

PFAS Sampling Results of Starkweather Creek Due to Foam Sightings

On October 25, 2019, following reports of foam at the mouth of Starkweather Creek in Madison, DNR mobilized an environmental consultant to collect foam and surface water microlayer (SML) samples, which are samples taken right at the surface of the water. These samples were taken near the boat landing adjacent Olbrich Park, where Starkweather Creek enters Lake Monona (see attached map). Results of this sampling show PFAS (per- and polyfluoroalkyl substances) in the foam and water samples (see table below). Analytical results for the foam and SML samples are also attached.

Date Collected	Location	Substance Sampled	Sample Depth	PFOA (ppt)	PFOS (ppt)
10/25/2019	Olbrich Boat Launch	Water	Surface-water Micro Layer (SML)	9.5 – 10	400
10/25/2019	Olbrich Boat Launch	Foam	N/A	460 – 610	80,000 – 92,000

Values are approximations. For additional information, please see the lab report.

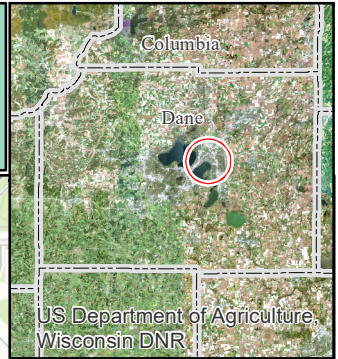
Foam observed on state waterways and lakes may or may not contain PFAS. Foam frequently collects on the surface of rivers and lakes due to the buildup of organic compounds from decaying plant or algal material, where wind and wave action pushes them to the shore. It can have bright, white coloring and look like shaving cream, but is lightweight and can blow inland and collect on lake shores and river banks.

Swallowing foam with PFAS could be a risk to your health. Avoiding foam with PFAS is protective of everyone, including young children, and is a recommendation supported by Wisconsin's Department of Health Services (DHS). PFAS do not move easily through the skin, but it's always best to rinse off after contact with foam to avoid accidentally swallowing PFAS. DHS recommends that people not allow their pets to come into contact with or swallow foam. Since pets could swallow foam collected in their fur when grooming themselves, we recommend you rinse pets off with fresh water.

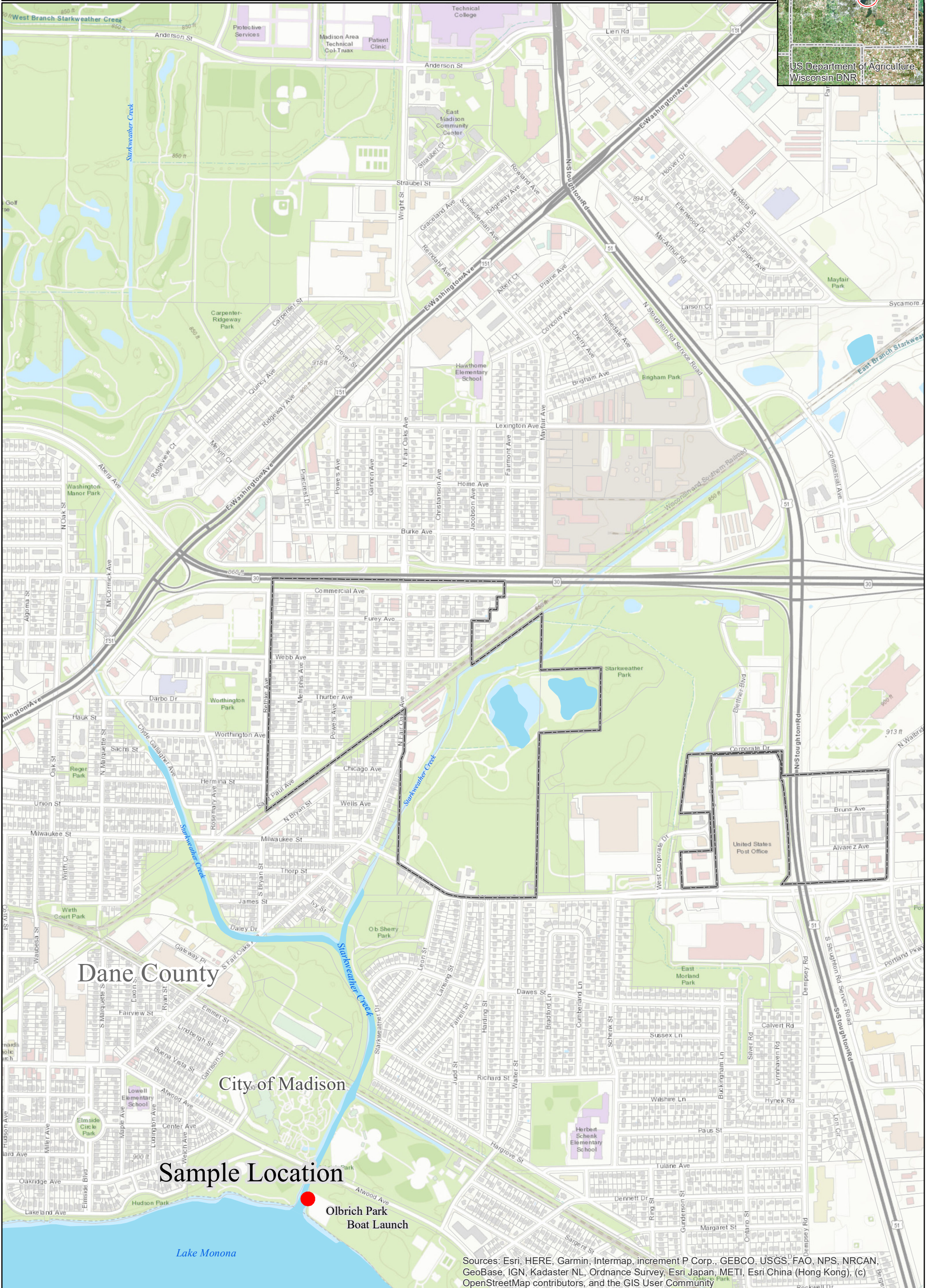
DNR conducted statewide sampling of specific waterways for PFAS in June, July and August 2019. The sampling over the summer of 2019 was conducted as part of a statewide monitoring project to sample fish tissue and water chemistry at select sites around the state near known or probable sources of PFAS. The fish tissue results will likely be available in early 2020. Once they are available the DNR will report those data. Additional information regarding the state-wide fish and water chemistry study can be found on the DNR's [water quality PFAS initiatives page](#).

The DNR is working closely with the DHS and local health officials to ensure that the public stays informed of these situations when they develop, and on the precautions to undertake in these events.

PFAS Sampling: City of Madison, Dane County, Wisconsin

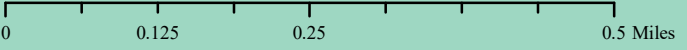


US Department of Agriculture
Wisconsin DNR



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

- Counties
- Wisconsin Parcels
- Municipal Boundaries
- Water
- Sampling Locations



WISCONSIN DEPARTMENT OF NATURAL RESOURCES

 Remediation & Redevelopment Program
dnr.wi.gov

ANALYTICAL REPORT

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Laboratory Job ID: 320-55700-1
Client Project/Site: WDNR Olbrich Park - 60614940

For:
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Middleton, Wisconsin 53562

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: AECOM

Project/Site: WDNR Olbrich Park - 60614940

Job ID: 320-55700-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*	Isotope Dilution analyte is outside acceptance limits.
B	Compound was found in the blank and sample.
H	Sample was prepped or analyzed beyond the specified holding time
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
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Case Narrative

Client: AECOM
Project/Site: WDNR Olbrich Park - 60614940

Job ID: 320-55700-1

Job ID: 320-55700-1

Laboratory: Eurofins TestAmerica, Sacramento

Narrative

Job Narrative 320-55700-1

Comments

No additional comments.

Receipt

The samples were received on 10/26/2019 10:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.6° C.

Receipt Exceptions

Insufficient sample volume was provided for the following samples for the analysis: FOAM (320-55700-5) and FOAM (DUPLICATE) (320-55700-6). Received with limited volume.

LCMS

Method 537 (modified): Due to a shortage in the marketplace for 13C3-PFBS, the target analyte PFBS and/or Perfluoropentanesulfonic acid (PFPeS) could not be quantitated against 13C3-PFBS (its labeled variant) as listed in the SOP. PFBS and Perfluoropentanesulfonic acid (PFPeS) was quantitated versus 18O2-PFHxS instead. (ICV 320-336770/11)

Method 537 (modified): Isotope Dilution Analyte (IDA) recovery of M2-4:2 FTS is above the method recommended limit for the following samples: EQUIPMENT BLANK (320-55700-7). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method 537 (modified): Results for samples SURFACE WATER (320-55700-1), SURFACE WATER (DUPLICATE) (320-55700-3), FOAM (320-55700-5) and FOAM (DUPLICATE) (320-55700-6) were reported from the analysis of a diluted extract due to high concentration of the target analyte 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): Due to a shortage in the marketplace for 13C3-PFBS, the target analyte Perfluorobutanesulfonic acid (PFBS) and/or Perfluoropentanesulfonic acid (PFPeS) could not be quantitated against 13C3-PFBS (its labeled variant) as listed in the SOP. PFBS and PFPeS were quantitated versus 18O2-PFHxS instead. (ICV 320-339894/12)

Method 537 (modified): Several Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following samples: SURFACE WATER (320-55700-1), SURFACE WATER (DUPLICATE) (320-55700-3), FOAM (320-55700-5) and FOAM (DUPLICATE) (320-55700-6). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method 537 (modified): A deviation from the Standard Operating Procedure (SOP) occurred. Details are as follows: Due to a shortage in the marketplace for 13C3-PFBS, the target analyte PFBS and/or Perfluoropentanesulfonic acid (PFPeS) could not be quantitated against 13C3-PFBS (its labeled variant) as listed in the SOP. PFBS and Perfluoropentanesulfonic acid (PFPeS) was quantitated versus 18O2-PFHxS instead.

Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit for 13C2 PFTeDA: FOAM (320-55700-5) and FOAM (DUPLICATE) (320-55700-6). 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) recoveries associated with the following sample are below the method recommended limit for 13C2 PFHxDA: FOAM (320-55700-5). The sample was re-extracted outside of the holding time with improved IDA recoveries, which are still below the method recommended limit. Both sets of data are 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 sample.

Method 537 (modified): Isotope Dilution Analyte (IDA) recoveries associated with the following sample are below the method recommended limit for 13C2 PFHxDA: FOAM (DUPLICATE) (320-55700-6). The sample was re-extracted outside of the holding time with IDA recoveries within control limits. Both sets of data are 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 sample.

Case Narrative

Client: AECOM
Project/Site: WDNR Olbrich Park - 60614940

Job ID: 320-55700-1

Job ID: 320-55700-1 (Continued)

Laboratory: Eurofins TestAmerica, Sacramento (Continued)

Method 537 (modified): Results for samples FOAM (320-55700-5) and FOAM (DUPLICATE) (320-55700-6) were reported from the analysis of a diluted extract due to high concentration of the target analyte 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.

Organic Prep

Method 3535: Elevated reporting limits are provided for the following samples due to insufficient sample provided for FOAM (320-55700-5) and FOAM (DUPLICATE) (320-55700-6) in preparation batch 320-336351.

Method Code: 3535_PFC_Water

Method 3535: The following samples: FOAM (320-55700-5) and FOAM (DUPLICATE) (320-55700-6) in preparation batch 320-336351 were observed to be a turbid dark brown color and foamy prior to extraction.

Method Code: 3535_PFC_Water

Method 3535: Elevated reporting limits are provided for the following sample due to insufficient sample provided for EQUIPMENT BLANK (320-55700-7) in preparation batch 320-336351.

Method Code: 3535_PFC_Water

Method 3535: The following samples: SURFACE WATER (320-55700-1) and SURFACE WATER (DUPLICATE) (320-55700-3) in preparation batch 320-336351 were observed to be a yellow color after they were brought up to final volume.

Method Code: 3535_PFC_Water

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-341271

320-341271

Method Code: 3535 PFC-W

Method 3535: The following samples were re-prepared outside of preparation holding time due to low IDA recovery: FOAM (320-55700-5) and FOAM (DUPLICATE) (320-55700-6).

320-341271

Method Code: 3535 PFC-W

Method 3535: Due to the matrix being dark brown in color and very foamy, the initial volumes used for the following samples deviated from the standard procedure: FOAM (320-55700-5) and FOAM (DUPLICATE) (320-55700-6). The reporting limits (RLs) have been adjusted proportionately.

320-341271

Method Code: 3535 PFC-W

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

Detection Summary

Client: AECOM
Project/Site: WDNR Olbrich Park - 60614940

Job ID: 320-55700-1

Client Sample ID: SURFACE WATER

Lab Sample ID: 320-55700-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	7.8		2.0	0.35	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	5.9		2.0	0.48	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	8.1		2.0	0.57	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.0		2.0	0.25	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	10		2.0	0.84	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	3.4		2.0	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	3.6		2.0	0.31	ng/L	1		537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.3	J	2.0	1.1	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	4.1		2.0	0.20	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	3.5		2.0	0.30	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	31	B	2.0	0.17	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	3.1		2.0	0.19	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.8	J B	2.0	0.35	ng/L	1		537 (modified)	Total/NA
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.2	J	20	1.9	ng/L	1		537 (modified)	Total/NA
6:2 FTS	13	J	20	2.0	ng/L	1		537 (modified)	Total/NA
8:2 FTS	3.5	J	20	2.0	ng/L	1		537 (modified)	Total/NA
HFPO-DA (GenX)	2.2	J	3.9	1.5	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	400		200	53	ng/L	100		537 (modified)	Total/NA

Client Sample ID: SURFACE WATER (DUPLICATE)

Lab Sample ID: 320-55700-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	9.1		1.9	0.34	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	6.0		1.9	0.47	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	7.8		1.9	0.56	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.1		1.9	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	9.5		1.9	0.82	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	3.7		1.9	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	3.4		1.9	0.30	ng/L	1		537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.1	J	1.9	1.1	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)	3.8		1.9	0.29	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	31	B	1.9	0.16	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	3.2		1.9	0.18	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.9	B	1.9	0.34	ng/L	1		537 (modified)	Total/NA
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.2	J	19	1.8	ng/L	1		537 (modified)	Total/NA
6:2 FTS	13	J	19	1.9	ng/L	1		537 (modified)	Total/NA
8:2 FTS	3.3	J	19	1.9	ng/L	1		537 (modified)	Total/NA
HFPO-DA (GenX)	1.4	J	3.8	1.4	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	400		190	52	ng/L	100		537 (modified)	Total/NA

Client Sample ID: FOAM

Lab Sample ID: 320-55700-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	72	J	200	35	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	120	J	200	58	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Sacramento

Detection Summary

Client: AECOM
Project/Site: WDNR Olbrich Park - 60614940

Job ID: 320-55700-1

Client Sample ID: FOAM (Continued)

Lab Sample ID: 320-55700-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	46	J	200	25	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	460		200	85	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	420		200	27	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	1100		200	31	ng/L	1		537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	770		200	110	ng/L	1		537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	230		200	55	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	910	B	200	17	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	320		200	19	ng/L	1		537 (modified)	Total/NA
Perfluorononanesulfonic acid (PFNS)	58	J	200	16	ng/L	1		537 (modified)	Total/NA
Perfluorodecanesulfonic acid (PFDS)	110	J	200	32	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	260	B	200	35	ng/L	1		537 (modified)	Total/NA
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	1300	J	2000	190	ng/L	1		537 (modified)	Total/NA
6:2 FTS	460	J	2000	200	ng/L	1		537 (modified)	Total/NA
8:2 FTS	920	J	2000	200	ng/L	1		537 (modified)	Total/NA
NEtFOSE	110	J	200	85	ng/L	1		537 (modified)	Total/NA
10:2 FTS	42	J	200	19	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	80000		20000	5400	ng/L	100		537 (modified)	Total/NA

Client Sample ID: FOAM (DUPLICATE)

Lab Sample ID: 320-55700-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	230		200	35	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	57	J	200	25	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	610		200	85	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	540		200	27	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	1400		200	31	ng/L	1		537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	960		200	110	ng/L	1		537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	360		200	55	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	35	J	200	30	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1200	B	200	17	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	370		200	19	ng/L	1		537 (modified)	Total/NA
Perfluorononanesulfonic acid (PFNS)	82	J	200	16	ng/L	1		537 (modified)	Total/NA
Perfluorodecanesulfonic acid (PFDS)	130	J	200	32	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	320	B	200	35	ng/L	1		537 (modified)	Total/NA
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	1800	J	2000	190	ng/L	1		537 (modified)	Total/NA
6:2 FTS	660	J	2000	200	ng/L	1		537 (modified)	Total/NA
8:2 FTS	1100	J	2000	200	ng/L	1		537 (modified)	Total/NA
NEtFOSE	110	J	200	85	ng/L	1		537 (modified)	Total/NA
10:2 FTS	44	J	200	19	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	92000		20000	5400	ng/L	100		537 (modified)	Total/NA

Client Sample ID: EQUIPMENT BLANK

Lab Sample ID: 320-55700-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA) - RA	1.1	J	2.1	0.37	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - RA	0.31	J B	2.1	0.18	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Sacramento

Client Sample Results

Client: AECOM
Project/Site: WDNR Olbrich Park - 60614940

Job ID: 320-55700-1

Client Sample ID: SURFACE WATER

Lab Sample ID: 320-55700-1

Date Collected: 10/23/19 14:30

Matrix: Water

Date Received: 10/26/19 10:30

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	7.8		2.0	0.35	ng/L		11/06/19 08:39	11/20/19 21:10	1
Perfluoropentanoic acid (PFPeA)	5.9		2.0	0.48	ng/L		11/06/19 08:39	11/20/19 21:10	1
Perfluorohexanoic acid (PFHxA)	8.1		2.0	0.57	ng/L		11/06/19 08:39	11/20/19 21:10	1
Perfluoroheptanoic acid (PFHpA)	3.0		2.0	0.25	ng/L		11/06/19 08:39	11/20/19 21:10	1
Perfluorooctanoic acid (PFOA)	10		2.0	0.84	ng/L		11/06/19 08:39	11/20/19 21:10	1
Perfluorononanoic acid (PFNA)	3.4		2.0	0.27	ng/L		11/06/19 08:39	11/20/19 21:10	1
Perfluorodecanoic acid (PFDA)	3.6		2.0	0.31	ng/L		11/06/19 08:39	11/20/19 21:10	1
Perfluoroundecanoic acid (PFUnA)	1.3 J		2.0	1.1	ng/L		11/06/19 08:39	11/20/19 21:10	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	0.54	ng/L		11/06/19 08:39	11/20/19 21:10	1
Perfluorotridecanoic acid (PFTriA)	<1.3		2.0	1.3	ng/L		11/06/19 08:39	11/20/19 21:10	1
Perfluorotetradecanoic acid (PFTeA)	<0.29		2.0	0.29	ng/L		11/06/19 08:39	11/20/19 21:10	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.88		2.0	0.88	ng/L		11/06/19 08:39	11/20/19 21:10	1
Perfluorobutanesulfonic acid (PFBS)	4.1		2.0	0.20	ng/L		11/06/19 08:39	11/20/19 21:10	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.45		2.0	0.45	ng/L		11/06/19 08:39	11/20/19 21:10	1
Perfluoropentanesulfonic acid (PFPeS)	3.5		2.0	0.30	ng/L		11/06/19 08:39	11/20/19 21:10	1
Perfluorohexanesulfonic acid (PFHxS)	31 B		2.0	0.17	ng/L		11/06/19 08:39	11/20/19 21:10	1
Perfluoroheptanesulfonic Acid (PFHpS)	3.1		2.0	0.19	ng/L		11/06/19 08:39	11/20/19 21:10	1
Perfluorononanesulfonic acid (PFNS)	<0.16		2.0	0.16	ng/L		11/06/19 08:39	11/20/19 21:10	1
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		11/06/19 08:39	11/20/19 21:10	1
Perfluorooctanesulfonamide (FOSA)	1.8 J B		2.0	0.35	ng/L		11/06/19 08:39	11/20/19 21:10	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<3.1		20	3.1	ng/L		11/06/19 08:39	11/20/19 21:10	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.2 J		20	1.9	ng/L		11/06/19 08:39	11/20/19 21:10	1
4:2 FTS	<5.1		20	5.1	ng/L		11/06/19 08:39	11/20/19 21:10	1
6:2 FTS	13 J		20	2.0	ng/L		11/06/19 08:39	11/20/19 21:10	1
8:2 FTS	3.5 J		20	2.0	ng/L		11/06/19 08:39	11/20/19 21:10	1
NEtFOSA	<0.86		2.0	0.86	ng/L		11/06/19 08:39	11/20/19 21:10	1
NMeFOSA	<0.42		2.0	0.42	ng/L		11/06/19 08:39	11/20/19 21:10	1
NMeFOSE	<1.4		3.9	1.4	ng/L		11/06/19 08:39	11/20/19 21:10	1
NEtFOSE	<0.84		2.0	0.84	ng/L		11/06/19 08:39	11/20/19 21:10	1
Perfluorododecanesulfonic acid (PFDoS)	<0.44		2.0	0.44	ng/L		11/06/19 08:39	11/20/19 21:10	1
F-53B Major	<0.24		2.0	0.24	ng/L		11/06/19 08:39	11/20/19 21:10	1
HFPO-DA (GenX)	2.2 J		3.9	1.5	ng/L		11/06/19 08:39	11/20/19 21:10	1
F-53B Minor	<0.32		2.0	0.32	ng/L		11/06/19 08:39	11/20/19 21:10	1
10:2 FTS	<0.19		2.0	0.19	ng/L		11/06/19 08:39	11/20/19 21:10	1
DONA	<0.18		2.0	0.18	ng/L		11/06/19 08:39	11/20/19 21:10	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	68		25 - 150				11/06/19 08:39	11/20/19 21:10	1
13C5 PFPeA	93		25 - 150				11/06/19 08:39	11/20/19 21:10	1
13C2 PFHxA	96		25 - 150				11/06/19 08:39	11/20/19 21:10	1
13C4 PFHpA	104		25 - 150				11/06/19 08:39	11/20/19 21:10	1
13C4 PFOA	110		25 - 150				11/06/19 08:39	11/20/19 21:10	1

Eurofins TestAmerica, Sacramento

Client Sample Results

Client: AECOM
Project/Site: WDNR Olbrich Park - 60614940

Job ID: 320-55700-1

Client Sample ID: SURFACE WATER

Lab Sample ID: 320-55700-1

Date Collected: 10/23/19 14:30

Matrix: Water

Date Received: 10/26/19 10:30

Method: 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	109		25 - 150	11/06/19 08:39	11/20/19 21:10	1
13C2 PFDA	114		25 - 150	11/06/19 08:39	11/20/19 21:10	1
13C2 PFHxDA	43		25 - 150	11/06/19 08:39	11/20/19 21:10	1
13C2 PFUnA	108		25 - 150	11/06/19 08:39	11/20/19 21:10	1
13C2 PFDoA	110		25 - 150	11/06/19 08:39	11/20/19 21:10	1
13C2 PFTeDA	64		25 - 150	11/06/19 08:39	11/20/19 21:10	1
18O2 PFHxS	110		25 - 150	11/06/19 08:39	11/20/19 21:10	1
13C4 PFOS	105		25 - 150	11/06/19 08:39	11/20/19 21:10	1
13C8 FOSA	95		25 - 150	11/06/19 08:39	11/20/19 21:10	1
d3-NMeFOSAA	116		25 - 150	11/06/19 08:39	11/20/19 21:10	1
d5-NEtFOSAA	128		25 - 150	11/06/19 08:39	11/20/19 21:10	1
M2-6:2 FTS	232 *		25 - 150	11/06/19 08:39	11/20/19 21:10	1
M2-8:2 FTS	231 *		25 - 150	11/06/19 08:39	11/20/19 21:10	1
M2-4:2 FTS	201 *		25 - 150	11/06/19 08:39	11/20/19 21:10	1
d-N-MeFOSA-M	54		20 - 150	11/06/19 08:39	11/20/19 21:10	1
d-N-EtFOSA-M	37		20 - 150	11/06/19 08:39	11/20/19 21:10	1
d7-N-MeFOSE-M	30		10 - 120	11/06/19 08:39	11/20/19 21:10	1
d9-N-EtFOSE-M	30		10 - 120	11/06/19 08:39	11/20/19 21:10	1
13C3 HFPO-DA	97		25 - 150	11/06/19 08:39	11/20/19 21:10	1

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

<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>
Perfluorooctanesulfonic acid (PFOS)	400		200	53	ng/L		11/06/19 08:39	11/19/19 18:50	100

<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	87		25 - 150	11/06/19 08:39	11/19/19 18:50	100

Client Sample Results

Client: AECOM
Project/Site: WDNR Olbrich Park - 60614940

Job ID: 320-55700-1

Client Sample ID: SURFACE WATER (DUPLICATE)

Lab Sample ID: 320-55700-3

Date Collected: 10/23/19 14:30

Matrix: Water

Date Received: 10/26/19 10:30

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	9.1		1.9	0.34	ng/L		11/06/19 08:39	11/20/19 21:18	1
Perfluoropentanoic acid (PFPeA)	6.0		1.9	0.47	ng/L		11/06/19 08:39	11/20/19 21:18	1
Perfluorohexanoic acid (PFHxA)	7.8		1.9	0.56	ng/L		11/06/19 08:39	11/20/19 21:18	1
Perfluoroheptanoic acid (PFHpA)	3.1		1.9	0.24	ng/L		11/06/19 08:39	11/20/19 21:18	1
Perfluorooctanoic acid (PFOA)	9.5		1.9	0.82	ng/L		11/06/19 08:39	11/20/19 21:18	1
Perfluorononanoic acid (PFNA)	3.7		1.9	0.26	ng/L		11/06/19 08:39	11/20/19 21:18	1
Perfluorodecanoic acid (PFDA)	3.4		1.9	0.30	ng/L		11/06/19 08:39	11/20/19 21:18	1
Perfluoroundecanoic acid (PFUnA)	1.1	J	1.9	1.1	ng/L		11/06/19 08:39	11/20/19 21:18	1
Perfluorododecanoic acid (PFDoA)	<0.53		1.9	0.53	ng/L		11/06/19 08:39	11/20/19 21:18	1
Perfluorotridecanoic acid (PFTriA)	<1.3		1.9	1.3	ng/L		11/06/19 08:39	11/20/19 21:18	1
Perfluorotetradecanoic acid (PFTeA)	<0.28		1.9	0.28	ng/L		11/06/19 08:39	11/20/19 21:18	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.86		1.9	0.86	ng/L		11/06/19 08:39	11/20/19 21:18	1
Perfluorobutanesulfonic acid (PFBS)	4.0		1.9	0.19	ng/L		11/06/19 08:39	11/20/19 21:18	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.44		1.9	0.44	ng/L		11/06/19 08:39	11/20/19 21:18	1
Perfluoropentanesulfonic acid (PFPeS)	3.8		1.9	0.29	ng/L		11/06/19 08:39	11/20/19 21:18	1
Perfluorohexanesulfonic acid (PFHxS)	31	B	1.9	0.16	ng/L		11/06/19 08:39	11/20/19 21:18	1
Perfluoroheptanesulfonic Acid (PFHpS)	3.2		1.9	0.18	ng/L		11/06/19 08:39	11/20/19 21:18	1
Perfluorononanesulfonic acid (PFNS)	<0.15		1.9	0.15	ng/L		11/06/19 08:39	11/20/19 21:18	1
Perfluorodecanesulfonic acid (PFDS)	<0.31		1.9	0.31	ng/L		11/06/19 08:39	11/20/19 21:18	1
Perfluorooctanesulfonamide (FOSA)	1.9	B	1.9	0.34	ng/L		11/06/19 08:39	11/20/19 21:18	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<3.0		19	3.0	ng/L		11/06/19 08:39	11/20/19 21:18	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.2	J	19	1.8	ng/L		11/06/19 08:39	11/20/19 21:18	1
4:2 FTS	<5.0		19	5.0	ng/L		11/06/19 08:39	11/20/19 21:18	1
6:2 FTS	13	J	19	1.9	ng/L		11/06/19 08:39	11/20/19 21:18	1
8:2 FTS	3.3	J	19	1.9	ng/L		11/06/19 08:39	11/20/19 21:18	1
NEtFOSA	<0.84		1.9	0.84	ng/L		11/06/19 08:39	11/20/19 21:18	1
NMeFOSA	<0.41		1.9	0.41	ng/L		11/06/19 08:39	11/20/19 21:18	1
NMeFOSE	<1.3		3.8	1.3	ng/L		11/06/19 08:39	11/20/19 21:18	1
NEtFOSE	<0.82		1.9	0.82	ng/L		11/06/19 08:39	11/20/19 21:18	1
Perfluorododecanesulfonic acid (PFDoS)	<0.43		1.9	0.43	ng/L		11/06/19 08:39	11/20/19 21:18	1
F-53B Major	<0.23		1.9	0.23	ng/L		11/06/19 08:39	11/20/19 21:18	1
HFPO-DA (GenX)	1.4	J	3.8	1.4	ng/L		11/06/19 08:39	11/20/19 21:18	1
F-53B Minor	<0.31		1.9	0.31	ng/L		11/06/19 08:39	11/20/19 21:18	1
10:2 FTS	<0.18		1.9	0.18	ng/L		11/06/19 08:39	11/20/19 21:18	1
DONA	<0.17		1.9	0.17	ng/L		11/06/19 08:39	11/20/19 21:18	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	69		25 - 150				11/06/19 08:39	11/20/19 21:18	1
13C5 PFPeA	91		25 - 150				11/06/19 08:39	11/20/19 21:18	1
13C2 PFHxA	97		25 - 150				11/06/19 08:39	11/20/19 21:18	1
13C4 PFHpA	107		25 - 150				11/06/19 08:39	11/20/19 21:18	1
13C4 PFOA	113		25 - 150				11/06/19 08:39	11/20/19 21:18	1

Eurofins TestAmerica, Sacramento

Client Sample Results

Client: AECOM
Project/Site: WDNR Olbrich Park - 60614940

Job ID: 320-55700-1

Client Sample ID: SURFACE WATER (DUPLICATE)

Lab Sample ID: 320-55700-3

Date Collected: 10/23/19 14:30

Matrix: Water

Date Received: 10/26/19 10:30

Method: 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	108		25 - 150	11/06/19 08:39	11/20/19 21:18	1
13C2 PFDA	117		25 - 150	11/06/19 08:39	11/20/19 21:18	1
13C2 PFHxDA	50		25 - 150	11/06/19 08:39	11/20/19 21:18	1
13C2 PFUnA	107		25 - 150	11/06/19 08:39	11/20/19 21:18	1
13C2 PFDaA	109		25 - 150	11/06/19 08:39	11/20/19 21:18	1
13C2 PFTeDA	69		25 - 150	11/06/19 08:39	11/20/19 21:18	1
18O2 PFHxS	117		25 - 150	11/06/19 08:39	11/20/19 21:18	1
13C4 PFOS	103		25 - 150	11/06/19 08:39	11/20/19 21:18	1
13C8 FOSA	96		25 - 150	11/06/19 08:39	11/20/19 21:18	1
d3-NMeFOSAA	116		25 - 150	11/06/19 08:39	11/20/19 21:18	1
d5-NEtFOSAA	125		25 - 150	11/06/19 08:39	11/20/19 21:18	1
M2-6:2 FTS	228 *		25 - 150	11/06/19 08:39	11/20/19 21:18	1
M2-8:2 FTS	231 *		25 - 150	11/06/19 08:39	11/20/19 21:18	1
M2-4:2 FTS	210 *		25 - 150	11/06/19 08:39	11/20/19 21:18	1
d-N-MeFOSA-M	58		20 - 150	11/06/19 08:39	11/20/19 21:18	1
d-N-EtFOSA-M	40		20 - 150	11/06/19 08:39	11/20/19 21:18	1
d7-N-MeFOSE-M	36		10 - 120	11/06/19 08:39	11/20/19 21:18	1
d9-N-EtFOSE-M	38		10 - 120	11/06/19 08:39	11/20/19 21:18	1
13C3 HFPO-DA	88		25 - 150	11/06/19 08:39	11/20/19 21:18	1

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

<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>
Perfluorooctanesulfonic acid (PFOS)	400		190	52	ng/L		11/06/19 08:39	11/19/19 18:58	100

<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	88		25 - 150	11/06/19 08:39	11/19/19 18:58	100

Client Sample Results

Client: AECOM
Project/Site: WDNR Olbrich Park - 60614940

Job ID: 320-55700-1

Client Sample ID: FOAM

Lab Sample ID: 320-55700-5

Date Collected: 10/23/19 14:30

Matrix: Water

Date Received: 10/26/19 10:30

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	72	J	200	35	ng/L		11/06/19 08:39	11/20/19 21:26	1
Perfluoropentanoic acid (PFPeA)	<49		200	49	ng/L		11/06/19 08:39	11/20/19 21:26	1
Perfluorohexanoic acid (PFHxA)	120	J	200	58	ng/L		11/06/19 08:39	11/20/19 21:26	1
Perfluoroheptanoic acid (PFHpA)	46	J	200	25	ng/L		11/06/19 08:39	11/20/19 21:26	1
Perfluorooctanoic acid (PFOA)	460		200	85	ng/L		11/06/19 08:39	11/20/19 21:26	1
Perfluorononanoic acid (PFNA)	420		200	27	ng/L		11/06/19 08:39	11/20/19 21:26	1
Perfluorodecanoic acid (PFDA)	1100		200	31	ng/L		11/06/19 08:39	11/20/19 21:26	1
Perfluoroundecanoic acid (PFUnA)	770		200	110	ng/L		11/06/19 08:39	11/20/19 21:26	1
Perfluorododecanoic acid (PFDoA)	230		200	55	ng/L		11/06/19 08:39	11/20/19 21:26	1
Perfluorotridecanoic acid (PFTriA)	<130		200	130	ng/L		11/06/19 08:39	11/20/19 21:26	1
Perfluorotetradecanoic acid (PFTeA)	<29		200	29	ng/L		11/06/19 08:39	11/20/19 21:26	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<89		200	89	ng/L		11/06/19 08:39	11/20/19 21:26	1
Perfluorobutanesulfonic acid (PFBS)	<20		200	20	ng/L		11/06/19 08:39	11/20/19 21:26	1
Perfluoro-n-octadecanoic acid (PFODA)	<46		200	46	ng/L		11/06/19 08:39	11/20/19 21:26	1
Perfluoropentanesulfonic acid (PFPeS)	<30		200	30	ng/L		11/06/19 08:39	11/20/19 21:26	1
Perfluorohexanesulfonic acid (PFHxS)	910	B	200	17	ng/L		11/06/19 08:39	11/20/19 21:26	1
Perfluoroheptanesulfonic Acid (PFHpS)	320		200	19	ng/L		11/06/19 08:39	11/20/19 21:26	1
Perfluorononanesulfonic acid (PFNS)	58	J	200	16	ng/L		11/06/19 08:39	11/20/19 21:26	1
Perfluorodecanesulfonic acid (PFDS)	110	J	200	32	ng/L		11/06/19 08:39	11/20/19 21:26	1
Perfluorooctanesulfonamide (FOSA)	260	B	200	35	ng/L		11/06/19 08:39	11/20/19 21:26	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<310		2000	310	ng/L		11/06/19 08:39	11/20/19 21:26	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	1300	J	2000	190	ng/L		11/06/19 08:39	11/20/19 21:26	1
4:2 FTS	<520		2000	520	ng/L		11/06/19 08:39	11/20/19 21:26	1
6:2 FTS	460	J	2000	200	ng/L		11/06/19 08:39	11/20/19 21:26	1
8:2 FTS	920	J	2000	200	ng/L		11/06/19 08:39	11/20/19 21:26	1
NEtFOSA	<87		200	87	ng/L		11/06/19 08:39	11/20/19 21:26	1
NMeFOSA	<43		200	43	ng/L		11/06/19 08:39	11/20/19 21:26	1
NMeFOSE	<140		400	140	ng/L		11/06/19 08:39	11/20/19 21:26	1
NEtFOSE	110	J	200	85	ng/L		11/06/19 08:39	11/20/19 21:26	1
Perfluorododecanesulfonic acid (PFDoS)	<45		200	45	ng/L		11/06/19 08:39	11/20/19 21:26	1
F-53B Major	<24		200	24	ng/L		11/06/19 08:39	11/20/19 21:26	1
HFPO-DA (GenX)	<150		400	150	ng/L		11/06/19 08:39	11/20/19 21:26	1
F-53B Minor	<32		200	32	ng/L		11/06/19 08:39	11/20/19 21:26	1
10:2 FTS	42	J	200	19	ng/L		11/06/19 08:39	11/20/19 21:26	1
DONA	<18		200	18	ng/L		11/06/19 08:39	11/20/19 21:26	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	90		25 - 150				11/06/19 08:39	11/20/19 21:26	1
13C5 PFPeA	95		25 - 150				11/06/19 08:39	11/20/19 21:26	1
13C2 PFHxA	101		25 - 150				11/06/19 08:39	11/20/19 21:26	1

Eurofins TestAmerica, Sacramento

Client Sample Results

Client: AECOM
Project/Site: WDNR Olbrich Park - 60614940

Job ID: 320-55700-1

Client Sample ID: FOAM

Lab Sample ID: 320-55700-5

Date Collected: 10/23/19 14:30

Matrix: Water

Date Received: 10/26/19 10:30

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFHpA	103		25 - 150	11/06/19 08:39	11/20/19 21:26	1
13C4 PFOA	110		25 - 150	11/06/19 08:39	11/20/19 21:26	1
13C5 PFNA	99		25 - 150	11/06/19 08:39	11/20/19 21:26	1
13C2 PFDA	111		25 - 150	11/06/19 08:39	11/20/19 21:26	1
13C2 PFHxDA	6 *		25 - 150	11/06/19 08:39	11/20/19 21:26	1
13C2 PFUnA	102		25 - 150	11/06/19 08:39	11/20/19 21:26	1
13C2 PFDaA	98		25 - 150	11/06/19 08:39	11/20/19 21:26	1
13C2 PFTeDA	21 *		25 - 150	11/06/19 08:39	11/20/19 21:26	1
18O2 PFHxS	112		25 - 150	11/06/19 08:39	11/20/19 21:26	1
13C4 PFOS	101		25 - 150	11/06/19 08:39	11/20/19 21:26	1
13C8 FOSA	86		25 - 150	11/06/19 08:39	11/20/19 21:26	1
d3-NMeFOSAA	112		25 - 150	11/06/19 08:39	11/20/19 21:26	1
d5-NEtFOSAA	124		25 - 150	11/06/19 08:39	11/20/19 21:26	1
M2-6:2 FTS	200 *		25 - 150	11/06/19 08:39	11/20/19 21:26	1
M2-8:2 FTS	208 *		25 - 150	11/06/19 08:39	11/20/19 21:26	1
M2-4:2 FTS	192 *		25 - 150	11/06/19 08:39	11/20/19 21:26	1
d-N-MeFOSA-M	51		20 - 150	11/06/19 08:39	11/20/19 21:26	1
d-N-EtFOSA-M	37		20 - 150	11/06/19 08:39	11/20/19 21:26	1
d7-N-MeFOSE-M	27		10 - 120	11/06/19 08:39	11/20/19 21:26	1
d9-N-EtFOSE-M	28		10 - 120	11/06/19 08:39	11/20/19 21:26	1
13C3 HFPO-DA	98		25 - 150	11/06/19 08:39	11/20/19 21:26	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	80000		20000	5400	ng/L		11/06/19 08:39	11/19/19 19:06	100

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	99		25 - 150	11/06/19 08:39	11/19/19 19:06	100

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-n-hexadecanoic acid (PFHxDA)	<22000	H	50000	22000	ng/L		11/25/19 06:27	11/26/19 16:29	100

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxDA	14	*	25 - 150	11/25/19 06:27	11/26/19 16:29	100

Client Sample Results

Client: AECOM
Project/Site: WDNR Olbrich Park - 60614940

Job ID: 320-55700-1

Client Sample ID: FOAM (DUPLICATE)

Lab Sample ID: 320-55700-6

Date Collected: 10/23/19 14:30

Matrix: Water

Date Received: 10/26/19 10:30

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	230		200	35	ng/L		11/06/19 08:39	11/20/19 21:34	1
Perfluoropentanoic acid (PFPeA)	<49		200	49	ng/L		11/06/19 08:39	11/20/19 21:34	1
Perfluorohexanoic acid (PFHxA)	<58		200	58	ng/L		11/06/19 08:39	11/20/19 21:34	1
Perfluoroheptanoic acid (PFHpA)	57 J		200	25	ng/L		11/06/19 08:39	11/20/19 21:34	1
Perfluorooctanoic acid (PFOA)	610		200	85	ng/L		11/06/19 08:39	11/20/19 21:34	1
Perfluorononanoic acid (PFNA)	540		200	27	ng/L		11/06/19 08:39	11/20/19 21:34	1
Perfluorodecanoic acid (PFDA)	1400		200	31	ng/L		11/06/19 08:39	11/20/19 21:34	1
Perfluoroundecanoic acid (PFUnA)	960		200	110	ng/L		11/06/19 08:39	11/20/19 21:34	1
Perfluorododecanoic acid (PFDoA)	360		200	55	ng/L		11/06/19 08:39	11/20/19 21:34	1
Perfluorotridecanoic acid (PFTriA)	<130		200	130	ng/L		11/06/19 08:39	11/20/19 21:34	1
Perfluorotetradecanoic acid (PFTeA)	<29		200	29	ng/L		11/06/19 08:39	11/20/19 21:34	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<89		200	89	ng/L		11/06/19 08:39	11/20/19 21:34	1
Perfluorobutanesulfonic acid (PFBS)	<20		200	20	ng/L		11/06/19 08:39	11/20/19 21:34	1
Perfluoro-n-octadecanoic acid (PFODA)	<46		200	46	ng/L		11/06/19 08:39	11/20/19 21:34	1
Perfluoropentanesulfonic acid (PFPeS)	35 J		200	30	ng/L		11/06/19 08:39	11/20/19 21:34	1
Perfluorohexanesulfonic acid (PFHxS)	1200 B		200	17	ng/L		11/06/19 08:39	11/20/19 21:34	1
Perfluoroheptanesulfonic Acid (PFHpS)	370		200	19	ng/L		11/06/19 08:39	11/20/19 21:34	1
Perfluorononanesulfonic acid (PFNS)	82 J		200	16	ng/L		11/06/19 08:39	11/20/19 21:34	1
Perfluorodecanesulfonic acid (PFDS)	130 J		200	32	ng/L		11/06/19 08:39	11/20/19 21:34	1
Perfluorooctanesulfonamide (FOSA)	320 B		200	35	ng/L		11/06/19 08:39	11/20/19 21:34	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<310		2000	310	ng/L		11/06/19 08:39	11/20/19 21:34	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	1800 J		2000	190	ng/L		11/06/19 08:39	11/20/19 21:34	1
4:2 FTS	<520		2000	520	ng/L		11/06/19 08:39	11/20/19 21:34	1
6:2 FTS	660 J		2000	200	ng/L		11/06/19 08:39	11/20/19 21:34	1
8:2 FTS	1100 J		2000	200	ng/L		11/06/19 08:39	11/20/19 21:34	1
NEtFOSA	<87		200	87	ng/L		11/06/19 08:39	11/20/19 21:34	1
NMeFOSA	<43		200	43	ng/L		11/06/19 08:39	11/20/19 21:34	1
NMeFOSE	<140		400	140	ng/L		11/06/19 08:39	11/20/19 21:34	1
NEtFOSE	110 J		200	85	ng/L		11/06/19 08:39	11/20/19 21:34	1
Perfluorododecanesulfonic acid (PFDoS)	<45		200	45	ng/L		11/06/19 08:39	11/20/19 21:34	1
F-53B Major	<24		200	24	ng/L		11/06/19 08:39	11/20/19 21:34	1
HFPO-DA (GenX)	<150		400	150	ng/L		11/06/19 08:39	11/20/19 21:34	1
F-53B Minor	<32		200	32	ng/L		11/06/19 08:39	11/20/19 21:34	1
10:2 FTS	44 J		200	19	ng/L		11/06/19 08:39	11/20/19 21:34	1
DONA	<18		200	18	ng/L		11/06/19 08:39	11/20/19 21:34	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	92		25 - 150				11/06/19 08:39	11/20/19 21:34	1
13C5 PFPeA	101		25 - 150				11/06/19 08:39	11/20/19 21:34	1
13C2 PFHxA	104		25 - 150				11/06/19 08:39	11/20/19 21:34	1

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Client Sample Results

Client: AECOM
Project/Site: WDNR Olbrich Park - 60614940

Job ID: 320-55700-1

Client Sample ID: FOAM (DUPLICATE)

Lab Sample ID: 320-55700-6

Date Collected: 10/23/19 14:30

Matrix: Water

Date Received: 10/26/19 10:30

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFHpA	113		25 - 150	11/06/19 08:39	11/20/19 21:34	1
13C4 PFOA	108		25 - 150	11/06/19 08:39	11/20/19 21:34	1
13C5 PFNA	103		25 - 150	11/06/19 08:39	11/20/19 21:34	1
13C2 PFDA	118		25 - 150	11/06/19 08:39	11/20/19 21:34	1
13C2 PFHxDA	5 *		25 - 150	11/06/19 08:39	11/20/19 21:34	1
13C2 PFUnA	111		25 - 150	11/06/19 08:39	11/20/19 21:34	1
13C2 PFDaA	91		25 - 150	11/06/19 08:39	11/20/19 21:34	1
13C2 PFTeDA	16 *		25 - 150	11/06/19 08:39	11/20/19 21:34	1
18O2 PFHxS	119		25 - 150	11/06/19 08:39	11/20/19 21:34	1
13C4 PFOS	105		25 - 150	11/06/19 08:39	11/20/19 21:34	1
13C8 FOSA	93		25 - 150	11/06/19 08:39	11/20/19 21:34	1
d3-NMeFOSAA	124		25 - 150	11/06/19 08:39	11/20/19 21:34	1
d5-NEtFOSAA	130		25 - 150	11/06/19 08:39	11/20/19 21:34	1
M2-6:2 FTS	229 *		25 - 150	11/06/19 08:39	11/20/19 21:34	1
M2-8:2 FTS	268 *		25 - 150	11/06/19 08:39	11/20/19 21:34	1
M2-4:2 FTS	204 *		25 - 150	11/06/19 08:39	11/20/19 21:34	1
d-N-MeFOSA-M	55		20 - 150	11/06/19 08:39	11/20/19 21:34	1
d-N-EtFOSA-M	39		20 - 150	11/06/19 08:39	11/20/19 21:34	1
d7-N-MeFOSE-M	28		10 - 120	11/06/19 08:39	11/20/19 21:34	1
d9-N-EtFOSE-M	29		10 - 120	11/06/19 08:39	11/20/19 21:34	1
13C3 HFPO-DA	87		25 - 150	11/06/19 08:39	11/20/19 21:34	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	92000		20000	5400	ng/L		11/06/19 08:39	11/19/19 19:14	100

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	105		25 - 150	11/06/19 08:39	11/19/19 19:14	100

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-n-hexadecanoic acid (PFHxDA)	<22000	H	50000	22000	ng/L		11/25/19 06:27	11/26/19 16:39	100

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxDA	26		25 - 150	11/25/19 06:27	11/26/19 16:39	100

Client Sample Results

Client: AECOM
Project/Site: WDNR Olbrich Park - 60614940

Job ID: 320-55700-1

Client Sample ID: EQUIPMENT BLANK

Lab Sample ID: 320-55700-7

Date Collected: 10/23/19 14:00

Matrix: Water

Date Received: 10/26/19 10:30

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSE	<0.90		2.1	0.90	ng/L		11/06/19 08:39	11/08/19 09:20	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>d9-N-EtFOSE-M</i>	24		10 - 120				11/06/19 08:39	11/08/19 09:20	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1.1	J	2.1	0.37	ng/L		11/06/19 08:39	11/19/19 18:34	1
Perfluoropentanoic acid (PFPeA)	<0.52		2.1	0.52	ng/L		11/06/19 08:39	11/19/19 18:34	1
Perfluorohexanoic acid (PFHxA)	<0.62		2.1	0.62	ng/L		11/06/19 08:39	11/19/19 18:34	1
Perfluoroheptanoic acid (PFHpA)	<0.27		2.1	0.27	ng/L		11/06/19 08:39	11/19/19 18:34	1
Perfluorooctanoic acid (PFOA)	<0.90		2.1	0.90	ng/L		11/06/19 08:39	11/19/19 18:34	1
Perfluorononanoic acid (PFNA)	<0.29		2.1	0.29	ng/L		11/06/19 08:39	11/19/19 18:34	1
Perfluorodecanoic acid (PFDA)	<0.33		2.1	0.33	ng/L		11/06/19 08:39	11/19/19 18:34	1
Perfluoroundecanoic acid (PFUnA)	<1.2		2.1	1.2	ng/L		11/06/19 08:39	11/19/19 18:34	1
Perfluorododecanoic acid (PFDoA)	<0.58		2.1	0.58	ng/L		11/06/19 08:39	11/19/19 18:34	1
Perfluorotridecanoic acid (PFTriA)	<1.4		2.1	1.4	ng/L		11/06/19 08:39	11/19/19 18:34	1
Perfluorotetradecanoic acid (PFTeA)	<0.31		2.1	0.31	ng/L		11/06/19 08:39	11/19/19 18:34	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.95		2.1	0.95	ng/L		11/06/19 08:39	11/19/19 18:34	1
Perfluorobutanesulfonic acid (PFBS)	<0.21		2.1	0.21	ng/L		11/06/19 08:39	11/19/19 18:34	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.49		2.1	0.49	ng/L		11/06/19 08:39	11/19/19 18:34	1
Perfluoropentanesulfonic acid (PFPeS)	<0.32		2.1	0.32	ng/L		11/06/19 08:39	11/19/19 18:34	1
Perfluorohexanesulfonic acid (PFHxS)	0.31	J B	2.1	0.18	ng/L		11/06/19 08:39	11/19/19 18:34	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.20		2.1	0.20	ng/L		11/06/19 08:39	11/19/19 18:34	1
Perfluorooctanesulfonic acid (PFOS)	<0.57		2.1	0.57	ng/L		11/06/19 08:39	11/19/19 18:34	1
Perfluorononanesulfonic acid (PFNS)	<0.17		2.1	0.17	ng/L		11/06/19 08:39	11/19/19 18:34	1
Perfluorodecanesulfonic acid (PFDS)	<0.34		2.1	0.34	ng/L		11/06/19 08:39	11/19/19 18:34	1
Perfluorooctanesulfonamide (FOSA)	<0.37		2.1	0.37	ng/L		11/06/19 08:39	11/19/19 18:34	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<3.3		21	3.3	ng/L		11/06/19 08:39	11/19/19 18:34	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		21	2.0	ng/L		11/06/19 08:39	11/19/19 18:34	1
4:2 FTS	<5.5		21	5.5	ng/L		11/06/19 08:39	11/19/19 18:34	1
6:2 FTS	<2.1		21	2.1	ng/L		11/06/19 08:39	11/19/19 18:34	1
8:2 FTS	<2.1		21	2.1	ng/L		11/06/19 08:39	11/19/19 18:34	1
NEtFOSA	<0.92		2.1	0.92	ng/L		11/06/19 08:39	11/19/19 18:34	1
NMeFOSA	<0.46		2.1	0.46	ng/L		11/06/19 08:39	11/19/19 18:34	1
NMeFOSE	<1.5		4.2	1.5	ng/L		11/06/19 08:39	11/19/19 18:34	1
Perfluorododecanesulfonic acid (PFDoS)	<0.48		2.1	0.48	ng/L		11/06/19 08:39	11/19/19 18:34	1
F-53B Major	<0.25		2.1	0.25	ng/L		11/06/19 08:39	11/19/19 18:34	1
HFPO-DA (GenX)	<1.6		4.2	1.6	ng/L		11/06/19 08:39	11/19/19 18:34	1
F-53B Minor	<0.34		2.1	0.34	ng/L		11/06/19 08:39	11/19/19 18:34	1
10:2 FTS	<0.20		2.1	0.20	ng/L		11/06/19 08:39	11/19/19 18:34	1
DONA	<0.19		2.1	0.19	ng/L		11/06/19 08:39	11/19/19 18:34	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>13C4 PFBA</i>	100		25 - 150				11/06/19 08:39	11/19/19 18:34	1

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Client Sample Results

Client: AECOM
 Project/Site: WDNR Olbrich Park - 60614940

Job ID: 320-55700-1

Client Sample ID: EQUIPMENT BLANK

Lab Sample ID: 320-55700-7

Date Collected: 10/23/19 14:00

Matrix: Water

Date Received: 10/26/19 10:30

Method: 537 (modified) - Fluorinated Alkyl Substances - RA (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 PFPeA	100		25 - 150	11/06/19 08:39	11/19/19 18:34	1
13C2 PFHxA	103		25 - 150	11/06/19 08:39	11/19/19 18:34	1
13C4 PFHpA	105		25 - 150	11/06/19 08:39	11/19/19 18:34	1
13C4 PFOA	110		25 - 150	11/06/19 08:39	11/19/19 18:34	1
13C5 PFNA	111		25 - 150	11/06/19 08:39	11/19/19 18:34	1
13C2 PFDA	115		25 - 150	11/06/19 08:39	11/19/19 18:34	1
13C2 PFHxDA	78		25 - 150	11/06/19 08:39	11/19/19 18:34	1
13C2 PFUnA	109		25 - 150	11/06/19 08:39	11/19/19 18:34	1
13C2 PFDoA	109		25 - 150	11/06/19 08:39	11/19/19 18:34	1
13C2 PFTeDA	93		25 - 150	11/06/19 08:39	11/19/19 18:34	1
18O2 PFHxS	113		25 - 150	11/06/19 08:39	11/19/19 18:34	1
13C4 PFOS	103		25 - 150	11/06/19 08:39	11/19/19 18:34	1
13C8 FOSA	88		25 - 150	11/06/19 08:39	11/19/19 18:34	1
d3-NMeFOSAA	102		25 - 150	11/06/19 08:39	11/19/19 18:34	1
d5-NEtFOSAA	101		25 - 150	11/06/19 08:39	11/19/19 18:34	1
M2-6:2 FTS	148		25 - 150	11/06/19 08:39	11/19/19 18:34	1
M2-8:2 FTS	150		25 - 150	11/06/19 08:39	11/19/19 18:34	1
M2-4:2 FTS	172 *		25 - 150	11/06/19 08:39	11/19/19 18:34	1
d-N-MeFOSA-M	51		20 - 150	11/06/19 08:39	11/19/19 18:34	1
d-N-EtFOSA-M	34		20 - 150	11/06/19 08:39	11/19/19 18:34	1
d7-N-MeFOSE-M	22		10 - 120	11/06/19 08:39	11/19/19 18:34	1
13C3 HFPO-DA	86		25 - 150	11/06/19 08:39	11/19/19 18:34	1

Isotope Dilution Summary

Client: AECOM
Project/Site: WDNR Olbrich Park - 60614940

Job ID: 320-55700-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	PFHpA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFHxDA (25-150)
320-55700-1 - DL	SURFACE WATER								
320-55700-1	SURFACE WATER	68	93	96	104	110	109	114	43
320-55700-3 - DL	SURFACE WATER (DUPLICATE)								
320-55700-3	SURFACE WATER (DUPLICATE)	69	91	97	107	113	108	117	50
320-55700-5 - DL	FOAM								
320-55700-5	FOAM	90	95	101	103	110	99	111	6 *
320-55700-5 - REDL	FOAM								14 *
320-55700-6 - DL	FOAM (DUPLICATE)								
320-55700-6	FOAM (DUPLICATE)	92	101	104	113	108	103	118	5 *
320-55700-6 - REDL	FOAM (DUPLICATE)								26
320-55700-7	EQUIPMENT BLANK								
320-55700-7 - RA	EQUIPMENT BLANK	100	100	103	105	110	111	115	78
LCS 320-336351/2-A	Lab Control Sample	102	104	110	107	110	107	111	97
LCS 320-341271/2-A	Lab Control Sample								92
LCSD 320-341271/3-A	Lab Control Sample Dup								88
MB 320-336351/1-A	Method Blank	101	107	107	110	110	110	110	103
MB 320-341271/1-A	Method Blank								89

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFUnA (25-150)	PFDoA (25-150)	PFTDA (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (25-150)	NMeFOS (25-150)	NEtFOS (25-150)
320-55700-1 - DL	SURFACE WATER					87			
320-55700-1	SURFACE WATER	108	110	64	110	105	95	116	128
320-55700-3 - DL	SURFACE WATER (DUPLICATE)					88			
320-55700-3	SURFACE WATER (DUPLICATE)	107	109	69	117	103	96	116	125
320-55700-5 - DL	FOAM					99			
320-55700-5	FOAM	102	98	21 *	112	101	86	112	124
320-55700-5 - REDL	FOAM								
320-55700-6 - DL	FOAM (DUPLICATE)					105			
320-55700-6	FOAM (DUPLICATE)	111	91	16 *	119	105	93	124	130
320-55700-6 - REDL	FOAM (DUPLICATE)								
320-55700-7	EQUIPMENT BLANK								
320-55700-7 - RA	EQUIPMENT BLANK	109	109	93	113	103	88	102	101
LCS 320-336351/2-A	Lab Control Sample	107	115	110	115	103	90	109	108
LCS 320-341271/2-A	Lab Control Sample								
LCSD 320-341271/3-A	Lab Control Sample Dup								
MB 320-336351/1-A	Method Blank	103	120	102	117	104	91	105	111
MB 320-341271/1-A	Method Blank								

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		M262FTS (25-150)	M282FTS (25-150)	M242FTS (25-150)	I-MeFOSA (20-150)	∑-EtFOSA (20-150)	NMFM (10-120)	NEFM (10-120)	HFPODA (25-150)
320-55700-1 - DL	SURFACE WATER								
320-55700-1	SURFACE WATER	232 *	231 *	201 *	54	37	30	30	97
320-55700-3 - DL	SURFACE WATER (DUPLICATE)								
320-55700-3	SURFACE WATER (DUPLICATE)	228 *	231 *	210 *	58	40	36	38	88

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Isotope Dilution Summary

Client: AECOM

Job ID: 320-55700-1

Project/Site: WDNR Olbrich Park - 60614940

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)							
		M262FTS (25-150)	M282FTS (25-150)	M242FTS (25-150)	I-MeFOSA (20-150)	N-EtFOSA (20-150)	NMFM (10-120)	NEFM (10-120)	HFPODA (25-150)
320-55700-5 - DL	FOAM								
320-55700-5	FOAM	200 *	208 *	192 *	51	37	27	28	98
320-55700-5 - REDL	FOAM								
320-55700-6 - DL	FOAM (DUPLICATE)								
320-55700-6	FOAM (DUPLICATE)	229 *	268 *	204 *	55	39	28	29	87
320-55700-6 - REDL	FOAM (DUPLICATE)								
320-55700-7	EQUIPMENT BLANK							24	
320-55700-7 - RA	EQUIPMENT BLANK	148	150	172 *	51	34	22		86
LCS 320-336351/2-A	Lab Control Sample	130	127	121	63	39	24	19	86
LCS 320-341271/2-A	Lab Control Sample								
LCSD 320-341271/3-A	Lab Control Sample Dup								
MB 320-336351/1-A	Method Blank	135	130	126	63	40	23	22	95
MB 320-341271/1-A	Method Blank								

Surrogate Legend

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

QC Sample Results

Client: AECOM
Project/Site: WDNR Olbrich Park - 60614940

Job ID: 320-55700-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-336351/1-A
Matrix: Water
Analysis Batch: 340007

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 336351

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<0.35		2.0	0.35	ng/L		11/06/19 08:39	11/19/19 16:17	1
Perfluoropentanoic acid (PFPeA)	<0.49		2.0	0.49	ng/L		11/06/19 08:39	11/19/19 16:17	1
Perfluorohexanoic acid (PFHxA)	<0.58		2.0	0.58	ng/L		11/06/19 08:39	11/19/19 16:17	1
Perfluoroheptanoic acid (PFHpA)	<0.25		2.0	0.25	ng/L		11/06/19 08:39	11/19/19 16:17	1
Perfluorooctanoic acid (PFOA)	<0.85		2.0	0.85	ng/L		11/06/19 08:39	11/19/19 16:17	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		11/06/19 08:39	11/19/19 16:17	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	0.31	ng/L		11/06/19 08:39	11/19/19 16:17	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		11/06/19 08:39	11/19/19 16:17	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		11/06/19 08:39	11/19/19 16:17	1
Perfluorotridecanoic acid (PFTriA)	<1.3		2.0	1.3	ng/L		11/06/19 08:39	11/19/19 16:17	1
Perfluorotetradecanoic acid (PFTeA)	<0.29		2.0	0.29	ng/L		11/06/19 08:39	11/19/19 16:17	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.89		2.0	0.89	ng/L		11/06/19 08:39	11/19/19 16:17	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		2.0	0.20	ng/L		11/06/19 08:39	11/19/19 16:17	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.46		2.0	0.46	ng/L		11/06/19 08:39	11/19/19 16:17	1
Perfluoropentanesulfonic acid (PFPeS)	<0.30		2.0	0.30	ng/L		11/06/19 08:39	11/19/19 16:17	1
Perfluorohexanesulfonic acid (PFHxS)	0.276	J	2.0	0.17	ng/L		11/06/19 08:39	11/19/19 16:17	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.19		2.0	0.19	ng/L		11/06/19 08:39	11/19/19 16:17	1
Perfluorooctanesulfonic acid (PFOS)	<0.54		2.0	0.54	ng/L		11/06/19 08:39	11/19/19 16:17	1
Perfluorononanesulfonic acid (PFNS)	<0.16		2.0	0.16	ng/L		11/06/19 08:39	11/19/19 16:17	1
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		11/06/19 08:39	11/19/19 16:17	1
Perfluorooctanesulfonamide (FOSA)	0.457	J	2.0	0.35	ng/L		11/06/19 08:39	11/19/19 16:17	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<3.1		20	3.1	ng/L		11/06/19 08:39	11/19/19 16:17	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<1.9		20	1.9	ng/L		11/06/19 08:39	11/19/19 16:17	1
4:2 FTS	<5.2		20	5.2	ng/L		11/06/19 08:39	11/19/19 16:17	1
6:2 FTS	<2.0		20	2.0	ng/L		11/06/19 08:39	11/19/19 16:17	1
8:2 FTS	<2.0		20	2.0	ng/L		11/06/19 08:39	11/19/19 16:17	1
NEtFOSA	<0.87		2.0	0.87	ng/L		11/06/19 08:39	11/19/19 16:17	1
NMeFOSA	<0.43		2.0	0.43	ng/L		11/06/19 08:39	11/19/19 16:17	1
NMeFOSE	<1.4		4.0	1.4	ng/L		11/06/19 08:39	11/19/19 16:17	1
NEtFOSE	<0.85		2.0	0.85	ng/L		11/06/19 08:39	11/19/19 16:17	1
Perfluorododecanesulfonic acid (PFDoS)	<0.45		2.0	0.45	ng/L		11/06/19 08:39	11/19/19 16:17	1
F-53B Major	<0.24		2.0	0.24	ng/L		11/06/19 08:39	11/19/19 16:17	1
HFPO-DA (GenX)	<1.5		4.0	1.5	ng/L		11/06/19 08:39	11/19/19 16:17	1
F-53B Minor	<0.32		2.0	0.32	ng/L		11/06/19 08:39	11/19/19 16:17	1
10:2 FTS	<0.19		2.0	0.19	ng/L		11/06/19 08:39	11/19/19 16:17	1
DONA	<0.18		2.0	0.18	ng/L		11/06/19 08:39	11/19/19 16:17	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	101		25 - 150	11/06/19 08:39	11/19/19 16:17	1
13C5 PFPeA	107		25 - 150	11/06/19 08:39	11/19/19 16:17	1
13C2 PFHxA	107		25 - 150	11/06/19 08:39	11/19/19 16:17	1
13C4 PFHpA	110		25 - 150	11/06/19 08:39	11/19/19 16:17	1
13C4 PFOA	110		25 - 150	11/06/19 08:39	11/19/19 16:17	1

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QC Sample Results

Client: AECOM
 Project/Site: WDNR Olbrich Park - 60614940

Job ID: 320-55700-1

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

Lab Sample ID: MB 320-336351/1-A
Matrix: Water
Analysis Batch: 340007

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 336351

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C5 PFNA	110		25 - 150	11/06/19 08:39	11/19/19 16:17	1
13C2 PFDA	110		25 - 150	11/06/19 08:39	11/19/19 16:17	1
13C2 PFHxDA	103		25 - 150	11/06/19 08:39	11/19/19 16:17	1
13C2 PFUnA	103		25 - 150	11/06/19 08:39	11/19/19 16:17	1
13C2 PFDoA	120		25 - 150	11/06/19 08:39	11/19/19 16:17	1
13C2 PFTeDA	102		25 - 150	11/06/19 08:39	11/19/19 16:17	1
18O2 PFHxS	117		25 - 150	11/06/19 08:39	11/19/19 16:17	1
13C4 PFOS	104		25 - 150	11/06/19 08:39	11/19/19 16:17	1
13C8 FOSA	91		25 - 150	11/06/19 08:39	11/19/19 16:17	1
d3-NMeFOSAA	105		25 - 150	11/06/19 08:39	11/19/19 16:17	1
d5-NEtFOSAA	111		25 - 150	11/06/19 08:39	11/19/19 16:17	1
M2-6:2 FTS	135		25 - 150	11/06/19 08:39	11/19/19 16:17	1
M2-8:2 FTS	130		25 - 150	11/06/19 08:39	11/19/19 16:17	1
M2-4:2 FTS	126		25 - 150	11/06/19 08:39	11/19/19 16:17	1
d-N-MeFOSA-M	63		20 - 150	11/06/19 08:39	11/19/19 16:17	1
d-N-EtFOSA-M	40		20 - 150	11/06/19 08:39	11/19/19 16:17	1
d7-N-MeFOSE-M	23		10 - 120	11/06/19 08:39	11/19/19 16:17	1
d9-N-EtFOSE-M	22		10 - 120	11/06/19 08:39	11/19/19 16:17	1
13C3 HFPO-DA	95		25 - 150	11/06/19 08:39	11/19/19 16:17	1

Lab Sample ID: LCS 320-336351/2-A
Matrix: Water
Analysis Batch: 340007

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 336351

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanoic acid (PFBA)	40.0	41.5		ng/L		104	76 - 136
Perfluoropentanoic acid (PFPeA)	40.0	40.8		ng/L		102	71 - 131
Perfluorohexanoic acid (PFHxA)	40.0	37.5		ng/L		94	73 - 133
Perfluoroheptanoic acid (PFHpA)	40.0	41.1		ng/L		103	72 - 132
Perfluorooctanoic acid (PFOA)	40.0	38.9		ng/L		97	70 - 130
Perfluorononanoic acid (PFNA)	40.0	41.6		ng/L		104	75 - 135
Perfluorodecanoic acid (PFDA)	40.0	40.3		ng/L		101	76 - 136
Perfluoroundecanoic acid (PFUnA)	40.0	40.0		ng/L		100	68 - 128
Perfluorododecanoic acid (PFDoA)	40.0	40.3		ng/L		101	71 - 131
Perfluorotridecanoic acid (PFTriA)	40.0	38.4		ng/L		96	71 - 131
Perfluorotetradecanoic acid (PFTeA)	40.0	38.6		ng/L		96	70 - 130
Perfluoro-n-hexadecanoic acid (PFHxDA)	40.0	42.1		ng/L		105	76 - 136
Perfluorobutanesulfonic acid (PFBS)	35.4	34.9		ng/L		99	67 - 127
Perfluoro-n-octadecanoic acid (PFODA)	40.0	40.8		ng/L		102	58 - 145
Perfluoropentanesulfonic acid (PFPeS)	37.5	35.3		ng/L		94	66 - 126
Perfluorohexanesulfonic acid (PFHxS)	36.4	30.5		ng/L		84	59 - 119

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QC Sample Results

Client: AECOM
Project/Site: WDNR Olbrich Park - 60614940

Job ID: 320-55700-1

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

Lab Sample ID: LCS 320-336351/2-A
Matrix: Water
Analysis Batch: 340007

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 336351

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	39.9		ng/L		105	76 - 136
Perfluorooctanesulfonic acid (PFOS)	37.1	38.7		ng/L		104	70 - 130
Perfluorononanesulfonic acid (PFNS)	38.4	40.5		ng/L		106	75 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	39.6		ng/L		103	71 - 131
Perfluorooctanesulfonamide (FOSA)	40.0	44.0		ng/L		110	73 - 133
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	41.7		ng/L		104	76 - 136
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	39.8		ng/L		100	76 - 136
4:2 FTS	37.4	41.3		ng/L		111	79 - 139
6:2 FTS	37.9	39.5		ng/L		104	59 - 175
8:2 FTS	38.3	41.5		ng/L		108	75 - 135
NEtFOSA	40.0	48.3		ng/L		121	78 - 138
NMeFOSA	40.0	44.3		ng/L		111	67 - 154
NMeFOSE	40.0	40.3		ng/L		101	70 - 130
NEtFOSE	40.0	44.3		ng/L		111	71 - 131
Perfluorododecanesulfonic acid (PFDoS)	38.7	37.0		ng/L		96	67 - 127
F-53B Major	37.3	40.5		ng/L		109	75 - 135
HFPO-DA (GenX)	40.0	44.2		ng/L		111	51 - 173
F-53B Minor	37.7	31.8		ng/L		84	54 - 114
10:2 FTS	38.6	41.4		ng/L		107	64 - 142
DONA	37.7	42.0		ng/L		112	79 - 139

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	102		25 - 150
13C5 PFPeA	104		25 - 150
13C2 PFHxA	110		25 - 150
13C4 PFHpA	107		25 - 150
13C4 PFOA	110		25 - 150
13C5 PFNA	107		25 - 150
13C2 PFDA	111		25 - 150
13C2 PFHxDA	97		25 - 150
13C2 PFUnA	107		25 - 150
13C2 PFDoA	115		25 - 150
13C2 PFTeDA	110		25 - 150
18O2 PFHxS	115		25 - 150
13C4 PFOS	103		25 - 150
13C8 FOSA	90		25 - 150
d3-NMeFOSAA	109		25 - 150
d5-NEtFOSAA	108		25 - 150
M2-6:2 FTS	130		25 - 150
M2-8:2 FTS	127		25 - 150
M2-4:2 FTS	121		25 - 150
d-N-MeFOSA-M	63		20 - 150
d-N-EtFOSA-M	39		20 - 150

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QC Sample Results

Client: AECOM
Project/Site: WDNR Olbrich Park - 60614940

Job ID: 320-55700-1

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

Lab Sample ID: LCS 320-336351/2-A
Matrix: Water
Analysis Batch: 340007

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 336351

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
d7-N-MeFOSE-M	24		10 - 120
d9-N-EtFOSE-M	19		10 - 120
13C3 HFPO-DA	86		25 - 150

Lab Sample ID: MB 320-341271/1-A
Matrix: Water
Analysis Batch: 341716

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 341271

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.89		2.0	0.89	ng/L		11/25/19 06:27	11/26/19 13:28	1

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C2 PFHxDA	89		25 - 150	11/25/19 06:27	11/26/19 13:28	1

Lab Sample ID: LCS 320-341271/2-A
Matrix: Water
Analysis Batch: 341716

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 341271

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Perfluoro-n-hexadecanoic acid (PFHxDA)	40.0	38.7		ng/L		97	76 - 136

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C2 PFHxDA	92		25 - 150

Lab Sample ID: LCSD 320-341271/3-A
Matrix: Water
Analysis Batch: 341716

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 341271

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	
								RPD	Limit
Perfluoro-n-hexadecanoic acid (PFHxDA)	40.0	39.4		ng/L		99	76 - 136	2	30

Isotope Dilution	LCSD LCSD		Limits
	%Recovery	Qualifier	
13C2 PFHxDA	88		25 - 150

QC Association Summary

Client: AECOM
Project/Site: WDNR Olbrich Park - 60614940

Job ID: 320-55700-1

LCMS

Prep Batch: 336351

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-55700-1	SURFACE WATER	Total/NA	Water	3535	
320-55700-1 - DL	SURFACE WATER	Total/NA	Water	3535	
320-55700-3	SURFACE WATER (DUPLICATE)	Total/NA	Water	3535	
320-55700-3 - DL	SURFACE WATER (DUPLICATE)	Total/NA	Water	3535	
320-55700-5 - DL	FOAM	Total/NA	Water	3535	
320-55700-5	FOAM	Total/NA	Water	3535	
320-55700-6	FOAM (DUPLICATE)	Total/NA	Water	3535	
320-55700-6 - DL	FOAM (DUPLICATE)	Total/NA	Water	3535	
320-55700-7	EQUIPMENT BLANK	Total/NA	Water	3535	
320-55700-7 - RA	EQUIPMENT BLANK	Total/NA	Water	3535	
MB 320-336351/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-336351/2-A	Lab Control Sample	Total/NA	Water	3535	

Analysis Batch: 337053

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-55700-7	EQUIPMENT BLANK	Total/NA	Water	537 (modified)	336351

Analysis Batch: 340007

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-55700-1 - DL	SURFACE WATER	Total/NA	Water	537 (modified)	336351
320-55700-3 - DL	SURFACE WATER (DUPLICATE)	Total/NA	Water	537 (modified)	336351
320-55700-5 - DL	FOAM	Total/NA	Water	537 (modified)	336351
320-55700-6 - DL	FOAM (DUPLICATE)	Total/NA	Water	537 (modified)	336351
320-55700-7 - RA	EQUIPMENT BLANK	Total/NA	Water	537 (modified)	336351
MB 320-336351/1-A	Method Blank	Total/NA	Water	537 (modified)	336351
LCS 320-336351/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	336351

Analysis Batch: 340279

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-55700-1	SURFACE WATER	Total/NA	Water	537 (modified)	336351
320-55700-3	SURFACE WATER (DUPLICATE)	Total/NA	Water	537 (modified)	336351
320-55700-5	FOAM	Total/NA	Water	537 (modified)	336351
320-55700-6	FOAM (DUPLICATE)	Total/NA	Water	537 (modified)	336351

Prep Batch: 341271

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-55700-5 - REDL	FOAM	Total/NA	Water	3535	
320-55700-6 - REDL	FOAM (DUPLICATE)	Total/NA	Water	3535	
MB 320-341271/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-341271/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-341271/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 341716

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-55700-5 - REDL	FOAM	Total/NA	Water	537 (modified)	341271
320-55700-6 - REDL	FOAM (DUPLICATE)	Total/NA	Water	537 (modified)	341271
MB 320-341271/1-A	Method Blank	Total/NA	Water	537 (modified)	341271
LCS 320-341271/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	341271
LCSD 320-341271/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	341271

Lab Chronicle

Client: AECOM
Project/Site: WDNR Olbrich Park - 60614940

Job ID: 320-55700-1

Client Sample ID: SURFACE WATER

Lab Sample ID: 320-55700-1

Date Collected: 10/23/19 14:30

Matrix: Water

Date Received: 10/26/19 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535	DL		253.5 mL	10.00 mL	336351	11/06/19 08:39	SK	TAL SAC
Total/NA	Analysis	537 (modified)	DL	100			340007	11/19/19 18:50	AAR	TAL SAC
Total/NA	Prep	3535			253.5 mL	10.00 mL	336351	11/06/19 08:39	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1			340279	11/20/19 21:10	S1M	TAL SAC

Client Sample ID: SURFACE WATER (DUPLICATE)

Lab Sample ID: 320-55700-3

Date Collected: 10/23/19 14:30

Matrix: Water

Date Received: 10/26/19 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535	DL		260 mL	10.00 mL	336351	11/06/19 08:39	SK	TAL SAC
Total/NA	Analysis	537 (modified)	DL	100			340007	11/19/19 18:58	AAR	TAL SAC
Total/NA	Prep	3535			260 mL	10.00 mL	336351	11/06/19 08:39	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1			340279	11/20/19 21:18	S1M	TAL SAC

Client Sample ID: FOAM

Lab Sample ID: 320-55700-5

Date Collected: 10/23/19 14:30

Matrix: Water

Date Received: 10/26/19 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535	DL		2.50 mL	10.00 mL	336351	11/06/19 08:39	SK	TAL SAC
Total/NA	Analysis	537 (modified)	DL	100			340007	11/19/19 19:06	AAR	TAL SAC
Total/NA	Prep	3535			2.50 mL	10.00 mL	336351	11/06/19 08:39	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1			340279	11/20/19 21:26	S1M	TAL SAC
Total/NA	Prep	3535	REDL		1.00 mL	10.0 mL	341271	11/25/19 06:27	MTN	TAL SAC
Total/NA	Analysis	537 (modified)	REDL	100			341716	11/26/19 16:29	S1M	TAL SAC

Client Sample ID: FOAM (DUPLICATE)

Lab Sample ID: 320-55700-6

Date Collected: 10/23/19 14:30

Matrix: Water

Date Received: 10/26/19 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535	DL		2.50 mL	10.00 mL	336351	11/06/19 08:39	SK	TAL SAC
Total/NA	Analysis	537 (modified)	DL	100			340007	11/19/19 19:14	AAR	TAL SAC
Total/NA	Prep	3535			2.50 mL	10.00 mL	336351	11/06/19 08:39	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1			340279	11/20/19 21:34	S1M	TAL SAC
Total/NA	Prep	3535	REDL		1.00 mL	10.0 mL	341271	11/25/19 06:27	MTN	TAL SAC
Total/NA	Analysis	537 (modified)	REDL	100			341716	11/26/19 16:39	S1M	TAL SAC

Client Sample ID: EQUIPMENT BLANK

Lab Sample ID: 320-55700-7

Date Collected: 10/23/19 14:00

Matrix: Water

Date Received: 10/26/19 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			235.3 mL	10.00 mL	336351	11/06/19 08:39	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1			337053	11/08/19 09:20	P1N	TAL SAC

Eurofins TestAmerica, Sacramento

Lab Chronicle

Client: AECOM
Project/Site: WDNR Olbrich Park - 60614940

Job ID: 320-55700-1

Client Sample ID: EQUIPMENT BLANK

Lab Sample ID: 320-55700-7

Date Collected: 10/23/19 14:00

Matrix: Water

Date Received: 10/26/19 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535	RA		235.3 mL	10.00 mL	336351	11/06/19 08:39	SK	TAL SAC
Total/NA	Analysis	537 (modified)	RA	1			340007	11/19/19 18:34	AAR	TAL SAC

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Accreditation/Certification Summary

Client: AECOM

Job ID: 320-55700-1

Project/Site: WDNR Olbrich Park - 60614940

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	01-20-21
ANAB	Dept. of Defense ELAP	L2468	01-20-21
ANAB	Dept. of Energy	L2468.01	01-20-21
ANAB	ISO/IEC 17025	L2468	01-20-21
Arizona	State	AZ0708	08-11-20
Arkansas DEQ	State	19-042-0	06-17-20
California	State	2897	01-31-20
Colorado	State	CA0004	08-31-20
Connecticut	State	PH-0691	06-30-21
Florida	NELAP	E87570	06-30-20
Georgia	State	4040	01-29-20
Hawaii	State	<cert No.>	01-29-20
Illinois	NELAP	200060	03-17-20
Kansas	NELAP	E-10375	10-31-20 *
Louisiana	NELAP	01944	06-30-20
Maine	State	2018009	04-14-20
Michigan	State	9947	01-29-20
Michigan	State Program	9947	01-31-20
Nevada	State	CA000442020-1	07-31-20
New Hampshire	NELAP	2997	04-18-20
New Jersey	NELAP	CA005	06-30-20
New York	NELAP	11666	04-01-20
Oregon	NELAP	4040	01-29-20
Pennsylvania	NELAP	68-01272	03-31-20
Texas	NELAP	T104704399-19-13	05-31-20
US Fish & Wildlife	US Federal Programs	58448	07-31-20
USDA	US Federal Programs	P330-18-00239	07-31-21
Utah	NELAP	CA000442019-01	02-29-20
Vermont	State	VT-4040	04-16-20
Virginia	NELAP	460278	03-14-20
Washington	State	C581	05-05-20
West Virginia (DW)	State	9930C	12-31-19
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: AECOM

Project/Site: WDNR Olbrich Park - 60614940

Job ID: 320-55700-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL 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:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: AECOM

Project/Site: WDNR Olbrich Park - 60614940

Job ID: 320-55700-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
320-55700-1	SURFACE WATER	Water	10/23/19 14:30	10/26/19 10:30	
320-55700-3	SURFACE WATER (DUPLICATE)	Water	10/23/19 14:30	10/26/19 10:30	
320-55700-5	FOAM	Water	10/23/19 14:30	10/26/19 10:30	
320-55700-6	FOAM (DUPLICATE)	Water	10/23/19 14:30	10/26/19 10:30	
320-55700-7	EQUIPMENT BLANK	Water	10/23/19 14:00	10/26/19 10:30	

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Chain of Custody Record

Client Information		Sampler: Paulo Florio		Lab PM: Fredrick, Sandie		Carrier Tracking No(s):		COC No: 500-76479-95534-1	
Client Contact: Mr. Leo Linnemans, P.G. Company: AECOM		Phone: 608-828-6204		E-Mail: sandie.fredrick@testamericainc.com				Page: 1 of 1	
Address: 1350 Deming Way Suite 100 City: Middleton State, Zip: WI, 53562		Due Date Requested:		Analysis Requested		Total Number of Containers		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:	
PO #: 60614940		TAT Requested (days): Standard		Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/>				M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecylhydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
Project #: 50015859		PurePhase-Order-Requested: 60614940		Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/>				Special Instructions/Note: PFAS (WI List of 36)	
Site: WPNR Olbrich Park		WO #:		PFC, IDA - PFAS, Standard Method Analysis (WI 36) <input checked="" type="checkbox"/>					
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=water/oil)	
Surface Water		10/23/19		14:30		Grab		Water	
Surface Water (Duplicate)		↓		14:30		↓		Water	
Foam		↓		14:30		↓		Water	
Foam (Duplicate)		↓		14:30		↓		Water	
Equipment Blank		↓		14:00		↓		Water	
								Outside of bottle collected from	
320-55700 Chain of Custody									
Possible Hazard Identification <input 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									
Special Instructions/QC Requirements:									
Empty Kit Relinquished by:									
Relinquished by: 		Date: 10/25/2019 @ 17:00		Company: AECOM		Received by: 		Date/Time: 10/25/2019 18:30	
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: 0.6					

Limited Volume for 4 samples

WISCONSIN PFAS List of 36					
#	Acronym	Name	CAS #	# carbons	Acronyms (other)
Carboxylic Acids					
1	PFBA	Perfluorobutanoic acid	375-22-4	4	
2	PFPeA	Perfluoropentanoic acid	2706-90-3	5	
3	PFHxA	Perfluorohexanoic acid	307-24-4	6	
4	PFHpA	Perfluoroheptanoic acid	375-85-9	7	
5	PFOA	Perfluorooctanoic acid	335-67-1	8	
6	PFNA	Perfluorononanoic acid	375-95-1	9	
7	PFDA	Perfluorodecanoic acid	335-76-2	10	
8	PFUnA	Perfluoroundecanoic acid	2058-94-8	11	PFUdA, PFUnDA
9	PFDoA	Perfluorododecanoic acid	307-55-1	12	PFDoDA
10	PFTriA	Perfluorotridecanoic acid	72629-94-8	13	PFTriA, PFTriDA
11	PFTeA	Perfluorotetradecanoic acid	376-06-7	14	PFTeDA
12	PFHxDA	Perfluorohexadecanoic acid	67905-19-5	16	
13	PFODA	Perfluorooctadecanoic acid	16517-11-6	18	
Sulfonic Acids					
14	PFBS	Perfluorobutanesulfonic acid	375-73-5	4	
15	PFPeS	Perfluoropentanesulfonic acid	2706-91-4	5	
16	PFHxS	Perfluorohexanesulfonic acid	355-46-4	6	
17	PFHpS	Perfluoroheptanesulfonic acid	375-92-8	7	
18	PFOS	Perfluorooctanesulfonic acid	1763-23-1	8	
19	PFNS	Perfluoronanesulfonic acid	68259-12-1	9	
20	PFDS	Perfluorodecanesulfonic acid	335-77-3	10	
21	PFDoS	Perfluorododecanesulfonic acid	79780-39-5	12	PFDoDS
22	4:2 FTSA	4:2 Fluorotelomer sulfonic acid	757124-72-4	6	
23	6:2 FTSA	6:2 Fluorotelomer sulfonic acid	27619-97-2	8	
24	8:2 FTSA	8:2 Fluorotelomer sulfonic acid	39108-34-4	10	
25	10:2 FTSA	10:2 Fluorotelomer sulfonic acid	120226-60-0	12	
Sulfonamides, Sulfonamidoacetic acids, Sulfonamidoethanols					
26	FOSA	Perfluorooctane sulfonamide	754-91-6	8	PFOSA
27	NMeFOSA	N-Methyl perfluorooctane sulfonamide	31506-32-8	9	MeFOSA
28	NEtFOSA	N-Ethyl perfluorooctane sulfonamide	4151-50-2	10	EtFOSA
29	NMeFOSAA	N-Methyl perfluorooctane sulfonamidoacetic acid	2355-31-9	11	MeFOSAA
30	NEtFOSAA	N-Ethyl perfluorooctane sulfonamidoacetic acid	2991-50-6	12	EtFOSAA
31	NMeFOSE	N-Methyl perfluorooctane sulfonamidoethanol	24448-09-7	11	MeFOSE
32	NEtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol	1691-99-2	12	EtFOSE
Replacement Chemicals					
33	HFPO-DA	Hexafluoropropylene oxide dimer acid ¹	13252-13-6	6	PFPrOPrA
34	DONA	4,8-Dioxa-3H-perfluorononanoic acid ²	919005-14-4	7	
35	9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid ³	756426-58-1	8	F-53B Major
36	11Cl-PF3OUDS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid ⁴	763051-92-9	10	F-53B Minor
		¹ - Also referred to as "GenX"			
		² - Also available as the ammonium salt = ADONA (Ammonium 4,8-dioxa-3H-perfluorononanoate) #			
		³ - Also available as the potassium salt = Potassium, 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate #			
		⁴ - Also available as the potassium salt = Potassium, 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate # 83329-89-9			

Login Sample Receipt Checklist

Client: AECOM

Job Number: 320-55700-1

Login Number: 55700

List Source: Eurofins TestAmerica, Sacramento

List Number: 1

Creator: Guzman, Juan

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	747180
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.	False	Limited volume received.
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	