42		25 - 150	10/19/23 11:23	10/21/23 08:07	1
d5-NEtFOSAA	63		25 - 150	10/19/23 11:23	10/21/23 08:07	1
d-N-MeFOSA-M	20		10 - 150	10/19/23 11:23	10/21/23 08:07	1
d-N-EtFOSA-M	48		10 - 150	10/19/23 11:23	10/21/23 08:07	1
d7-N-MeFOSE-M	28		10 - 150	10/19/23 11:23	10/21/23 08:07	1
d9-N-EtFOSE-M	44		10 - 150	10/19/23 11:23	10/21/23 08:07	1
M2-4:2 FTS	129		25 - 150	10/19/23 11:23	10/21/23 08:07	1
M2-6:2 FTS	143		25 - 150	10/19/23 11:23	10/21/23 08:07	1
M2-8:2 FTS	87		25 - 150	10/19/23 11:23	10/21/23 08:07	1
13C3 HFPO-DA	82		25 - 150	10/19/23 11:23	10/21/23 08:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	75.0		0.1	0.1	%			10/13/23 15:20	1
Percent Solids (ASTM D 2216)	25.0		0.1	0.1	%			10/13/23 15:20	1

Client Sample ID: Bio A 23-D-4 20231011

Lab Sample ID: 320-105928-10

Date Collected: 10/11/23 06:54

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 24.2

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.3	0.77	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluoropentanoic acid (PFPeA)	1.4	J	3.3	0.68	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluorohexanoic acid (PFHxA)	4.1		3.3	0.52	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluoroheptanoic acid (PFHpA)	ND		3.3	0.63	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluorooctanoic acid (PFOA)	3.2	J	3.3	0.88	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluorononanoic acid (PFNA)	0.83	J	3.3	0.37	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluorodecanoic acid (PFDA)	8.5		3.3	0.80	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluoroundecanoic acid (PFUnA)	1.5	J	3.3	0.70	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluorododecanoic acid (PFDoA)	3.9		3.3	0.50	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluorotridecanoic acid (PFTrDA)	0.35	J F1-- J	3.3	0.35	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluorotetradecanoic acid (PFTeA)	1.3	J---- J	3.3	0.62	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluorobutanesulfonic acid (PFBS)	ND		3.3	0.63	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluoropentanesulfonic acid (PFPeS)	ND		3.3	0.62	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluorohexanesulfonic acid (PFHxS)	ND		3.3	0.48	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	F1--	3.3	0.82	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluorooctanesulfonic acid (PFOS)	15		3.3	0.72	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluorononanesulfonic acid (PFNS)	ND		3.3	0.48	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluorodecanesulfonic acid (PFDS)	ND	F1--	3.3	0.87	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.3	0.78	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-105928-1

Client Sample ID: Bio A 23-D-4 20231011

Lab Sample ID: 320-105928-10

Date Collected: 10/11/23 06:54

Matrix: Solid

Date Received: 10/12/23 09:20

Percent Solids: 24.2

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (FOSA)	1.4	J	3.3	0.55	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
NEtFOSA	ND		3.3	0.78	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
NMeFOSA	ND		3.3	0.82	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
NMeFOSAA	27		3.3	0.38	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
NEtFOSAA	10		3.3	0.80	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
NMeFOSE	15		3.3	0.78	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
NEtFOSE	5.4		3.3	0.47	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
4:2 FTS	ND		3.3	0.85	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
6:2 FTS	0.45	J	3.3	0.45	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
8:2 FTS	1.4	J	3.3	0.58	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		3.3	0.65	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
HFPO-DA (GenX)	ND		3.3	0.68	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
9Cl-PF3ONS	ND	F1--	3.3	0.58	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
11Cl-PF3OUds	0.58	J	3.3	0.52	ug/Kg	☼	10/19/23 11:23	10/21/23 08:41	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	74		25 - 150				10/19/23 11:23	10/21/23 08:41	1
13C5 PFPeA	66		25 - 150				10/19/23 11:23	10/21/23 08:41	1
13C2 PFHxA	89		25 - 150				10/19/23 11:23	10/21/23 08:41	1
13C4 PFHpA	91		25 - 150				10/19/23 11:23	10/21/23 08:41	1
13C4 PFOA	92		25 - 150				10/19/23 11:23	10/21/23 08:41	1
13C5 PFNA	80		25 - 150				10/19/23 11:23	10/21/23 08:41	1
13C2 PFDA	83		25 - 150				10/19/23 11:23	10/21/23 08:41	1
13C2 PFUnA	70		25 - 150				10/19/23 11:23	10/21/23 08:41	1
13C2 PFDaA	48		25 - 150				10/19/23 11:23	10/21/23 08:41	1
13C2 PFTeDA	14	*5-	25 - 150				10/19/23 11:23	10/21/23 08:41	1
13C3 PFBS	79		25 - 150				10/19/23 11:23	10/21/23 08:41	1
18O2 PFHxS	92		25 - 150				10/19/23 11:23	10/21/23 08:41	1
13C4 PFOS	71		25 - 150				10/19/23 11:23	10/21/23 08:41	1
13C8 FOSA	76		10 - 150				10/19/23 11:23	10/21/23 08:41	1
d3-NMeFOSAA	44		25 - 150				10/19/23 11:23	10/21/23 08:41	1
d5-NEtFOSAA	63		25 - 150				10/19/23 11:23	10/21/23 08:41	1
d-N-MeFOSA-M	21		10 - 150				10/19/23 11:23	10/21/23 08:41	1
d-N-EtFOSA-M	44		10 - 150				10/19/23 11:23	10/21/23 08:41	1
d7-N-MeFOSE-M	31		10 - 150				10/19/23 11:23	10/21/23 08:41	1
d9-N-EtFOSE-M	44		10 - 150				10/19/23 11:23	10/21/23 08:41	1
M2-4:2 FTS	137		25 - 150				10/19/23 11:23	10/21/23 08:41	1
M2-6:2 FTS	141		25 - 150				10/19/23 11:23	10/21/23 08:41	1
M2-8:2 FTS	103		25 - 150				10/19/23 11:23	10/21/23 08:41	1
13C3 HFPO-DA	78		25 - 150				10/19/23 11:23	10/21/23 08:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	75.8		0.1	0.1	%			10/13/23 15:20	1
Percent Solids (ASTM D 2216)	24.2		0.1	0.1	%			10/13/23 15:20	1

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November 2023

Data Quality and Usability Review – November 2023

Data Reviewer: Kristen Morin

Peer Reviewer: Jeff Ramey

Date: 12/14/2023

Madison Metropolitan Sewerage District (MMSD) collected influent and effluent samples at the Nine Springs wastewater treatment plant on November 13 and 14, 2023 in conjunction with an additional characterization study conducted by TRC. Samples were analyzed for the standard list of Wisconsin's 33 per- and polyfluoroalkyl substances (PFAS) PFAS by Eurofins in West Sacramento, California and total suspended solids (TSS) by Eurofins in Chicago, Illinois. The laboratory analytical results were reported in laboratory SDG 320-107170-1.

Samples included in this review are listed below:

- Inf Comp 20231113
- Eff 20231114

Each sample was analyzed for one or more of the following constituents:

Analyte Group	Method
PFAS (33 Analytes)	Modified EPA Method 537 and laboratory standard operating procedure (SOP) using Isotope Dilution/WI Method Criteria
Total Suspended Solids (TSS)	Standard Method (SM) 2540D

TRC performed a limited validation of the laboratory data to assess data usability. The following sections summarize the data validation procedure and the results of the validation.

Data Usability Review Procedure

The analytical data were reviewed using the USEPA Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537 (EPA 910-R-18-001), November 2018, USEPA National Functional Guidelines for High Resolution Superfund Methods Data Review (EPA 542-R-20-007), November 2020, and Wisconsin PFAS Aqueous (Non-Potable Water) and Non-Aqueous Matrices Method Expectations, Document # EA-19-0001, WDNR, December 2019 as guidance for data review. EPA 910-R-18-001 applies to method 537 and drinking water matrices only but the guidance can be applied in part or in whole to evaluate data in non-drinking water matrices. The following items were specifically included in the evaluation of the data:

- Data completeness;
- Sample receipt, as noted in the cover page or case narrative;
- Technical holding times for analyses;
- Quantitation limits (QLs) compared to the ranges of QLs suggested in the Sampling and Analysis Blueprint (SAB) of 2-5 ng/L and 1-5 ug/kg per individual PFAS, as appropriate;
- Data for method blanks, equipment blanks, and field blanks. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Field and equipment blanks are used to assess potential contamination arising from field procedures;

- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCSs and/or LCSDs are used to assess the accuracy and precision of the analytical method using a clean matrix;
- Percent recoveries for matrix spike (MS) and matrix spike duplicate (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Percent recoveries for isotopically labeled surrogates. Percent recoveries are calculated for each surrogate and used to assess the accuracy of the extraction procedure and bias due to sample matrix effects;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;
- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and
- Overall usability of the data.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

Review Summary

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances, and issues identified in this evaluation are noted below.

- The reviewed PFAS and TSS data will be utilized for the purposes of an additional characterization.
- The issues noted in the QA/QC sample summary below have a minor impact on the data usability.

QA/QC Sample Summary

- The data package was found to be complete as received from the laboratory.
- The cooler temperatures upon receipt at the laboratories were within the acceptance criteria (< 10°C).
 - Samples were not shipped to the laboratory until one to two days after collection. The samples were stored in coolers, on ice, at the site until delivery to the laboratory. No validation actions were required on this basis since the samples were kept in coolers, on ice, prior to delivery to the laboratory and were received at acceptable temperatures by the laboratory.
 - Samples were received by Euorfins Chicago at -0.7°C for TSS analysis. No validation actions were required on this basis since the samples were not frozen.

- A method blank was analyzed with each analytical batch for PFAS and TSS. Target analytes were not detected in the method blanks.
- No field blank samples were collected with this sample set.
- All samples were extracted and/or prepared and analyzed within the holding time.
- The LCS and LCSD percent recoveries (%Rs) and relative percent differences for all analytes were within the laboratory's acceptance limits.
- MS/MSD analyses were not performed on a sample from this data set.
- The following table summarizes the isotopically labeled surrogate %Rs that were outside of the laboratory's acceptance limits, the associated samples, and the validation actions.

Sample ID	Surrogate	%R	%R Acceptance Limits	Action
Inf Comp 20231113	13C2 PFTeDA	21	25-150	The nondetect results for PFTeA and NMeFOSAA were qualified as estimated (UJ) in sample Inf Comp 20231113.
	d3-NMeFOSAA	20		

- A field duplicate pair was not collected with this sample set.
- A laboratory duplicate analysis was not performed on a sample from this data set.
- The laboratory noted the following observations in the case narrative. No validation actions were taken on this basis.
 - Samples Inf Comp 20231113 and Eff 20231114 were light brown and contained floating particulates prior to extraction.
 - During the solid phase extraction process, sample Inf Comp 20231113 contained non-settable particulates which clogged the solid phase extraction (SPE) column. The lab also stated that approximately 49% of the sample container was filtered through the SPE column at which point the SPE column became clogged. The remainder of the unfiltered sample was retained in the original sample bottle. The SPE column along with the particulates that clogged it were then extracted using the elution solvent. The laboratory confirmed during previous reviews that samples are spiked with extracted internal standards (or isotopically labeled surrogates) prior to filtration through the SPE column; thus, no validation actions were taken on this basis.
- The QLs met or were below the ranges of QLs suggested in the SAB of 2-5 ng/L for individual PFAS.
- No dilutions were performed on the samples in this data set for PFAS.
- The QL for TSS in sample Inf Comp 20231113 was 10x higher than the associated method blank due to a reduced volume (50 mLs versus the typical 500 mL) used in the sample analysis. There is no adverse impact on the data usability due to this issue since TSS was detected above the QL in this sample. No validation action was required on this basis.
- The results for the following PFAS in the samples listed below were flagged with an "I" by the laboratory indicating that the ion transition ratio did not meet the acceptance limits; thus, the positive results for the listed PFAS in the samples listed below were qualified as estimated (J).
 - PFHxA in sample Inf Comp 20231113; and
 - PFBS in sample Eff 20231114.

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: Phase 3 PFAS Testing

Job ID: 320-107170-1

Client Sample ID: Inf Comp 20231113

Lab Sample ID: 320-107170-1

Date Collected: 11/13/23 23:59

Matrix: Water

Date Received: 11/16/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	7.0		4.7	2.3	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluoropentanoic acid (PFPeA)	5.3		1.9	0.46	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorohexanoic acid (PFHxA)	11	---	1.9	0.55	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluoroheptanoic acid (PFHpA)	1.5	J	1.9	0.24	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorooctanoic acid (PFOA)	5.1		1.9	0.80	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorotetradecanoic acid (PFTeA)	ND	UJ	1.9	0.69	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorobutanesulfonic acid (PFBS)	3.6		1.9	0.19	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluoropentanesulfonic acid (PFPeS)	0.48	J	1.9	0.28	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorohexanesulfonic acid (PFHxS)	7.5		1.9	0.54	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorooctanesulfonic acid (PFOS)	4.0		1.9	0.51	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.35	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.92	ng/L		12/01/23 07:11	12/04/23 18:10	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.93	ng/L		12/01/23 07:11	12/04/23 18:10	1
NEtFOSA	ND		1.9	0.82	ng/L		12/01/23 07:11	12/04/23 18:10	1
NMeFOSA	ND		1.9	0.41	ng/L		12/01/23 07:11	12/04/23 18:10	1
NMeFOSAA	ND	UJ	4.7	1.1	ng/L		12/01/23 07:11	12/04/23 18:10	1
NEtFOSAA	ND		4.7	1.2	ng/L		12/01/23 07:11	12/04/23 18:10	1
NMeFOSE	ND		3.8	1.3	ng/L		12/01/23 07:11	12/04/23 18:10	1
NEtFOSE	ND		1.9	0.80	ng/L		12/01/23 07:11	12/04/23 18:10	1
4:2 FTS	ND		1.9	0.23	ng/L		12/01/23 07:11	12/04/23 18:10	1
6:2 FTS	ND		4.7	2.4	ng/L		12/01/23 07:11	12/04/23 18:10	1
8:2 FTS	ND		1.9	0.44	ng/L		12/01/23 07:11	12/04/23 18:10	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		12/01/23 07:11	12/04/23 18:10	1
HFPO-DA (GenX)	ND		3.8	1.4	ng/L		12/01/23 07:11	12/04/23 18:10	1
9CI-PF3ONS	ND		1.9	0.23	ng/L		12/01/23 07:11	12/04/23 18:10	1
11CI-PF3OUdS	ND		1.9	0.30	ng/L		12/01/23 07:11	12/04/23 18:10	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	49		25 - 150				12/01/23 07:11	12/04/23 18:10	1
13C5 PFPeA	26		25 - 150				12/01/23 07:11	12/04/23 18:10	1
13C2 PFHxA	58		25 - 150				12/01/23 07:11	12/04/23 18:10	1
13C4 PFHpA	66		25 - 150				12/01/23 07:11	12/04/23 18:10	1
13C4 PFOA	63		25 - 150				12/01/23 07:11	12/04/23 18:10	1
13C5 PFNA	59		25 - 150				12/01/23 07:11	12/04/23 18:10	1
13C2 PFDA	44		25 - 150				12/01/23 07:11	12/04/23 18:10	1
13C2 PFUnA	42		25 - 150				12/01/23 07:11	12/04/23 18:10	1
13C2 PFDoA	30		25 - 150				12/01/23 07:11	12/04/23 18:10	1
13C2 PFTeDA	21	*5-	25 - 150				12/01/23 07:11	12/04/23 18:10	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: Phase 3 PFAS Testing

Job ID: 320-107170-1

Client Sample ID: Inf Comp 20231113

Lab Sample ID: 320-107170-1

Date Collected: 11/13/23 23:59

Matrix: Water

Date Received: 11/16/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	35		25 - 150	12/01/23 07:11	12/04/23 18:10	1
18O2 PFHxS	57		25 - 150	12/01/23 07:11	12/04/23 18:10	1
13C4 PFOS	52		25 - 150	12/01/23 07:11	12/04/23 18:10	1
13C8 FOSA	37		10 - 150	12/01/23 07:11	12/04/23 18:10	1
d3-NMeFOSAA	20	*5-	25 - 150	12/01/23 07:11	12/04/23 18:10	1
d5-NEtFOSAA	30		25 - 150	12/01/23 07:11	12/04/23 18:10	1
d-N-MeFOSA-M	23		10 - 150	12/01/23 07:11	12/04/23 18:10	1
d-N-EtFOSA-M	23		10 - 150	12/01/23 07:11	12/04/23 18:10	1
d7-N-MeFOSE-M	24		10 - 150	12/01/23 07:11	12/04/23 18:10	1
d9-N-EtFOSE-M	23		10 - 150	12/01/23 07:11	12/04/23 18:10	1
M2-4:2 FTS	52		25 - 150	12/01/23 07:11	12/04/23 18:10	1
M2-6:2 FTS	71		25 - 150	12/01/23 07:11	12/04/23 18:10	1
M2-8:2 FTS	61		25 - 150	12/01/23 07:11	12/04/23 18:10	1
13C3 HFPO-DA	66		25 - 150	12/01/23 07:11	12/04/23 18:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	220		50	19	mg/L			11/19/23 16:13	1

Client Sample ID: Eff 20231114

Lab Sample ID: 320-107170-2

Date Collected: 11/14/23 23:59

Matrix: Water

Date Received: 11/16/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	9.0		4.8	2.3	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluoropentanoic acid (PFPeA)	18		1.9	0.47	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorohexanoic acid (PFHxA)	18		1.9	0.56	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluoroheptanoic acid (PFHpA)	1.8	J	1.9	0.24	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorooctanoic acid (PFOA)	8.0		1.9	0.82	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorononanoic acid (PFNA)	0.62	J	1.9	0.26	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorodecanoic acid (PFDA)	0.94	J	1.9	0.30	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorobutanesulfonic acid (PFBS)	6.1	---- J	1.9	0.19	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluoropentanesulfonic acid (PFPeS)	0.95	J	1.9	0.29	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorohexanesulfonic acid (PFHxS)	7.1		1.9	0.55	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorooctanesulfonic acid (PFOS)	4.0		1.9	0.52	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.35	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.31	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.93	ng/L		12/01/23 07:11	12/04/23 18:22	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.94	ng/L		12/01/23 07:11	12/04/23 18:22	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: Phase 3 PFAS Testing

Job ID: 320-107170-1

Client Sample ID: Eff 20231114

Lab Sample ID: 320-107170-2

Date Collected: 11/14/23 23:59

Matrix: Water

Date Received: 11/16/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSA	ND		1.9	0.83	ng/L		12/01/23 07:11	12/04/23 18:22	1
NMeFOSA	ND		1.9	0.41	ng/L		12/01/23 07:11	12/04/23 18:22	1
NMeFOSAA	1.3	J	4.8	1.2	ng/L		12/01/23 07:11	12/04/23 18:22	1
NEtFOSAA	ND		4.8	1.2	ng/L		12/01/23 07:11	12/04/23 18:22	1
NMeFOSE	ND		3.8	1.3	ng/L		12/01/23 07:11	12/04/23 18:22	1
NEtFOSE	ND		1.9	0.82	ng/L		12/01/23 07:11	12/04/23 18:22	1
4:2 FTS	ND		1.9	0.23	ng/L		12/01/23 07:11	12/04/23 18:22	1
6:2 FTS	ND		4.8	2.4	ng/L		12/01/23 07:11	12/04/23 18:22	1
8:2 FTS	ND		1.9	0.44	ng/L		12/01/23 07:11	12/04/23 18:22	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		12/01/23 07:11	12/04/23 18:22	1
HFPO-DA (GenX)	ND		3.8	1.4	ng/L		12/01/23 07:11	12/04/23 18:22	1
9Cl-PF3ONS	ND		1.9	0.23	ng/L		12/01/23 07:11	12/04/23 18:22	1
11Cl-PF3OUdS	ND		1.9	0.31	ng/L		12/01/23 07:11	12/04/23 18:22	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFBA	68		25 - 150				12/01/23 07:11	12/04/23 18:22	1
13C5 PFPeA	41		25 - 150				12/01/23 07:11	12/04/23 18:22	1
13C2 PFHxA	101		25 - 150				12/01/23 07:11	12/04/23 18:22	1
13C4 PFHpA	112		25 - 150				12/01/23 07:11	12/04/23 18:22	1
13C4 PFOA	102		25 - 150				12/01/23 07:11	12/04/23 18:22	1
13C5 PFNA	104		25 - 150				12/01/23 07:11	12/04/23 18:22	1
13C2 PFDA	110		25 - 150				12/01/23 07:11	12/04/23 18:22	1
13C2 PFUnA	108		25 - 150				12/01/23 07:11	12/04/23 18:22	1
13C2 PFDoA	99		25 - 150				12/01/23 07:11	12/04/23 18:22	1
13C2 PFTeDA	53		25 - 150				12/01/23 07:11	12/04/23 18:22	1
13C3 PFBS	62		25 - 150				12/01/23 07:11	12/04/23 18:22	1
18O2 PFHxS	92		25 - 150				12/01/23 07:11	12/04/23 18:22	1
13C4 PFOS	93		25 - 150				12/01/23 07:11	12/04/23 18:22	1
13C8 FOSA	90		10 - 150				12/01/23 07:11	12/04/23 18:22	1
d3-NMeFOSAA	85		25 - 150				12/01/23 07:11	12/04/23 18:22	1
d5-NEtFOSAA	82		25 - 150				12/01/23 07:11	12/04/23 18:22	1
d-N-MeFOSA-M	77		10 - 150				12/01/23 07:11	12/04/23 18:22	1
d-N-EtFOSA-M	72		10 - 150				12/01/23 07:11	12/04/23 18:22	1
d7-N-MeFOSE-M	68		10 - 150				12/01/23 07:11	12/04/23 18:22	1
d9-N-EtFOSE-M	67		10 - 150				12/01/23 07:11	12/04/23 18:22	1
M2-4:2 FTS	94		25 - 150				12/01/23 07:11	12/04/23 18:22	1
M2-6:2 FTS	84		25 - 150				12/01/23 07:11	12/04/23 18:22	1
M2-8:2 FTS	110		25 - 150				12/01/23 07:11	12/04/23 18:22	1
13C3 HFPO-DA	107		25 - 150				12/01/23 07:11	12/04/23 18:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	7.0		5.0	1.9	mg/L			11/20/23 15:34	1

December 2023

Data Quality and Usability Review – December 2023

Data Reviewer: Kristen Morin

Peer Reviewer: Jeff Ramey

Date: 2/8/2024

Madison Metropolitan Sewerage District (MMSD) collected influent, effluent, and biosolids samples at the Nine Springs wastewater treatment plant on December 11 and 12, 2023 in conjunction with an additional characterization study conducted by TRC. Samples were analyzed for the standard list of Wisconsin's 33 per- and polyfluoroalkyl substances (PFAS) by Eurofins in West Sacramento, California and total suspended solids (TSS) by Eurofins in Chicago, Illinois. The laboratory analytical results were reported in laboratory SDG 320-108053-1.

It should be noted that due to missed holding times at the laboratory, the total oxidizable precursor (TOP) assay PFAS analyses were cancelled.

Samples included in this review are listed below:

- Bio A 22-20231212
- Inf 02-20231211
- Inf 08-20231211
- Inf 18-20231211
- Eff 20231212
- Bio B 20231212
- Inf 07-20231211
- Inf 11-20231211
- Inf-Comp 20231211
- EB01-20231212

Each sample was analyzed for one or more of the following constituents:

Analyte Group	Method
PFAS (33 Analytes)	Modified EPA Method 537 and laboratory standard operating procedure (SOP) using Isotope Dilution/WI Method Criteria
Total Suspended Solids (TSS)	Standard Method (SM) 2540D
Total Solids*	ASTM D 2216*

Notes:

* The laboratory does not hold NELAP or Wisconsin accreditation for total solids.

TRC performed a limited validation of the laboratory data to assess data usability. The following sections summarize the data validation procedure and the results of the validation.

Data Usability Review Procedure

The analytical data were reviewed using the USEPA Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537 (EPA 910-R-18-001), November 2018, USEPA National Functional Guidelines for High Resolution Superfund Methods Data Review (EPA 542-R-20-007), November 2020, and Wisconsin PFAS Aqueous (Non-Potable Water) and Non-Aqueous Matrices Method Expectations, Document # EA-19-0001, WDNR, December 2019 as guidance for data review. EPA 910-R-18-001 applies to method 537 and drinking water matrices only but the guidance can be applied in part or in whole to evaluate data

in non-drinking water matrices. The following items were specifically included in the evaluation of the data:

- Data completeness;
- Sample receipt, as noted in the cover page or case narrative;
- Technical holding times for analyses;
- Quantitation limits (QLs) compared to the ranges of QLs suggested in the Sampling and Analysis Blueprint (SAB) of 2-5 ng/L and 1-5 ug/kg per individual PFAS, as appropriate;
- Data for method blanks, equipment blanks, and field blanks. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Field and equipment blanks are used to assess potential contamination arising from field procedures;
- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCSs and/or LCSDs are used to assess the accuracy and precision of the analytical method using a clean matrix;
- Percent recoveries for matrix spike (MS) and matrix spike duplicate (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Percent recoveries for isotopically labeled surrogates. Percent recoveries are calculated for each surrogate and used to assess the accuracy of the extraction procedure and bias due to sample matrix effects;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;
- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and
- Overall usability of the data.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

Review Summary

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances, and issues identified in this evaluation are noted below.

- The reviewed PFAS and TSS data will be utilized for the purposes of an additional characterization.
- The issues noted in the QA/QC sample summary below have a minor impact on the data usability.

QA/QC Sample Summary

- The data package was found to be complete as received from the laboratory with one exception. The isotopically labeled surrogate nonconformance for sample Eff 20231212 was not noted in the case narrative by the laboratory. The laboratory was not contacted to correct the case narrative for this minor issue.
- The cooler temperatures upon receipt at the laboratories were within the acceptance criteria (< 10°C).
 - Select samples were not shipped to the laboratory until one to two days after collection. The samples were stored in coolers, on ice, at the site until delivery to the laboratory. No validation actions were required on this basis since the samples were kept in coolers, on ice, prior to delivery to the laboratory and were received at acceptable temperatures by the laboratory.
- A method blank was analyzed with each analytical batch for PFAS and TSS. The following table summarizes the compounds detected in one of the method blanks, the associated samples, and the validation actions.

Blank ID	Compound	Blank Concentration	Validation Actions
MB 320-728421/1-A	PFHxA	0.0366 J µg/Kg	The positive result for PFHxA in sample Bio B 20231212 was qualified as an estimated nondetect (UJ) at the reported concentration since the result was < the QL. No validation actions were required on this basis for sample Bio A 22-20231212 since PFHxA was > the QL and > 10x the blank concentration.
Associated samples: Bio A 22-20231212 and Bio B 20231212			

- One equipment blank (EB01-20231212) was collected and analyzed for total PFAS. No target compounds were detected in the equipment blank.
- All samples were extracted and/or prepared and analyzed within the holding time.
- The LCS percent recoveries (%Rs) were within the laboratory's acceptance limits.
- MS/MSD analyses were performed on sample Bio A 22-20231212 for PFAS. The MS/MSD %Rs and relative percent differences (RPDs) were within the laboratory's acceptance limits except as noted in the table below.

Parent Sample ID	Compound	MS/MSD %Rs	MS/MSD RPD (%)	MS/MSD %R/RPD Limits	Validation Actions
Bio A 22-20231212	PFTTrDA	-/58	33	70-130/30	The nondetect results for total PFTTrDA and 11Cl-PF3OUdS were qualified as estimated (UJ) with a potential low bias in sample Bio A 22-20231212.
	11Cl-PF3OUdS	64/-	-		
-: Met criteria					

- The following table summarizes the isotopically labeled surrogate %Rs that were outside of the laboratory's acceptance limits, the associated samples, and the validation actions.

Sample ID	Surrogate	%R	%R Acceptance Limits	Validation Actions
Eff 20231212	M2-8:2 FTS	191	25-150	No validation action was required on this basis since 8:2 FTS was not detected in this sample.

Sample ID	Surrogate	%R	%R Acceptance Limits	Validation Actions
EB01-20231212	M2-8:2 FTS	155	25-150	No validation action was required on this basis since 8:2 FTS was not detected in this sample.
Bio B 20231212	13C4 PFBA	13		The nondetect result for PFBA was qualified as estimated (UJ) in sample Bio B 20231212.
Bio A 22-20231212	13C4 PFBA	22		The positive result for PFBA was qualified as estimated (J) in sample Bio A 22-20231212.

It should be noted that additional isotopically labeled surrogate %Rs were outside of the acceptance limits in one or more of the LCSs and the MSD performed on sample Bio A 22-20231212. However, no validation actions were required on this basis so these nonconformances are not summarized in the table above.

- A field duplicate pair was not collected with this sample set.
- A laboratory duplicate analysis was not performed on a sample from this data set.
- The laboratory noted the following observations in the case narrative. No validation actions were taken on this basis.
 - During the solid phase extraction (SPE) process, the following samples contained non-settable particulates which clogged the SPE column: Inf 02-20231211, Inf 07-20231211, Inf 08-20231211, Inf 11-20231211, and Inf 18-20231211. The lab also stated that approximately 76.5%, 73.6%, 64.7%, 69.8%, and 62.9%, respectively, of the sample containers were filtered through the SPE columns at which point the SPE columns became clogged. The remainder of the unfiltered samples were retained in the original sample bottles. The SPE columns along with the particulates that clogged it were then extracted using the elution solvent. The laboratory confirmed during previous reviews that samples are spiked with extracted internal standards (or isotopically labeled surrogates) prior to filtration through the SPE column; thus, no validation actions were taken on this basis. The lab also stated that these samples were light yellow in color prior to extraction and were light green in color following extraction.
 - Samples Inf-Comp 20231211 and Eff 20231212 were yellow in color prior to and following extraction.
 - Sample Inf-Comp 20231211 was observed to have floating particulates present in the sample bottle. The lab stated that the sediment and particulates were loaded with the water onto the SPE column and eluted.
- Select sample QLs were outside of the ranges of QLs suggested in the SAB of 2-5 ng/L and 1-5 ug/kg per individual PFAS due to dilution required due to sample matrix, sample volume, and/or low total solids.
- 20-Fold dilutions were performed on samples Inf 02-20231211, Inf 07-20231211, Inf 08-20231211, and Inf 11-20231211 for 6:2 FTS due to sample matrix in the undiluted. The QLs for 6:2 FTS were elevated accordingly in these samples.
- The biosolids samples, Bio A 22-20231212 and Bio B 22-20231212, were extracted for PFAS using a reduced volume (0.54-0.76 grams versus the typical 5 grams). The laboratory was contacted about this issue during previous rounds of review and stated the reduced volume was due to the sample matrix (i.e., biosolids).

- The QLs for TSS in samples Inf 02-20231211, Inf 07-20231211, Inf 08-20231211, Inf 11-20231211, Inf 18-20231211, and Inf-Comp 20231211 were 8.4-10x higher than the associated method blank due to a reduced volume (50-60 mLs versus the typical 500 mL) used in the sample analysis. There is no adverse impact on the data usability due to this issue since TSS was detected above the QL in these samples. No validation action was required on this basis.
 - The results for the following PFAS in the samples listed below were flagged with an “I” by the laboratory indicating that the ion transition ratio did not meet the acceptance limits; thus, the positive results for the listed PFAS in the samples listed below were qualified as estimated (J).
 - PFNA* in sample Inf 07-20231211;
 - PFDA* in sample Inf 08-20231211;
 - PFHxA in samples Inf 11-20231211 and Inf 18-20231211;
 - PFDS in sample Inf-Comp 20231211**;
 - PFBS and PFPeS* in sample Eff 20231212;
 - PFHxS* and PFOS* in sample Bio B 20231212; and
 - PFHxS* and PFOS in sample Bio A 22-20231212.
- * These results were also qualified as estimated (J) by the laboratory due to detection between the method detection limit (MDL) and QL.
- ** It should be noted that PFDS was not detected in any of the individual influent samples.
- The percent moisture for the biosolids samples in this data set was high (>70% moisture). The laboratory has been contacted during previous rounds of validation review regarding this issue and stated that the biosolids samples were agitated and then immediately aliquoted for extraction after agitation, indicating that a representative sample was extracted for PFAS analysis. No validation actions were taken on this basis.
 - The laboratory noted a continuing calibration nonconformance in the case narrative; however, the actual continuing calibration results were not provided and were therefore not included in this QA/QC summary.

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Inf 02-20231211

Lab Sample ID: 320-108053-1

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	2.6	J	4.6	2.2	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluoropentanoic acid (PFPeA)	2.3		1.8	0.45	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.53	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluoroheptanoic acid (PFHpA)	0.80	J	1.8	0.23	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorooctanoic acid (PFOA)	2.0		1.8	0.78	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorononanoic acid (PFNA)	0.32	J	1.8	0.25	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.67	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorobutanesulfonic acid (PFBS)	1.2	J	1.8	0.18	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.8	0.27	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.52	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.49	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.34	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.89	ng/L		12/19/23 12:42	12/23/23 02:18	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.90	ng/L		12/19/23 12:42	12/23/23 02:18	1
NEtFOSA	ND		1.8	0.79	ng/L		12/19/23 12:42	12/23/23 02:18	1
NMeFOSA	ND		1.8	0.39	ng/L		12/19/23 12:42	12/23/23 02:18	1
NMeFOSAA	ND		4.6	1.1	ng/L		12/19/23 12:42	12/23/23 02:18	1
NEtFOSAA	ND		4.6	1.2	ng/L		12/19/23 12:42	12/23/23 02:18	1
NMeFOSE	ND		3.7	1.3	ng/L		12/19/23 12:42	12/23/23 02:18	1
NEtFOSE	ND		1.8	0.78	ng/L		12/19/23 12:42	12/23/23 02:18	1
4:2 FTS	ND		1.8	0.22	ng/L		12/19/23 12:42	12/23/23 02:18	1
8:2 FTS	ND		1.8	0.42	ng/L		12/19/23 12:42	12/23/23 02:18	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.37	ng/L		12/19/23 12:42	12/23/23 02:18	1
HFPO-DA (GenX)	ND		3.7	1.4	ng/L		12/19/23 12:42	12/23/23 02:18	1
9CI-PF3ONS	ND		1.8	0.22	ng/L		12/19/23 12:42	12/23/23 02:18	1
11CI-PF3OUdS	ND		1.8	0.29	ng/L		12/19/23 12:42	12/23/23 02:18	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	65		25 - 150	12/19/23 12:42	12/23/23 02:18	1
13C5 PFPeA	74		25 - 150	12/19/23 12:42	12/23/23 02:18	1
13C2 PFHxA	85		25 - 150	12/19/23 12:42	12/23/23 02:18	1
13C4 PFHpA	98		25 - 150	12/19/23 12:42	12/23/23 02:18	1
13C4 PFOA	87		25 - 150	12/19/23 12:42	12/23/23 02:18	1
13C5 PFNA	74		25 - 150	12/19/23 12:42	12/23/23 02:18	1
13C2 PFDA	73		25 - 150	12/19/23 12:42	12/23/23 02:18	1
13C2 PFUnA	49		25 - 150	12/19/23 12:42	12/23/23 02:18	1
13C2 PFDoA	43		25 - 150	12/19/23 12:42	12/23/23 02:18	1
13C2 PFTeDA	43		25 - 150	12/19/23 12:42	12/23/23 02:18	1
13C3 PFBS	80		25 - 150	12/19/23 12:42	12/23/23 02:18	1
18O2 PFHxS	81		25 - 150	12/19/23 12:42	12/23/23 02:18	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Inf 02-20231211

Lab Sample ID: 320-108053-1

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	71		25 - 150	12/19/23 12:42	12/23/23 02:18	1
13C8 FOSA	60		10 - 150	12/19/23 12:42	12/23/23 02:18	1
d3-NMeFOSAA	51		25 - 150	12/19/23 12:42	12/23/23 02:18	1
d5-NEtFOSAA	37		25 - 150	12/19/23 12:42	12/23/23 02:18	1
d-N-MeFOSA-M	47		10 - 150	12/19/23 12:42	12/23/23 02:18	1
d-N-EtFOSA-M	56		10 - 150	12/19/23 12:42	12/23/23 02:18	1
d7-N-MeFOSE-M	46		10 - 150	12/19/23 12:42	12/23/23 02:18	1
d9-N-EtFOSE-M	60		10 - 150	12/19/23 12:42	12/23/23 02:18	1
M2-4:2 FTS	98		25 - 150	12/19/23 12:42	12/23/23 02:18	1
M2-8:2 FTS	107		25 - 150	12/19/23 12:42	12/23/23 02:18	1
13C3 HFPO-DA	96		25 - 150	12/19/23 12:42	12/23/23 02:18	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 FTS	ND		91	46	ng/L		12/19/23 12:42	12/23/23 03:26	20
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
M2-6:2 FTS	121		25 - 150	12/19/23 12:42	12/23/23 03:26	20			

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	250		42	16	mg/L			12/18/23 14:26	1

Client Sample ID: Inf 07-20231211

Lab Sample ID: 320-108053-2

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	15		4.5	2.2	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluoropentanoic acid (PFPeA)	7.5		1.8	0.45	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.53	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluoroheptanoic acid (PFHpA)	2.3		1.8	0.23	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluorooctanoic acid (PFOA)	6.6		1.8	0.77	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluorononanoic acid (PFNA)	0.56	J+-J	1.8	0.25	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.8	1.2	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.66	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluorobutanesulfonic acid (PFBS)	5.4		1.8	0.18	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluoropentanesulfonic acid (PFPeS)	0.85	J	1.8	0.27	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluorohexanesulfonic acid (PFHxS)	11		1.8	0.52	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.49	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.34	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		12/19/23 12:42	12/23/23 02:29	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Inf 07-20231211

Lab Sample ID: 320-108053-2

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.88	ng/L		12/19/23 12:42	12/23/23 02:29	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.89	ng/L		12/19/23 12:42	12/23/23 02:29	1
NEtFOSA	ND		1.8	0.79	ng/L		12/19/23 12:42	12/23/23 02:29	1
NMeFOSA	ND		1.8	0.39	ng/L		12/19/23 12:42	12/23/23 02:29	1
NMeFOSAA	ND		4.5	1.1	ng/L		12/19/23 12:42	12/23/23 02:29	1
NEtFOSAA	ND		4.5	1.2	ng/L		12/19/23 12:42	12/23/23 02:29	1
NMeFOSE	2.3	J	3.6	1.3	ng/L		12/19/23 12:42	12/23/23 02:29	1
NEtFOSE	ND		1.8	0.77	ng/L		12/19/23 12:42	12/23/23 02:29	1
4:2 FTS	ND		1.8	0.22	ng/L		12/19/23 12:42	12/23/23 02:29	1
8:2 FTS	ND		1.8	0.42	ng/L		12/19/23 12:42	12/23/23 02:29	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		12/19/23 12:42	12/23/23 02:29	1
HFPO-DA (GenX)	ND		3.6	1.4	ng/L		12/19/23 12:42	12/23/23 02:29	1
9Cl-PF3ONS	ND		1.8	0.22	ng/L		12/19/23 12:42	12/23/23 02:29	1
11Cl-PF3OUdS	ND		1.8	0.29	ng/L		12/19/23 12:42	12/23/23 02:29	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	67		25 - 150				12/19/23 12:42	12/23/23 02:29	1
13C5 PFPeA	91		25 - 150				12/19/23 12:42	12/23/23 02:29	1
13C2 PFHxA	86		25 - 150				12/19/23 12:42	12/23/23 02:29	1
13C4 PFHpA	99		25 - 150				12/19/23 12:42	12/23/23 02:29	1
13C4 PFOA	90		25 - 150				12/19/23 12:42	12/23/23 02:29	1
13C5 PFNA	72		25 - 150				12/19/23 12:42	12/23/23 02:29	1
13C2 PFDA	78		25 - 150				12/19/23 12:42	12/23/23 02:29	1
13C2 PFUnA	55		25 - 150				12/19/23 12:42	12/23/23 02:29	1
13C2 PFDoA	40		25 - 150				12/19/23 12:42	12/23/23 02:29	1
13C2 PFTeDA	45		25 - 150				12/19/23 12:42	12/23/23 02:29	1
13C3 PFBS	84		25 - 150				12/19/23 12:42	12/23/23 02:29	1
18O2 PFHxS	79		25 - 150				12/19/23 12:42	12/23/23 02:29	1
13C4 PFOS	72		25 - 150				12/19/23 12:42	12/23/23 02:29	1
13C8 FOSA	61		10 - 150				12/19/23 12:42	12/23/23 02:29	1
d3-NMeFOSAA	52		25 - 150				12/19/23 12:42	12/23/23 02:29	1
d5-NEtFOSAA	41		25 - 150				12/19/23 12:42	12/23/23 02:29	1
d-N-MeFOSA-M	48		10 - 150				12/19/23 12:42	12/23/23 02:29	1
d-N-EtFOSA-M	63		10 - 150				12/19/23 12:42	12/23/23 02:29	1
d7-N-MeFOSE-M	44		10 - 150				12/19/23 12:42	12/23/23 02:29	1
d9-N-EtFOSE-M	72		10 - 150				12/19/23 12:42	12/23/23 02:29	1
M2-4:2 FTS	113		25 - 150				12/19/23 12:42	12/23/23 02:29	1
M2-8:2 FTS	118		25 - 150				12/19/23 12:42	12/23/23 02:29	1
13C3 HFPO-DA	98		25 - 150				12/19/23 12:42	12/23/23 02:29	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 FTS	ND		91	45	ng/L		12/19/23 12:42	12/23/23 03:59	20
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
M2-6:2 FTS	109		25 - 150				12/19/23 12:42	12/23/23 03:59	20

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Inf 07-20231211

Lab Sample ID: 320-108053-2

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	230		50	19	mg/L			12/18/23 14:30	1

Client Sample ID: Inf 08-20231211

Lab Sample ID: 320-108053-3

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	3.5	J	4.7	2.3	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluoropentanoic acid (PFPeA)	4.1		1.9	0.46	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorohexanoic acid (PFHxA)	6.3		1.9	0.55	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluoroheptanoic acid (PFHpA)	0.57	J	1.9	0.24	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorooctanoic acid (PFOA)	1.4	J	1.9	0.81	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorodecanoic acid (PFDA)	0.29	J+-- J	1.9	0.29	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorobutanesulfonic acid (PFBS)	1.0	J	1.9	0.19	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.9	0.28	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.54	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.51	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.35	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.92	ng/L		12/19/23 12:42	12/23/23 02:40	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.93	ng/L		12/19/23 12:42	12/23/23 02:40	1
NEtFOSA	ND		1.9	0.82	ng/L		12/19/23 12:42	12/23/23 02:40	1
NMeFOSA	ND		1.9	0.41	ng/L		12/19/23 12:42	12/23/23 02:40	1
NMeFOSAA	ND		4.7	1.1	ng/L		12/19/23 12:42	12/23/23 02:40	1
NEtFOSAA	ND		4.7	1.2	ng/L		12/19/23 12:42	12/23/23 02:40	1
NMeFOSE	ND		3.8	1.3	ng/L		12/19/23 12:42	12/23/23 02:40	1
NEtFOSE	ND		1.9	0.81	ng/L		12/19/23 12:42	12/23/23 02:40	1
4:2 FTS	ND		1.9	0.23	ng/L		12/19/23 12:42	12/23/23 02:40	1
8:2 FTS	ND		1.9	0.44	ng/L		12/19/23 12:42	12/23/23 02:40	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		12/19/23 12:42	12/23/23 02:40	1
HFPO-DA (GenX)	ND		3.8	1.4	ng/L		12/19/23 12:42	12/23/23 02:40	1
9CI-PF3ONS	ND		1.9	0.23	ng/L		12/19/23 12:42	12/23/23 02:40	1
11CI-PF3OUdS	ND		1.9	0.30	ng/L		12/19/23 12:42	12/23/23 02:40	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	57		25 - 150				12/19/23 12:42	12/23/23 02:40	1
13C5 PFPeA	74		25 - 150				12/19/23 12:42	12/23/23 02:40	1
13C2 PFHxA	71		25 - 150				12/19/23 12:42	12/23/23 02:40	1
13C4 PFHpA	83		25 - 150				12/19/23 12:42	12/23/23 02:40	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Inf 08-20231211

Lab Sample ID: 320-108053-3

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOA	76		25 - 150	12/19/23 12:42	12/23/23 02:40	1
13C5 PFNA	73		25 - 150	12/19/23 12:42	12/23/23 02:40	1
13C2 PFDA	67		25 - 150	12/19/23 12:42	12/23/23 02:40	1
13C2 PFUnA	50		25 - 150	12/19/23 12:42	12/23/23 02:40	1
13C2 PFDoA	38		25 - 150	12/19/23 12:42	12/23/23 02:40	1
13C2 PFTeDA	39		25 - 150	12/19/23 12:42	12/23/23 02:40	1
13C3 PFBS	69		25 - 150	12/19/23 12:42	12/23/23 02:40	1
18O2 PFHxS	72		25 - 150	12/19/23 12:42	12/23/23 02:40	1
13C4 PFOS	72		25 - 150	12/19/23 12:42	12/23/23 02:40	1
13C8 FOSA	56		10 - 150	12/19/23 12:42	12/23/23 02:40	1
d3-NMeFOSAA	51		25 - 150	12/19/23 12:42	12/23/23 02:40	1
d5-NEtFOSAA	39		25 - 150	12/19/23 12:42	12/23/23 02:40	1
d-N-MeFOSA-M	45		10 - 150	12/19/23 12:42	12/23/23 02:40	1
d-N-EtFOSA-M	49		10 - 150	12/19/23 12:42	12/23/23 02:40	1
d7-N-MeFOSE-M	46		10 - 150	12/19/23 12:42	12/23/23 02:40	1
d9-N-EtFOSE-M	59		10 - 150	12/19/23 12:42	12/23/23 02:40	1
M2-4:2 FTS	92		25 - 150	12/19/23 12:42	12/23/23 02:40	1
M2-8:2 FTS	109		25 - 150	12/19/23 12:42	12/23/23 02:40	1
13C3 HFPO-DA	78		25 - 150	12/19/23 12:42	12/23/23 02:40	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 FTS	ND		95	47	ng/L		12/19/23 12:42	12/23/23 04:11	20
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
M2-6:2 FTS	86		25 - 150	12/19/23 12:42	12/23/23 04:11	20			

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	210		42	16	mg/L			12/18/23 14:33	1

Client Sample ID: Inf 11-20231211

Lab Sample ID: 320-108053-4

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.7	2.3	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluoropentanoic acid (PFPeA)	1.9		1.9	0.46	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorohexanoic acid (PFHxA)	5.2	+- J	1.9	0.54	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluoroheptanoic acid (PFHpA)	0.42	J	1.9	0.23	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorooctanoic acid (PFOA)	1.4	J	1.9	0.80	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.9	1.2	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorobutanesulfonic acid (PFBS)	0.97	J	1.9	0.19	ng/L		12/19/23 12:42	12/23/23 02:51	1

Eurofins Sacramento

Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Inf 11-20231211

Lab Sample ID: 320-108053-4

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanesulfonic acid (PFPeS)	ND		1.9	0.28	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.53	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.51	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.35	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.91	ng/L		12/19/23 12:42	12/23/23 02:51	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.92	ng/L		12/19/23 12:42	12/23/23 02:51	1
NEtFOSA	ND		1.9	0.82	ng/L		12/19/23 12:42	12/23/23 02:51	1
NMeFOSA	ND		1.9	0.40	ng/L		12/19/23 12:42	12/23/23 02:51	1
NMeFOSAA	ND		4.7	1.1	ng/L		12/19/23 12:42	12/23/23 02:51	1
NEtFOSAA	ND		4.7	1.2	ng/L		12/19/23 12:42	12/23/23 02:51	1
NMeFOSE	2.1	J	3.8	1.3	ng/L		12/19/23 12:42	12/23/23 02:51	1
NEtFOSE	ND		1.9	0.80	ng/L		12/19/23 12:42	12/23/23 02:51	1
4:2 FTS	ND		1.9	0.23	ng/L		12/19/23 12:42	12/23/23 02:51	1
8:2 FTS	ND		1.9	0.43	ng/L		12/19/23 12:42	12/23/23 02:51	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		12/19/23 12:42	12/23/23 02:51	1
HFPO-DA (GenX)	ND		3.8	1.4	ng/L		12/19/23 12:42	12/23/23 02:51	1
9CI-PF3ONS	ND		1.9	0.23	ng/L		12/19/23 12:42	12/23/23 02:51	1
11CI-PF3OUdS	ND		1.9	0.30	ng/L		12/19/23 12:42	12/23/23 02:51	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	64		25 - 150	12/19/23 12:42	12/23/23 02:51	1
13C5 PFPeA	84		25 - 150	12/19/23 12:42	12/23/23 02:51	1
13C2 PFHxA	84		25 - 150	12/19/23 12:42	12/23/23 02:51	1
13C4 PFHpA	94		25 - 150	12/19/23 12:42	12/23/23 02:51	1
13C4 PFOA	86		25 - 150	12/19/23 12:42	12/23/23 02:51	1
13C5 PFNA	72		25 - 150	12/19/23 12:42	12/23/23 02:51	1
13C2 PFDA	67		25 - 150	12/19/23 12:42	12/23/23 02:51	1
13C2 PFUnA	46		25 - 150	12/19/23 12:42	12/23/23 02:51	1
13C2 PFDoA	36		25 - 150	12/19/23 12:42	12/23/23 02:51	1
13C2 PFTeDA	39		25 - 150	12/19/23 12:42	12/23/23 02:51	1
13C3 PFBS	83		25 - 150	12/19/23 12:42	12/23/23 02:51	1
18O2 PFHxS	76		25 - 150	12/19/23 12:42	12/23/23 02:51	1
13C4 PFOS	70		25 - 150	12/19/23 12:42	12/23/23 02:51	1
13C8 FOSA	57		10 - 150	12/19/23 12:42	12/23/23 02:51	1
d3-NMeFOSAA	42		25 - 150	12/19/23 12:42	12/23/23 02:51	1
d5-NEtFOSAA	32		25 - 150	12/19/23 12:42	12/23/23 02:51	1
d-N-MeFOSA-M	44		10 - 150	12/19/23 12:42	12/23/23 02:51	1
d-N-EtFOSA-M	55		10 - 150	12/19/23 12:42	12/23/23 02:51	1
d7-N-MeFOSE-M	43		10 - 150	12/19/23 12:42	12/23/23 02:51	1
d9-N-EtFOSE-M	62		10 - 150	12/19/23 12:42	12/23/23 02:51	1
M2-4:2 FTS	104		25 - 150	12/19/23 12:42	12/23/23 02:51	1
M2-8:2 FTS	111		25 - 150	12/19/23 12:42	12/23/23 02:51	1
13C3 HFPO-DA	91		25 - 150	12/19/23 12:42	12/23/23 02:51	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Inf 11-20231211

Lab Sample ID: 320-108053-4

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 FTS	ND		94	47	ng/L		12/19/23 12:42	12/23/23 04:22	20
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
M2-6:2 FTS	124		25 - 150				12/19/23 12:42	12/23/23 04:22	20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	280		50	19	mg/L			12/18/23 14:37	1

Client Sample ID: Inf 18-20231211

Lab Sample ID: 320-108053-5

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	9.9		4.4	2.1	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluoropentanoic acid (PFPeA)	4.5		1.8	0.44	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorohexanoic acid (PFHxA)	16	+ J	1.8	0.52	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluoroheptanoic acid (PFHpA)	1.7	J	1.8	0.22	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorooctanoic acid (PFOA)	7.1		1.8	0.76	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.98	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.8	1.2	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorobutanesulfonic acid (PFBS)	3.3		1.8	0.18	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluoropentanesulfonic acid (PFPeS)	1.2	J	1.8	0.27	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorohexanesulfonic acid (PFHxS)	13		1.8	0.51	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorooctanesulfonic acid (PFOS)	5.8		1.8	0.48	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	0.33	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.28	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8	0.86	ng/L		12/19/23 12:42	12/23/23 03:03	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.87	ng/L		12/19/23 12:42	12/23/23 03:03	1
NEtFOSA	ND		1.8	0.77	ng/L		12/19/23 12:42	12/23/23 03:03	1
NMeFOSA	ND		1.8	0.38	ng/L		12/19/23 12:42	12/23/23 03:03	1
NMeFOSAA	ND		4.4	1.1	ng/L		12/19/23 12:42	12/23/23 03:03	1
NEtFOSAA	ND		4.4	1.2	ng/L		12/19/23 12:42	12/23/23 03:03	1
NMeFOSE	1.4	J	3.6	1.2	ng/L		12/19/23 12:42	12/23/23 03:03	1
NEtFOSE	ND		1.8	0.76	ng/L		12/19/23 12:42	12/23/23 03:03	1
4:2 FTS	ND		1.8	0.21	ng/L		12/19/23 12:42	12/23/23 03:03	1
6:2 FTS	ND		4.4	2.2	ng/L		12/19/23 12:42	12/23/23 03:03	1
8:2 FTS	ND		1.8	0.41	ng/L		12/19/23 12:42	12/23/23 03:03	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		12/19/23 12:42	12/23/23 03:03	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Inf 18-20231211

Lab Sample ID: 320-108053-5

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA (GenX)	ND		3.6	1.3	ng/L		12/19/23 12:42	12/23/23 03:03	1
9CI-PF3ONS	ND		1.8	0.21	ng/L		12/19/23 12:42	12/23/23 03:03	1
11CI-PF3OUdS	ND		1.8	0.28	ng/L		12/19/23 12:42	12/23/23 03:03	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	64		25 - 150				12/19/23 12:42	12/23/23 03:03	1
13C5 PFPeA	87		25 - 150				12/19/23 12:42	12/23/23 03:03	1
13C2 PFHxA	76		25 - 150				12/19/23 12:42	12/23/23 03:03	1
13C4 PFHpA	96		25 - 150				12/19/23 12:42	12/23/23 03:03	1
13C4 PFOA	77		25 - 150				12/19/23 12:42	12/23/23 03:03	1
13C5 PFNA	71		25 - 150				12/19/23 12:42	12/23/23 03:03	1
13C2 PFDA	71		25 - 150				12/19/23 12:42	12/23/23 03:03	1
13C2 PFUnA	54		25 - 150				12/19/23 12:42	12/23/23 03:03	1
13C2 PFDoA	42		25 - 150				12/19/23 12:42	12/23/23 03:03	1
13C2 PFTeDA	44		25 - 150				12/19/23 12:42	12/23/23 03:03	1
13C3 PFBS	79		25 - 150				12/19/23 12:42	12/23/23 03:03	1
18O2 PFHxS	71		25 - 150				12/19/23 12:42	12/23/23 03:03	1
13C4 PFOS	62		25 - 150				12/19/23 12:42	12/23/23 03:03	1
13C8 FOSA	57		10 - 150				12/19/23 12:42	12/23/23 03:03	1
d3-NMeFOSAA	51		25 - 150				12/19/23 12:42	12/23/23 03:03	1
d5-NEtFOSAA	36		25 - 150				12/19/23 12:42	12/23/23 03:03	1
d-N-MeFOSA-M	42		10 - 150				12/19/23 12:42	12/23/23 03:03	1
d-N-EtFOSA-M	58		10 - 150				12/19/23 12:42	12/23/23 03:03	1
d7-N-MeFOSE-M	48		10 - 150				12/19/23 12:42	12/23/23 03:03	1
d9-N-EtFOSE-M	70		10 - 150				12/19/23 12:42	12/23/23 03:03	1
M2-4:2 FTS	100		25 - 150				12/19/23 12:42	12/23/23 03:03	1
M2-6:2 FTS	135		25 - 150				12/19/23 12:42	12/23/23 03:03	1
M2-8:2 FTS	114		25 - 150				12/19/23 12:42	12/23/23 03:03	1
13C3 HFPO-DA	89		25 - 150				12/19/23 12:42	12/23/23 03:03	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	190		42	16	mg/L			12/18/23 14:40	1

Client Sample ID: Inf-Comp 20231211

Lab Sample ID: 320-108053-6

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	6.3		4.7	2.3	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluoropentanoic acid (PFPeA)	3.8		1.9	0.46	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.55	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluoroheptanoic acid (PFHpA)	1.4	J	1.9	0.24	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluorooctanoic acid (PFOA)	3.9		1.9	0.80	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluorononanoic acid (PFNA)	0.45	J	1.9	0.26	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.9	1.2	ng/L		12/19/23 20:29	12/23/23 08:31	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Inf-Comp 20231211

Lab Sample ID: 320-108053-6

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluorobutanesulfonic acid (PFBS)	2.2		1.9	0.19	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.9	0.28	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluorohexanesulfonic acid (PFHxS)	5.6		1.9	0.54	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluorooctanesulfonic acid (PFOS)	4.0		1.9	0.51	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.35	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluorodecanesulfonic acid (PFDS)	12 +- J		1.9	0.30	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.92	ng/L		12/19/23 20:29	12/23/23 08:31	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.93	ng/L		12/19/23 20:29	12/23/23 08:31	1
NEtFOSA	ND		1.9	0.82	ng/L		12/19/23 20:29	12/23/23 08:31	1
NMeFOSA	ND		1.9	0.41	ng/L		12/19/23 20:29	12/23/23 08:31	1
NMeFOSAA	ND		4.7	1.1	ng/L		12/19/23 20:29	12/23/23 08:31	1
NEtFOSAA	ND		4.7	1.2	ng/L		12/19/23 20:29	12/23/23 08:31	1
NMeFOSE	1.4 J		3.8	1.3	ng/L		12/19/23 20:29	12/23/23 08:31	1
NEtFOSE	ND		1.9	0.80	ng/L		12/19/23 20:29	12/23/23 08:31	1
4:2 FTS	ND		1.9	0.23	ng/L		12/19/23 20:29	12/23/23 08:31	1
6:2 FTS	ND		4.7	2.4	ng/L		12/19/23 20:29	12/23/23 08:31	1
8:2 FTS	0.52 J		1.9	0.43	ng/L		12/19/23 20:29	12/23/23 08:31	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		12/19/23 20:29	12/23/23 08:31	1
HFPO-DA (GenX)	ND		3.8	1.4	ng/L		12/19/23 20:29	12/23/23 08:31	1
9Cl-PF3ONS	ND		1.9	0.23	ng/L		12/19/23 20:29	12/23/23 08:31	1
11Cl-PF3OUdS	ND		1.9	0.30	ng/L		12/19/23 20:29	12/23/23 08:31	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFBA	39		25 - 150				12/19/23 20:29	12/23/23 08:31	1
13C5 PFPeA	46		25 - 150				12/19/23 20:29	12/23/23 08:31	1
13C2 PFHxA	51		25 - 150				12/19/23 20:29	12/23/23 08:31	1
13C4 PFHpA	61		25 - 150				12/19/23 20:29	12/23/23 08:31	1
13C4 PFOA	53		25 - 150				12/19/23 20:29	12/23/23 08:31	1
13C5 PFNA	53		25 - 150				12/19/23 20:29	12/23/23 08:31	1
13C2 PFDA	49		25 - 150				12/19/23 20:29	12/23/23 08:31	1
13C2 PFUnA	38		25 - 150				12/19/23 20:29	12/23/23 08:31	1
13C2 PFDoA	26		25 - 150				12/19/23 20:29	12/23/23 08:31	1
13C2 PFTeDA	28		25 - 150				12/19/23 20:29	12/23/23 08:31	1
13C3 PFBS	46		25 - 150				12/19/23 20:29	12/23/23 08:31	1
18O2 PFHxS	48		25 - 150				12/19/23 20:29	12/23/23 08:31	1
13C4 PFOS	51		25 - 150				12/19/23 20:29	12/23/23 08:31	1
13C8 FOSA	40		10 - 150				12/19/23 20:29	12/23/23 08:31	1
d3-NMeFOSAA	37		25 - 150				12/19/23 20:29	12/23/23 08:31	1
d5-NEtFOSAA	29		25 - 150				12/19/23 20:29	12/23/23 08:31	1
d-N-MeFOSA-M	31		10 - 150				12/19/23 20:29	12/23/23 08:31	1
d-N-EtFOSA-M	36		10 - 150				12/19/23 20:29	12/23/23 08:31	1
d7-N-MeFOSE-M	31		10 - 150				12/19/23 20:29	12/23/23 08:31	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Inf-Comp 20231211

Lab Sample ID: 320-108053-6

Date Collected: 12/11/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d9-N-EtFOSE-M	35		10 - 150	12/19/23 20:29	12/23/23 08:31	1
M2-4:2 FTS	62		25 - 150	12/19/23 20:29	12/23/23 08:31	1
M2-6:2 FTS	79		25 - 150	12/19/23 20:29	12/23/23 08:31	1
M2-8:2 FTS	71		25 - 150	12/19/23 20:29	12/23/23 08:31	1
13C3 HFPO-DA	54		25 - 150	12/19/23 20:29	12/23/23 08:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	250		50	19	mg/L			12/18/23 14:44	1

Client Sample ID: Eff 20231212

Lab Sample ID: 320-108053-7

Date Collected: 12/12/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	8.3		4.8	2.3	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluoropentanoic acid (PFPeA)	13		1.9	0.47	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorohexanoic acid (PFHxA)	25		1.9	0.55	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluoroheptanoic acid (PFHpA)	2.0		1.9	0.24	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorooctanoic acid (PFOA)	8.6		1.9	0.81	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorononanoic acid (PFNA)	0.57	J	1.9	0.26	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorodecanoic acid (PFDA)	1.1	J	1.9	0.30	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorobutanesulfonic acid (PFBS)	7.7	+ J	1.9	0.19	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluoropentanesulfonic acid (PFPeS)	0.67	+- J	1.9	0.29	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorohexanesulfonic acid (PFHxS)	7.7		1.9	0.54	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorooctanesulfonic acid (PFOS)	4.3		1.9	0.52	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.35	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.31	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.93	ng/L		12/19/23 20:29	12/23/23 10:02	1
Perfluorooctanesulfonamide (FOSA)	1.0	J	1.9	0.94	ng/L		12/19/23 20:29	12/23/23 10:02	1
NEtFOSA	ND		1.9	0.83	ng/L		12/19/23 20:29	12/23/23 10:02	1
NMeFOSA	ND		1.9	0.41	ng/L		12/19/23 20:29	12/23/23 10:02	1
NMeFOSAA	1.3	J	4.8	1.1	ng/L		12/19/23 20:29	12/23/23 10:02	1
NEtFOSAA	ND		4.8	1.2	ng/L		12/19/23 20:29	12/23/23 10:02	1
NMeFOSE	ND		3.8	1.3	ng/L		12/19/23 20:29	12/23/23 10:02	1
NEtFOSE	ND		1.9	0.81	ng/L		12/19/23 20:29	12/23/23 10:02	1
4:2 FTS	ND		1.9	0.23	ng/L		12/19/23 20:29	12/23/23 10:02	1
6:2 FTS	ND		4.8	2.4	ng/L		12/19/23 20:29	12/23/23 10:02	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Eff 20231212

Lab Sample ID: 320-108053-7

Date Collected: 12/12/23 23:59

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
8:2 FTS	ND		1.9	0.44	ng/L		12/19/23 20:29	12/23/23 10:02	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		12/19/23 20:29	12/23/23 10:02	1
HFPO-DA (GenX)	ND		3.8	1.4	ng/L		12/19/23 20:29	12/23/23 10:02	1
9CI-PF3ONS	ND		1.9	0.23	ng/L		12/19/23 20:29	12/23/23 10:02	1
11CI-PF3OUdS	ND		1.9	0.31	ng/L		12/19/23 20:29	12/23/23 10:02	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	83		25 - 150				12/19/23 20:29	12/23/23 10:02	1
13C5 PFPeA	96		25 - 150				12/19/23 20:29	12/23/23 10:02	1
13C2 PFHxA	111		25 - 150				12/19/23 20:29	12/23/23 10:02	1
13C4 PFHpA	116		25 - 150				12/19/23 20:29	12/23/23 10:02	1
13C4 PFOA	108		25 - 150				12/19/23 20:29	12/23/23 10:02	1
13C5 PFNA	121		25 - 150				12/19/23 20:29	12/23/23 10:02	1
13C2 PFDA	129		25 - 150				12/19/23 20:29	12/23/23 10:02	1
13C2 PFUnA	116		25 - 150				12/19/23 20:29	12/23/23 10:02	1
13C2 PFDoA	104		25 - 150				12/19/23 20:29	12/23/23 10:02	1
13C2 PFTeDA	66		25 - 150				12/19/23 20:29	12/23/23 10:02	1
13C3 PFBS	105		25 - 150				12/19/23 20:29	12/23/23 10:02	1
18O2 PFHxS	103		25 - 150				12/19/23 20:29	12/23/23 10:02	1
13C4 PFOS	124		25 - 150				12/19/23 20:29	12/23/23 10:02	1
13C8 FOSA	128		10 - 150				12/19/23 20:29	12/23/23 10:02	1
d3-NMeFOSAA	119		25 - 150				12/19/23 20:29	12/23/23 10:02	1
d5-NEtFOSAA	128		25 - 150				12/19/23 20:29	12/23/23 10:02	1
d-N-MeFOSA-M	103		10 - 150				12/19/23 20:29	12/23/23 10:02	1
d-N-EtFOSA-M	89		10 - 150				12/19/23 20:29	12/23/23 10:02	1
d7-N-MeFOSE-M	87		10 - 150				12/19/23 20:29	12/23/23 10:02	1
d9-N-EtFOSE-M	78		10 - 150				12/19/23 20:29	12/23/23 10:02	1
M2-4:2 FTS	121		25 - 150				12/19/23 20:29	12/23/23 10:02	1
M2-6:2 FTS	150		25 - 150				12/19/23 20:29	12/23/23 10:02	1
M2-8:2 FTS	191	*5+	25 - 150				12/19/23 20:29	12/23/23 10:02	1
13C3 HFPO-DA	110		25 - 150				12/19/23 20:29	12/23/23 10:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	5.2		5.0	1.9	mg/L			12/19/23 16:56	1

Client Sample ID: Bio B 20231212

Lab Sample ID: 320-108053-8

Date Collected: 12/12/23 13:11

Matrix: Solid

Date Received: 12/14/23 09:15

Percent Solids: 6.3

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	UJ	30	6.8	ug/Kg	☆	12/17/23 19:57	12/18/23 13:56	1
Perfluoropentanoic acid (PFPeA)	ND		30	6.1	ug/Kg	☆	12/17/23 19:57	12/18/23 13:56	1
Perfluorohexanoic acid (PFHxA)	8.2	J-B- UJ	30	4.6	ug/Kg	☆	12/17/23 19:57	12/18/23 13:56	1
Perfluoroheptanoic acid (PFHpA)	ND		30	5.6	ug/Kg	☆	12/17/23 19:57	12/18/23 13:56	1
Perfluorooctanoic acid (PFOA)	ND		30	7.8	ug/Kg	☆	12/17/23 19:57	12/18/23 13:56	1
Perfluorononanoic acid (PFNA)	ND		30	3.2	ug/Kg	☆	12/17/23 19:57	12/18/23 13:56	1
Perfluorodecanoic acid (PFDA)	ND		30	7.1	ug/Kg	☆	12/17/23 19:57	12/18/23 13:56	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Bio B 20231212

Lab Sample ID: 320-108053-8

Date Collected: 12/12/23 13:11

Matrix: Solid

Date Received: 12/14/23 09:15

Percent Solids: 6.3

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroundecanoic acid (PFUnA)	ND		30	6.2	ug/Kg	✳	12/17/23 19:57	12/18/23 13:56	1
Perfluorododecanoic acid (PFDoA)	ND		30	4.4	ug/Kg	✳	12/17/23 19:57	12/18/23 13:56	1
Perfluorotridecanoic acid (PFTrDA)	ND		30	3.1	ug/Kg	✳	12/17/23 19:57	12/18/23 13:56	1
Perfluorotetradecanoic acid (PFTeA)	ND		30	5.5	ug/Kg	✳	12/17/23 19:57	12/18/23 13:56	1
Perfluorobutanesulfonic acid (PFBS)	ND		30	5.6	ug/Kg	✳	12/17/23 19:57	12/18/23 13:56	1
Perfluoropentanesulfonic acid (PFPeS)	ND		30	5.5	ug/Kg	✳	12/17/23 19:57	12/18/23 13:56	1
Perfluorohexanesulfonic acid (PFHxS)	4.4	J	30	4.3	ug/Kg	✳	12/17/23 19:57	12/18/23 13:56	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		30	7.2	ug/Kg	✳	12/17/23 19:57	12/18/23 13:56	1
Perfluorooctanesulfonic acid (PFOS)	10	J	30	6.4	ug/Kg	✳	12/17/23 19:57	12/18/23 13:56	1
Perfluorononanesulfonic acid (PFNS)	ND		30	4.3	ug/Kg	✳	12/17/23 19:57	12/18/23 13:56	1
Perfluorodecanesulfonic acid (PFDS)	ND		30	7.7	ug/Kg	✳	12/17/23 19:57	12/18/23 13:56	1
Perfluorododecanesulfonic acid (PFDoS)	ND		30	6.9	ug/Kg	✳	12/17/23 19:57	12/18/23 13:56	1
Perfluorooctanesulfonamide (FOSA)	ND		30	4.9	ug/Kg	✳	12/17/23 19:57	12/18/23 13:56	1
NEtFOSA	ND		30	6.9	ug/Kg	✳	12/17/23 19:57	12/18/23 13:56	1
NMeFOSA	ND		30	7.2	ug/Kg	✳	12/17/23 19:57	12/18/23 13:56	1
NMeFOSAA	17	J	30	3.4	ug/Kg	✳	12/17/23 19:57	12/18/23 13:56	1
NEtFOSAA	ND		30	7.1	ug/Kg	✳	12/17/23 19:57	12/18/23 13:56	1
NMeFOSE	13	J	30	6.9	ug/Kg	✳	12/17/23 19:57	12/18/23 13:56	1
NEtFOSE	4.5	J	30	4.1	ug/Kg	✳	12/17/23 19:57	12/18/23 13:56	1
4:2 FTS	ND		30	7.5	ug/Kg	✳	12/17/23 19:57	12/18/23 13:56	1
6:2 FTS	ND		30	4.0	ug/Kg	✳	12/17/23 19:57	12/18/23 13:56	1
8:2 FTS	ND		30	5.2	ug/Kg	✳	12/17/23 19:57	12/18/23 13:56	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		30	5.8	ug/Kg	✳	12/17/23 19:57	12/18/23 13:56	1
HFPO-DA (GenX)	ND		30	6.1	ug/Kg	✳	12/17/23 19:57	12/18/23 13:56	1
9Cl-PF3ONS	ND		30	5.2	ug/Kg	✳	12/17/23 19:57	12/18/23 13:56	1
11Cl-PF3OUdS	ND		30	4.6	ug/Kg	✳	12/17/23 19:57	12/18/23 13:56	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	13	*5-	25 - 150	12/17/23 19:57	12/18/23 13:56	1
13C5 PFPeA	84		25 - 150	12/17/23 19:57	12/18/23 13:56	1
13C2 PFHxA	84		25 - 150	12/17/23 19:57	12/18/23 13:56	1
13C4 PFHpA	90		25 - 150	12/17/23 19:57	12/18/23 13:56	1
13C4 PFOA	94		25 - 150	12/17/23 19:57	12/18/23 13:56	1
13C5 PFNA	90		25 - 150	12/17/23 19:57	12/18/23 13:56	1
13C2 PFDA	90		25 - 150	12/17/23 19:57	12/18/23 13:56	1
13C2 PFUnA	92		25 - 150	12/17/23 19:57	12/18/23 13:56	1
13C2 PFDoA	72		25 - 150	12/17/23 19:57	12/18/23 13:56	1
13C2 PFTeDA	80		25 - 150	12/17/23 19:57	12/18/23 13:56	1
13C3 PFBS	89		25 - 150	12/17/23 19:57	12/18/23 13:56	1
18O2 PFHxS	88		25 - 150	12/17/23 19:57	12/18/23 13:56	1
13C4 PFOS	78		25 - 150	12/17/23 19:57	12/18/23 13:56	1
13C8 FOSA	89		10 - 150	12/17/23 19:57	12/18/23 13:56	1
d3-NMeFOSAA	90		25 - 150	12/17/23 19:57	12/18/23 13:56	1
d5-NEtFOSAA	101		25 - 150	12/17/23 19:57	12/18/23 13:56	1
d-N-MeFOSA-M	80		10 - 150	12/17/23 19:57	12/18/23 13:56	1
d-N-EtFOSA-M	64		10 - 150	12/17/23 19:57	12/18/23 13:56	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Bio B 20231212

Lab Sample ID: 320-108053-8

Date Collected: 12/12/23 13:11

Matrix: Solid

Date Received: 12/14/23 09:15

Percent Solids: 6.3

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d7-N-MeFOSE-M	80		10 - 150	12/17/23 19:57	12/18/23 13:56	1
d9-N-EtFOSE-M	72		10 - 150	12/17/23 19:57	12/18/23 13:56	1
M2-4:2 FTS	100		25 - 150	12/17/23 19:57	12/18/23 13:56	1
M2-6:2 FTS	115		25 - 150	12/17/23 19:57	12/18/23 13:56	1
M2-8:2 FTS	123		25 - 150	12/17/23 19:57	12/18/23 13:56	1
13C3 HFPO-DA	82		25 - 150	12/17/23 19:57	12/18/23 13:56	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	93.7		0.1	0.1	%			12/15/23 11:00	1
Percent Solids (ASTM D 2216)	6.3		0.1	0.1	%			12/15/23 11:00	1

Client Sample ID: Bio A 22-20231212

Lab Sample ID: 320-108053-9

Date Collected: 12/12/23 14:10

Matrix: Solid

Date Received: 12/14/23 09:15

Percent Solids: 24.9

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	8.0	J	5.3	1.2	ug/Kg	⊛	12/17/23 19:57	12/18/23 14:07	1
Perfluoropentanoic acid (PFPeA)	12		5.3	1.1	ug/Kg	⊛	12/17/23 19:57	12/18/23 14:07	1
Perfluorohexanoic acid (PFHxA)	23	B---	5.3	0.82	ug/Kg	⊛	12/17/23 19:57	12/18/23 14:07	1
Perfluoroheptanoic acid (PFHpA)	1.8	J	5.3	1.0	ug/Kg	⊛	12/17/23 19:57	12/18/23 14:07	1
Perfluorooctanoic acid (PFOA)	16		5.3	1.4	ug/Kg	⊛	12/17/23 19:57	12/18/23 14:07	1
Perfluorononanoic acid (PFNA)	1.5	J	5.3	0.58	ug/Kg	⊛	12/17/23 19:57	12/18/23 14:07	1
Perfluorodecanoic acid (PFDA)	11		5.3	1.3	ug/Kg	⊛	12/17/23 19:57	12/18/23 14:07	1
Perfluoroundecanoic acid (PFUnA)	1.5	J	5.3	1.1	ug/Kg	⊛	12/17/23 19:57	12/18/23 14:07	1
Perfluorododecanoic acid (PFDoA)	3.9	J	5.3	0.79	ug/Kg	⊛	12/17/23 19:57	12/18/23 14:07	1
Perfluorotridecanoic acid (PFTTrDA)	ND	F1-F2-- UJ	5.3	0.56	ug/Kg	⊛	12/17/23 19:57	12/18/23 14:07	1
Perfluorotetradecanoic acid (PFTeA)	1.2	J	5.3	0.98	ug/Kg	⊛	12/17/23 19:57	12/18/23 14:07	1
Perfluorobutanesulfonic acid (PFBS)	1.1	J	5.3	1.0	ug/Kg	⊛	12/17/23 19:57	12/18/23 14:07	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.3	0.98	ug/Kg	⊛	12/17/23 19:57	12/18/23 14:07	1
Perfluorohexanesulfonic acid (PFHxS)	1.6	J1--- J	5.3	0.77	ug/Kg	⊛	12/17/23 19:57	12/18/23 14:07	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.3	1.3	ug/Kg	⊛	12/17/23 19:57	12/18/23 14:07	1
Perfluorooctanesulfonic acid (PFOS)	13	1--- J	5.3	1.1	ug/Kg	⊛	12/17/23 19:57	12/18/23 14:07	1
Perfluorononanesulfonic acid (PFNS)	ND		5.3	0.77	ug/Kg	⊛	12/17/23 19:57	12/18/23 14:07	1
Perfluorodecanesulfonic acid (PFDS)	4.8	J	5.3	1.4	ug/Kg	⊛	12/17/23 19:57	12/18/23 14:07	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.3	1.2	ug/Kg	⊛	12/17/23 19:57	12/18/23 14:07	1
Perfluorooctanesulfonamide (FOSA)	1.9	J	5.3	0.87	ug/Kg	⊛	12/17/23 19:57	12/18/23 14:07	1
NEtFOSA	ND		5.3	1.2	ug/Kg	⊛	12/17/23 19:57	12/18/23 14:07	1
NMeFOSA	ND		5.3	1.3	ug/Kg	⊛	12/17/23 19:57	12/18/23 14:07	1
NMeFOSAA	32		5.3	0.61	ug/Kg	⊛	12/17/23 19:57	12/18/23 14:07	1
NEtFOSAA	9.0		5.3	1.3	ug/Kg	⊛	12/17/23 19:57	12/18/23 14:07	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: Bio A 22-20231212

Lab Sample ID: 320-108053-9

Date Collected: 12/12/23 14:10

Matrix: Solid

Date Received: 12/14/23 09:15

Percent Solids: 24.9

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NMeFOSE	19		5.3	1.2	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
NEtFOSE	6.9		5.3	0.74	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
4:2 FTS	ND		5.3	1.3	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
6:2 FTS	1.9	J	5.3	0.71	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
8:2 FTS	1.3	J	5.3	0.93	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.3	1.0	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
HFPO-DA (GenX)	ND		5.3	1.1	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
9CI-PF3ONS	ND		5.3	0.93	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1
11CI-PF3OUdS	ND	E1- UJ	5.3	0.82	ug/Kg	☼	12/17/23 19:57	12/18/23 14:07	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	22	*5-	25 - 150	12/17/23 19:57	12/18/23 14:07	1
13C5 PFPeA	110		25 - 150	12/17/23 19:57	12/18/23 14:07	1
13C2 PFHxA	87		25 - 150	12/17/23 19:57	12/18/23 14:07	1
13C4 PFHpA	86		25 - 150	12/17/23 19:57	12/18/23 14:07	1
13C4 PFOA	87		25 - 150	12/17/23 19:57	12/18/23 14:07	1
13C5 PFNA	94		25 - 150	12/17/23 19:57	12/18/23 14:07	1
13C2 PFDA	94		25 - 150	12/17/23 19:57	12/18/23 14:07	1
13C2 PFUnA	87		25 - 150	12/17/23 19:57	12/18/23 14:07	1
13C2 PFDoA	53		25 - 150	12/17/23 19:57	12/18/23 14:07	1
13C2 PFTeDA	59		25 - 150	12/17/23 19:57	12/18/23 14:07	1
13C3 PFBS	86		25 - 150	12/17/23 19:57	12/18/23 14:07	1
18O2 PFHxS	79		25 - 150	12/17/23 19:57	12/18/23 14:07	1
13C4 PFOS	75		25 - 150	12/17/23 19:57	12/18/23 14:07	1
13C8 FOSA	80		10 - 150	12/17/23 19:57	12/18/23 14:07	1
d3-NMeFOSAA	85		25 - 150	12/17/23 19:57	12/18/23 14:07	1
d5-NEtFOSAA	78		25 - 150	12/17/23 19:57	12/18/23 14:07	1
d-N-MeFOSA-M	58		10 - 150	12/17/23 19:57	12/18/23 14:07	1
d-N-EtFOSA-M	38		10 - 150	12/17/23 19:57	12/18/23 14:07	1
d7-N-MeFOSE-M	67		10 - 150	12/17/23 19:57	12/18/23 14:07	1
d9-N-EtFOSE-M	42		10 - 150	12/17/23 19:57	12/18/23 14:07	1
M2-4:2 FTS	109		25 - 150	12/17/23 19:57	12/18/23 14:07	1
M2-6:2 FTS	110		25 - 150	12/17/23 19:57	12/18/23 14:07	1
M2-8:2 FTS	133		25 - 150	12/17/23 19:57	12/18/23 14:07	1
13C3 HFPO-DA	82		25 - 150	12/17/23 19:57	12/18/23 14:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	75.1		0.1	0.1	%			12/15/23 11:00	1
Percent Solids (ASTM D 2216)	24.9		0.1	0.1	%			12/15/23 11:00	1

Client Sample ID: EB01-20231212

Lab Sample ID: 320-108053-10

Date Collected: 12/12/23 13:45

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.3	2.1	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluoropentanoic acid (PFPeA)	ND		1.7	0.42	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorohexanoic acid (PFHxA)	ND		1.7	0.50	ng/L		12/19/23 20:29	12/23/23 10:13	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: EB01-20231212

Lab Sample ID: 320-108053-10

Date Collected: 12/12/23 13:45

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	ND		1.7	0.21	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorooctanoic acid (PFOA)	ND		1.7	0.73	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.23	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.27	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.95	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.47	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.7	1.1	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.63	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.7	0.17	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.7	0.26	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.7	0.49	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.7	0.16	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	0.46	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.32	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.28	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.83	ng/L		12/19/23 20:29	12/23/23 10:13	1
Perfluorooctanesulfonamide (FOSA)	ND		1.7	0.84	ng/L		12/19/23 20:29	12/23/23 10:13	1
NEtFOSA	ND		1.7	0.75	ng/L		12/19/23 20:29	12/23/23 10:13	1
NMeFOSA	ND		1.7	0.37	ng/L		12/19/23 20:29	12/23/23 10:13	1
NMeFOSAA	ND		4.3	1.0	ng/L		12/19/23 20:29	12/23/23 10:13	1
NEtFOSAA	ND		4.3	1.1	ng/L		12/19/23 20:29	12/23/23 10:13	1
NMeFOSE	ND		3.4	1.2	ng/L		12/19/23 20:29	12/23/23 10:13	1
NEtFOSE	ND		1.7	0.73	ng/L		12/19/23 20:29	12/23/23 10:13	1
4:2 FTS	ND		1.7	0.21	ng/L		12/19/23 20:29	12/23/23 10:13	1
6:2 FTS	ND		4.3	2.1	ng/L		12/19/23 20:29	12/23/23 10:13	1
8:2 FTS	ND		1.7	0.40	ng/L		12/19/23 20:29	12/23/23 10:13	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.34	ng/L		12/19/23 20:29	12/23/23 10:13	1
HFPO-DA (GenX)	ND		3.4	1.3	ng/L		12/19/23 20:29	12/23/23 10:13	1
9Cl-PF3ONS	ND		1.7	0.21	ng/L		12/19/23 20:29	12/23/23 10:13	1
11Cl-PF3OUdS	ND		1.7	0.28	ng/L		12/19/23 20:29	12/23/23 10:13	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	82		25 - 150	12/19/23 20:29	12/23/23 10:13	1
13C5 PFPeA	93		25 - 150	12/19/23 20:29	12/23/23 10:13	1
13C2 PFHxA	99		25 - 150	12/19/23 20:29	12/23/23 10:13	1
13C4 PFHpA	115		25 - 150	12/19/23 20:29	12/23/23 10:13	1
13C4 PFOA	115		25 - 150	12/19/23 20:29	12/23/23 10:13	1
13C5 PFNA	121		25 - 150	12/19/23 20:29	12/23/23 10:13	1
13C2 PFDA	128		25 - 150	12/19/23 20:29	12/23/23 10:13	1
13C2 PFUnA	112		25 - 150	12/19/23 20:29	12/23/23 10:13	1
13C2 PFDoA	112		25 - 150	12/19/23 20:29	12/23/23 10:13	1
13C2 PFTeDA	101		25 - 150	12/19/23 20:29	12/23/23 10:13	1
13C3 PFBS	96		25 - 150	12/19/23 20:29	12/23/23 10:13	1
18O2 PFHxS	102		25 - 150	12/19/23 20:29	12/23/23 10:13	1
13C4 PFOS	122		25 - 150	12/19/23 20:29	12/23/23 10:13	1
13C8 FOSA	111		10 - 150	12/19/23 20:29	12/23/23 10:13	1
d3-NMeFOSAA	112		25 - 150	12/19/23 20:29	12/23/23 10:13	1

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Client Sample Results

Client: Madison Metropolitan Sewerage District
 Project/Site: PFAS Sampling

Job ID: 320-108053-1

Client Sample ID: EB01-20231212

Lab Sample ID: 320-108053-10

Date Collected: 12/12/23 13:45

Matrix: Water

Date Received: 12/14/23 09:15

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
d5-NEtFOSAA	103		25 - 150	12/19/23 20:29	12/23/23 10:13	1
d-N-MeFOSA-M	97		10 - 150	12/19/23 20:29	12/23/23 10:13	1
d-N-EtFOSA-M	93		10 - 150	12/19/23 20:29	12/23/23 10:13	1
d7-N-MeFOSE-M	99		10 - 150	12/19/23 20:29	12/23/23 10:13	1
d9-N-EtFOSE-M	100		10 - 150	12/19/23 20:29	12/23/23 10:13	1
M2-4:2 FTS	113		25 - 150	12/19/23 20:29	12/23/23 10:13	1
M2-6:2 FTS	119		25 - 150	12/19/23 20:29	12/23/23 10:13	1
M2-8:2 FTS	155	*5+	25 - 150	12/19/23 20:29	12/23/23 10:13	1
13C3 HFPO-DA	104		25 - 150	12/19/23 20:29	12/23/23 10:13	1