

## Technical Memorandum

To Nate Willis, WDNR  
Mike Schmoller, WDNR  
Rick Wenta, City of Madison

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CC Erika Biemann, ATC  
Dave Johnson, NSEC

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Subject Start-up Sampling Results  
Fire Suppression Water Treatment System  
ATC Blount Transmission Substation, Madison Wisconsin

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From Leo Linnemanstons, AECOM  
Dave Henderson, AECOM

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Date October 21, 2019

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On Tuesday, October 8, 2019, the American Transmission Company (ATC) conducted start-up operations of a fire suppression water treatment system associated with the Blount Transmission Substation project. The system is located on the Madison Gas & Electric (MG&E) property, 201 South Blount Street, Madison Wisconsin. North Shore Environmental Construction, Inc. (NSEC), provided the system operation and AECOM Technical Services, Inc. (AECOM) provided monitoring services.

The system was constructed and operated in accordance with the following:

- A Plans and Specifications approval, Project Number S-2019-0662, from the Wisconsin Department of Natural Resources (WDNR), Bureau of Water Quality, Wastewater Section for the treatment system design.
- Authorization under the WDNR's General Permit to Discharge Under the Wisconsin Pollutant Discharge Elimination System (WPDES) for Petroleum Contaminated Water (WPDES Permit No. WI-0046531-06-1).
- *Operation & Maintenance Plan and Manual* for Blount Substation Fire Suppression Water Treatment Discharge, AECOM, October 2019.

The start-up operation was a limited one day event where approximately 8,000 gallons of fire suppression water was treated and re-containerized in a frac tank. There were no discharges from the treatment system other than to the frac storage tank. At 1:45 pm, when approximately 7,363 gallons had been treated, AECOM conducted a system wide water sampling event. At the completion of the monitoring event, the system was shut down until receipt of the sampling laboratory analytical results confirmed system operational efficiencies.

The start-up sampling event included monitoring of system operational pressures and water sampling. Notes on the monitoring event are provided on the attached Field Form. A schematic of the system water sampling locations is provided on Figure 1. Sampling laboratory analysis

parameters included WPDES permit parameters (i.e. oil & grease, pH, Total BOD5, BETX, and PAHs) along with operational parameters (i.e. PFAS and WI DRO). WPDES parameter and DRO samples were sent to Eurofins/TestAmerica Laboratory for analysis. PFAS samples were sent to Vista Analytical Laboratory for analysis.

Laboratory analytical results are summarized on Table 1 and copies of the laboratory reports are attached.

The Eurofins/TestAmerica Laboratory results indicate that the discharge meets the WPDES permit parameters for oil & grease, pH, Total BOD5, BETX, and PAHs. The discharge also meets the WI DRO operational requirements.

The Vista Analytical Laboratory results for PFAS indicate the discharge also meets the operation requirements. Of the seven PFAS compounds identified by the WDNR for operational monitoring, there is a lab method blank detection for perfluorooctane sulfonate (PFOS). The PFOS artifact, at a concentration of <1.0 ng/l, seems to carry over into the data set showing up after GAC-1, GAC-2, GAC-3 (i.e. the discharge sample) and the field blank. AECOM confirmed with the laboratory that PFOS is a lab artifact.

On Friday, October 18, 2019, AECOM provided the analytical results to the WDNR for review. The WDNR concurred verbally and via email that the PFAS method blank detection appears to be a lab artifact and that the WDNR does not object to operation of the treatment system and discharge under the coverage granted for the WPDES General Permit for Petroleum Contaminated Water.

Based on these results, ATC is preparing to begin full-time operation of the fire suppression water treatment system starting on Monday, October 21, 2019.

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Memo Attachments:

Table 1 – Laboratory Analytical Summary Table

Figure 1 – Sample Locations

Attachment A – Field Form

Eurofins/TestAmerica Laboratory Report

Vista Laboratory Report

WDNR Email for Discharge Approval (dated 10/18/2019)



AECOM  
1555 N. River Center Drive, Ste 214  
Milwaukee, WI 53212

414.944.6080 tel  
414.944.6081 fax

## TABLES

**Table 1**  
**Summary of Analytical Results for WPDES Permit**  
**Fire Suppression Water Treatment System Discharge**  
**ATC Blount Substation - Madison, Wisconsin**  
**Project No. 60611431**

Analyte	Effluent Limitations <sup>1</sup>		Sample ID: Sample Date:	OWS 10/8/2019	INLET 10/8/2019	BAG 2 10/8/2019	ZEO 10/8/2019	GAC 1 10/8/2019	GAC 2 10/8/2019	DISCHARGE 10/8/2019	FIELD BLANK 10/8/2019	TRIP BLANK 10/8/2019
<b>BETX, Total ug/l:</b>												
Benzene	NL		ug/l	--	--	--	--	--	--	< 0.15	--	< 0.15
Ethylbenzene	NL		ug/l	--	--	--	--	--	--	< 0.18	--	< 0.18
Toluene	NL		ug/l	--	--	--	--	--	--	< 0.15	--	< 0.15
Xylene (Total)	NL		ug/l	--	--	--	--	--	--	< 0.22	--	< 0.22
Total BETX	750	Monthly Avg.	ug/l							<750		<750
<b>Polyaromatic Hydrocarbons (PAHs) ug/l:</b>												
Benzo(a)anthracene, TEF 0.1	NL		ug/l	--	--	--	--	--	--	< 0.043	--	--
Benzo(a)pyrene	0.1	Monthly Avg	ug/l	--	--	--	--	--	--	< 0.074	--	--
Benzo(b)fluoranthene, TEF 0.1	NL		ug/l	--	--	--	--	--	--	< 0.061	--	--
Benzo(g,h,i)perylene, TEF 0.01	NL		ug/l	--	--	--	--	--	--	< 0.28	--	--
Benzo(k)fluoranthene, TEF 0.01	NL		ug/l	--	--	--	--	--	--	< 0.048	--	--
Chrysene, TEF 0.001	NL		ug/l	--	--	--	--	--	--	< 0.051	--	--
Dibenzo(a,h)anthracene, TEF 1.0	NL		ug/l	--	--	--	--	--	--	< 0.038	--	--
Fluoranthene, TEF 0.001	NL		ug/l	--	--	--	--	--	--	< 0.34	--	--
Indeno(1,2,3-cd)pyrene, TEF 0.1	NL		ug/l	--	--	--	--	--	--	< 0.056	--	--
Naphthalene	70	Monthly Avg	ug/l	--	--	--	--	--	--	< 0.23	--	--
Phenanthrene, TEF 0.001	NL		ug/l	--	--	--	--	--	--	< 0.23	--	--
Pyrene, TEF 0.001	NL		ug/l	--	--	--	--	--	--	< 0.32	--	--
PAH Group of Ten, Calc. TEF Sum	0.1	Monthly Avg	ug/l							< 0.1		
<b>Per- and polyfluoroalkyl substances (PFAS)** ng/l</b>												
10:2 FTS	NL		ng/L	--	< 1.62	< 1.62	< 1.65	< 1.66	< 1.64	< 1.64	< 1.59	--
6:2 FTS	NL		ng/L	--	1050 D	750	86.3	2.62 Q	< 1.05	< 1.05	< 1.02	--
8:2 FTS	NL		ng/L	--	17.2	17.5	< 1.09	< 1.09	< 1.08	< 1.08	< 1.05	--
PFHxA	NL		ng/L	--	91.9	95.1	29.7	< 1.16	< 1.14	< 1.14	< 1.11	--
PFOS	NL		ng/L	--	6.15 B, Q	4.94 B	8.34 B	0.632 J, B, Q	0.520 J, B	0.553 J, B	0.412 J, B	--
PFOA	NL		ng/L	--	37.8	36.2	9.16	< 0.346	< 0.342	< 0.342	< 0.331	--
PFPeA	NL		ng/L	--	37.2	32.3	15.3	< 0.680	< 0.672	< 0.672	< 0.650	--
<b>Diesel Range Organics (DRO) mg/l</b>												
DRO*, C10-C28	NL		mg/L	37	6.3	5.6	1.8	0.12	0.048 J	< 0.031	--	--
<b>Wet Chemistry:</b>												
BOD <sub>5</sub> Total, mg/l	20	Monthly	mg/L	--	--	--	--	--	--	< 2.0H	--	--
Oil and Grease (Hexane) mg/l	15	Monthly	mg/L	--	--	--	--	--	--	< 1.4	--	--
pH, standard units	6.0 to 9.0	Monthly	pH units	--	--	--	--	--	--	7.8 HF	--	--

Notes:

<sup>(1)</sup> Effluent limitations from WPDES Permit No. WI-0046531-06-1

\* DRO is not a WPDES Permit limit compound

PAH sum of 10 individual compounds with calculated Toxicity Equivalent Factors (TEFs)

\*\* PFAS; there are no PFAS WPDES Permit regulated limits, compounds should be below MDLs without laboratory qualifiers.

-- Not analyzed

NL No permit limit for this compound

B This compound was also detected in the method blank

D Dilution

J The amount detected is below the Reporting Limit/LOQ

HF Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Q The ion transition ratio is outside of the acceptance criteria.

FIGURES

# Figure 1 Treatment System Schematic

**Notes:**


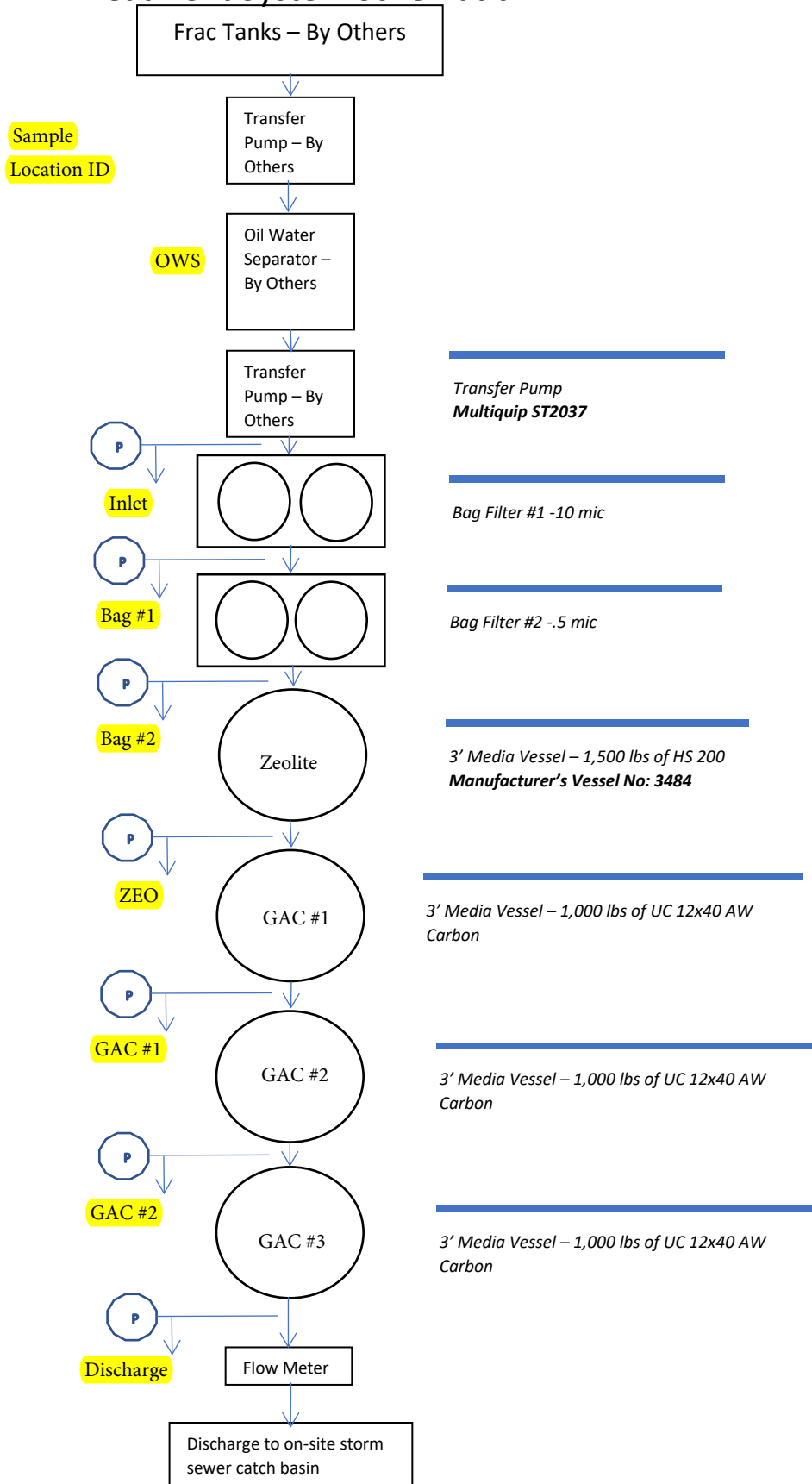
Flow diagram is not to scale. Please see cut sheets for complete sizing of equipment

All pieces (of ProAct system) will be connected by 2" OSD Hose

Discharge hose will be in place after flow meter and is 2" Lay Flat Hose

Drawing does not incorporate additional vessel(s)

Pressure gauge and sample port

ATTACHMENTS

Field Form (10/08/2019)  
Eurofins/TestAmerica Laboratory, Report #500-171404-1 (10/18/2019)  
Vista Analytical Laboratory, Report #1903574 (10/17/2019)  
WDNR Email for Discharge Approval (dated 10/18/2019)

Field Form  
 Treatment System Monitoring  
 Fire Suppression Water Treatment O&M Plan  
 ATC Blount Substation, Madison Wisconsin

Field Technician DSH  
 Weather Sunny 60's

Day/Date Joe 10/8/19  
 Time 1:45 am/pm am  
circle one

Totalizer/Flow Meter Reading 7

**Pressure Readings** (record pressure reading multiple times a day)

Sample Location	Gauge Readings		Calculated Change-in-Pressure	
	Inlet (psi)	Outlet (psi)	Delta P (psi)	calculation notes
Inlet	--	--	--	No calculation
Bag #1	8	9	—	Bag #1 inlet minus outlet
Bag #2	10	10	—	Bag #2 inlet minus outlet
ZEO	9	9	—	Bag #2 outlet minus ZEO
GAC #1	11	6	5	ZEO minus GAC #1
GAC #2	7	0	7	GAC #1 minus GAC #2
Discharge (i.e. GAC #3)	2	4	2	GAC #2 minus Discharge

18.5 gpm  
 397658 Meter TOTAL  
 7363 Project total

Notes:

Delta P Readings: < 20 psi, normal operating pressures  
 > 20 psi, consider operational changes (i.e. change bag filters, change GAC)

**Sampling** (note time and location of samples and what parameter was sampled)

Sample Location	Sample Parameter						
	Oil & Grease	pH	Total BOD5	BETX	PAHs	PFAS	DRO
Inlet						X	X
Bag #1						—	<del>X</del>
Bag #2						X	X
ZEO						X	X
GAC #1						X	X
GAC #2						X	X
Discharge (i.e. GAC #3)	X	X	X	X	X	X	X

Ⓟows for DRO

Operation Notes:

START UP

Ⓟ PFAS field blank



## ANALYTICAL REPORT

Eurofins TestAmerica, Chicago  
2417 Bond Street  
University Park, IL 60484  
Tel: (708)534-5200

Laboratory Job ID: 500-171404-1  
Client Project/Site: ATC - Madison 60611431

For:  
AECOM  
1555 N Rivercenter Drive  
Suite 214  
Milwaukee, Wisconsin 53212

Attn: David Henderson



Authorized for release by:  
10/18/2019 11:59:46 AM

Sandie Fredrick, Project Manager II  
(920)261-1660  
[sandie.fredrick@testamericainc.com](mailto:sandie.fredrick@testamericainc.com)

### LINKS

Review your project  
results through  
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Have a Question?



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[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*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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# Case Narrative

Client: AECOM  
Project/Site: ATC - Madison 60611431

Job ID: 500-171404-1

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## Job ID: 500-171404-1

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Laboratory: Eurofins TestAmerica, Chicago

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### Narrative

#### Job Narrative 500-171404-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 10/9/2019 8:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.0° C.

#### GC/MS VOA

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

#### GC/MS Semi VOA

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

#### GC Semi VOA

Method WI-DRO: The surrogate n-Nonane was below the QC limit for the following QC samples: (LCS 500-509431/2-A), (LCSD 500-509431/3-A) and (MB 500-509431/1-A), however, the samples had surrogate present & within control limits. The spike standard recoveries for LCS/LCSD were within control limits; therefore, the data have been reported and qualified.

Method WI-DRO: The following sample required a dilution due to the nature of the sample matrix: OWS (500-171404-1). Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

Method WI-DRO: Surrogate recovery for the following samples was outside control limits: Inlet (500-171404-2) and Bag 2 (500-171404-3). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed. The samples were originally analyzed undiluted and had acceptable surrogate recoveries. The target compound was above the calibration range; therefore, that data could not be reported.

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

#### General Chemistry

Method SM 5210B: BOD set up outside of hold due to analyst error.

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

#### Organic Prep

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

# Detection Summary

Client: AECOM  
Project/Site: ATC - Madison 60611431

Job ID: 500-171404-1

## Client Sample ID: OWS

Lab Sample ID: 500-171404-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
WI Diesel Range Organics (C10-C28)	37		9.2	3.0	mg/L	100		WI-DRO	Total/NA

## Client Sample ID: Inlet

Lab Sample ID: 500-171404-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
WI Diesel Range Organics (C10-C28)	6.3		0.58	0.19	mg/L	5		WI-DRO	Total/NA

## Client Sample ID: Bag 2

Lab Sample ID: 500-171404-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
WI Diesel Range Organics (C10-C28)	5.6		0.47	0.15	mg/L	5		WI-DRO	Total/NA

## Client Sample ID: ZEO

Lab Sample ID: 500-171404-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
WI Diesel Range Organics (C10-C28)	1.8		0.10	0.033	mg/L	1		WI-DRO	Total/NA

## Client Sample ID: GAC 1

Lab Sample ID: 500-171404-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
WI Diesel Range Organics (C10-C28)	0.12		0.097	0.032	mg/L	1		WI-DRO	Total/NA

## Client Sample ID: GAC 2

Lab Sample ID: 500-171404-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
WI Diesel Range Organics (C10-C28)	0.048	J	0.096	0.031	mg/L	1		WI-DRO	Total/NA

## Client Sample ID: Discharge

Lab Sample ID: 500-171404-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH	7.8	HF	0.2	0.2	SU	1		SM 4500 H+ B	Total/NA

## Client Sample ID: Trip Blank

Lab Sample ID: 500-171404-8

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Chicago

# Method Summary

Client: AECOM  
Project/Site: ATC - Madison 60611431

Job ID: 500-171404-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CHI
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CHI
WI-DRO	Wisconsin - Diesel Range Organics (GC)	WI-DRO	TAL CHI
1664B	HEM and SGT-HEM	1664B	TAL CHI
SM 4500 H+ B	pH	SM	TAL CHI
SM 5210B	BOD, 5-Day	SM	TAL CHI
1664B	HEM and SGT-HEM (SPE)	1664B	TAL CHI
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL CHI
5030B	Purge and Trap	SW846	TAL CHI

#### Protocol References:

1664B = EPA-821-98-002

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.

WI-DRO = "Modified DRO: Method For Determining Diesel Range Organics", Wisconsin DNR, Publ-SW-141, September, 1995.

#### Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

# Sample Summary

Client: AECOM

Job ID: 500-171404-1

Project/Site: ATC - Madison 60611431

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
500-171404-1	OWS	Water	10/08/19 00:00	10/09/19 08:40	
500-171404-2	Inlet	Water	10/08/19 00:00	10/09/19 08:40	
500-171404-3	Bag 2	Water	10/08/19 00:00	10/09/19 08:40	
500-171404-4	ZEO	Water	10/08/19 00:00	10/09/19 08:40	
500-171404-5	GAC 1	Water	10/08/19 00:00	10/09/19 08:40	
500-171404-6	GAC 2	Water	10/08/19 00:00	10/09/19 08:40	
500-171404-7	Discharge	Water	10/08/19 00:00	10/09/19 08:40	
500-171404-8	Trip Blank	Water	10/08/19 00:00	10/09/19 08:40	

# Client Sample Results

Client: AECOM  
 Project/Site: ATC - Madison 60611431

Job ID: 500-171404-1

**Client Sample ID: OWS**  
 Date Collected: 10/08/19 00:00  
 Date Received: 10/09/19 08:40

**Lab Sample ID: 500-171404-1**  
 Matrix: Water

**Method: WI-DRO - Wisconsin - Diesel Range Organics (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
WI Diesel Range Organics (C10-C28)	37		9.2	3.0	mg/L		10/10/19 13:38	10/11/19 07:43	100
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
n-Nonane	0	D	42 - 111				10/10/19 13:38	10/11/19 07:43	100

- 1
- 2
- 3
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# Client Sample Results

Client: AECOM  
 Project/Site: ATC - Madison 60611431

Job ID: 500-171404-1

**Client Sample ID: Inlet**

**Lab Sample ID: 500-171404-2**

Date Collected: 10/08/19 00:00

Matrix: Water

Date Received: 10/09/19 08:40

**Method: WI-DRO - Wisconsin - Diesel Range Organics (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
WI Diesel Range Organics (C10-C28)	6.3		0.58	0.19	mg/L		10/10/19 13:38	10/11/19 08:18	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Nonane	22	X	42 - 111	10/10/19 13:38	10/11/19 08:18	5

- 1
- 2
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# Client Sample Results

Client: AECOM  
 Project/Site: ATC - Madison 60611431

Job ID: 500-171404-1

**Client Sample ID: Bag 2**

**Lab Sample ID: 500-171404-3**

Date Collected: 10/08/19 00:00

Matrix: Water

Date Received: 10/09/19 08:40

**Method: WI-DRO - Wisconsin - Diesel Range Organics (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
WI Diesel Range Organics (C10-C28)	5.6		0.47	0.15	mg/L		10/10/19 13:38	10/11/19 08:54	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Nonane	29	X	42 - 111	10/10/19 13:38	10/11/19 08:54	5

- 1
- 2
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# Client Sample Results

Client: AECOM  
 Project/Site: ATC - Madison 60611431

Job ID: 500-171404-1

**Client Sample ID: ZEO**

**Lab Sample ID: 500-171404-4**

Date Collected: 10/08/19 00:00

Matrix: Water

Date Received: 10/09/19 08:40

**Method: WI-DRO - Wisconsin - Diesel Range Organics (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
WI Diesel Range Organics (C10-C28)	1.8		0.10	0.033	mg/L		10/10/19 13:38	10/10/19 19:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Nonane	65		42 - 111	10/10/19 13:38	10/10/19 19:43	1

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# Client Sample Results

Client: AECOM  
 Project/Site: ATC - Madison 60611431

Job ID: 500-171404-1

**Client Sample ID: GAC 1**  
**Date Collected: 10/08/19 00:00**  
**Date Received: 10/09/19 08:40**

**Lab Sample ID: 500-171404-5**  
**Matrix: Water**

**Method: WI-DRO - Wisconsin - Diesel Range Organics (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
WI Diesel Range Organics (C10-C28)	0.12		0.097	0.032	mg/L		10/10/19 13:38	10/10/19 20:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
n-Nonane	56		42 - 111				10/10/19 13:38	10/10/19 20:19	1

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# Client Sample Results

Client: AECOM  
 Project/Site: ATC - Madison 60611431

Job ID: 500-171404-1

**Client Sample ID: GAC 2**  
**Date Collected: 10/08/19 00:00**  
**Date Received: 10/09/19 08:40**

**Lab Sample ID: 500-171404-6**  
**Matrix: Water**

**Method: WI-DRO - Wisconsin - Diesel Range Organics (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
WI Diesel Range Organics (C10-C28)	0.048	J	0.096	0.031	mg/L		10/10/19 13:38	10/10/19 20:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
n-Nonane	59		42 - 111				10/10/19 13:38	10/10/19 20:55	1

- 1
- 2
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# Client Sample Results

Client: AECOM  
Project/Site: ATC - Madison 60611431

Job ID: 500-171404-1

## Client Sample ID: Discharge

Lab Sample ID: 500-171404-7

Date Collected: 10/08/19 00:00

Matrix: Water

Date Received: 10/09/19 08:40

### Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/17/19 05:10	1
Toluene	<0.15		0.50	0.15	ug/L			10/17/19 05:10	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/17/19 05:10	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/17/19 05:10	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	100		75 - 126					10/17/19 05:10	1
Toluene-d8 (Surr)	100		75 - 120					10/17/19 05:10	1
4-Bromofluorobenzene (Surr)	97		72 - 124					10/17/19 05:10	1
Dibromofluoromethane (Surr)	102		75 - 120					10/17/19 05:10	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<0.23		0.75	0.23	ug/L		10/10/19 08:28	10/11/19 10:22	1
Acenaphthylene	<0.20		0.75	0.20	ug/L		10/10/19 08:28	10/11/19 10:22	1
Anthracene	<0.25		0.75	0.25	ug/L		10/10/19 08:28	10/11/19 10:22	1
Benzo[a]anthracene	<0.043		0.15	0.043	ug/L		10/10/19 08:28	10/11/19 10:22	1
Benzo[a]pyrene	<0.074		0.15	0.074	ug/L		10/10/19 08:28	10/11/19 10:22	1
Benzo[b]fluoranthene	<0.061		0.15	0.061	ug/L		10/10/19 08:28	10/11/19 10:22	1
Benzo[g,h,i]perylene	<0.28		0.75	0.28	ug/L		10/10/19 08:28	10/11/19 10:22	1
Benzo[k]fluoranthene	<0.048		0.15	0.048	ug/L		10/10/19 08:28	10/11/19 10:22	1
Chrysene	<0.051		0.15	0.051	ug/L		10/10/19 08:28	10/11/19 10:22	1
Dibenz(a,h)anthracene	<0.038		0.23	0.038	ug/L		10/10/19 08:28	10/11/19 10:22	1
Fluoranthene	<0.34		0.75	0.34	ug/L		10/10/19 08:28	10/11/19 10:22	1
Fluorene	<0.18		0.75	0.18	ug/L		10/10/19 08:28	10/11/19 10:22	1
Indeno[1,2,3-cd]pyrene	<0.056		0.15	0.056	ug/L		10/10/19 08:28	10/11/19 10:22	1
1-Methylnaphthalene	<0.23		1.5	0.23	ug/L		10/10/19 08:28	10/11/19 10:22	1
2-Methylnaphthalene	<0.049		1.5	0.049	ug/L		10/10/19 08:28	10/11/19 10:22	1
Naphthalene	<0.23		0.75	0.23	ug/L		10/10/19 08:28	10/11/19 10:22	1
Phenanthrene	<0.23		0.75	0.23	ug/L		10/10/19 08:28	10/11/19 10:22	1
Pyrene	<0.32		0.75	0.32	ug/L		10/10/19 08:28	10/11/19 10:22	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
2-Fluorobiphenyl (Surr)	62		34 - 110				10/10/19 08:28	10/11/19 10:22	1
Nitrobenzene-d5 (Surr)	52		36 - 120				10/10/19 08:28	10/11/19 10:22	1
Terphenyl-d14 (Surr)	102		40 - 145				10/10/19 08:28	10/11/19 10:22	1

### Method: WI-DRO - Wisconsin - Diesel Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
WI Diesel Range Organics (C10-C28)	<0.031		0.095	0.031	mg/L		10/10/19 13:38	10/10/19 21:30	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
n-Nonane	49		42 - 111				10/10/19 13:38	10/10/19 21:30	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	<1.4		5.2	1.4	mg/L		10/17/19 10:59	10/17/19 11:04	1
<b>pH</b>	<b>7.8</b>	<b>HF</b>	0.2	0.2	SU			10/16/19 14:09	1
Biochemical Oxygen Demand	<2.0	H	2.0	2.0	mg/L			10/11/19 15:51	1

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# Client Sample Results

Client: AECOM  
 Project/Site: ATC - Madison 60611431

Job ID: 500-171404-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 500-171404-8**

**Date Collected: 10/08/19 00:00**

**Matrix: Water**

**Date Received: 10/09/19 08:40**

**Method: 8260B - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/17/19 05:36	1
Toluene	<0.15		0.50	0.15	ug/L			10/17/19 05:36	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/17/19 05:36	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/17/19 05:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		75 - 126		10/17/19 05:36	1
Toluene-d8 (Surr)	99		75 - 120		10/17/19 05:36	1
4-Bromofluorobenzene (Surr)	99		72 - 124		10/17/19 05:36	1
Dibromofluoromethane (Surr)	102		75 - 120		10/17/19 05:36	1

# Definitions/Glossary

Client: AECOM  
Project/Site: ATC - Madison 60611431

Job ID: 500-171404-1

## Qualifiers

### GC Semi VOA

Qualifier	Qualifier Description
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
X	Surrogate is outside control limits

### General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

## 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)

# QC Association Summary

Client: AECOM  
Project/Site: ATC - Madison 60611431

Job ID: 500-171404-1

## GC/MS VOA

### Analysis Batch: 510359

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-171404-7	Discharge	Total/NA	Water	8260B	
500-171404-8	Trip Blank	Total/NA	Water	8260B	
MB 500-510359/6	Method Blank	Total/NA	Water	8260B	
LCS 500-510359/4	Lab Control Sample	Total/NA	Water	8260B	

## GC/MS Semi VOA

### Prep Batch: 509338

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-171404-7	Discharge	Total/NA	Water	3510C	
MB 500-509338/1-A	Method Blank	Total/NA	Water	3510C	
LCS 500-509338/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 500-509338/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

### Analysis Batch: 509351

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 500-509338/1-A	Method Blank	Total/NA	Water	8270D	509338
LCS 500-509338/2-A	Lab Control Sample	Total/NA	Water	8270D	509338
LCSD 500-509338/3-A	Lab Control Sample Dup	Total/NA	Water	8270D	509338

### Analysis Batch: 509599

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-171404-7	Discharge	Total/NA	Water	8270D	509338

## GC Semi VOA

### Prep Batch: 509431

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-171404-1	OWS	Total/NA	Water	3510C	
500-171404-2	Inlet	Total/NA	Water	3510C	
500-171404-3	Bag 2	Total/NA	Water	3510C	
500-171404-4	ZEO	Total/NA	Water	3510C	
500-171404-5	GAC 1	Total/NA	Water	3510C	
500-171404-6	GAC 2	Total/NA	Water	3510C	
500-171404-7	Discharge	Total/NA	Water	3510C	
MB 500-509431/1-A	Method Blank	Total/NA	Water	3510C	
LCS 500-509431/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 500-509431/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

### Analysis Batch: 509442

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-171404-1	OWS	Total/NA	Water	WI-DRO	509431
500-171404-2	Inlet	Total/NA	Water	WI-DRO	509431
500-171404-3	Bag 2	Total/NA	Water	WI-DRO	509431
500-171404-4	ZEO	Total/NA	Water	WI-DRO	509431
500-171404-5	GAC 1	Total/NA	Water	WI-DRO	509431
500-171404-6	GAC 2	Total/NA	Water	WI-DRO	509431
500-171404-7	Discharge	Total/NA	Water	WI-DRO	509431
MB 500-509431/1-A	Method Blank	Total/NA	Water	WI-DRO	509431
LCS 500-509431/2-A	Lab Control Sample	Total/NA	Water	WI-DRO	509431
LCSD 500-509431/3-A	Lab Control Sample Dup	Total/NA	Water	WI-DRO	509431

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# QC Association Summary

Client: AECOM  
Project/Site: ATC - Madison 60611431

Job ID: 500-171404-1

## General Chemistry

### Analysis Batch: 509722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-171404-7	Discharge	Total/NA	Water	SM 5210B	
USB 500-509722/1	Method Blank	Total/NA	Water	SM 5210B	
LCS 500-509722/2	Lab Control Sample	Total/NA	Water	SM 5210B	
LCSD 500-509722/3	Lab Control Sample Dup	Total/NA	Water	SM 5210B	

### Analysis Batch: 510271

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-171404-7	Discharge	Total/NA	Water	SM 4500 H+ B	
LCS 500-510271/5	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCSD 500-510271/6	Lab Control Sample Dup	Total/NA	Water	SM 4500 H+ B	

### Prep Batch: 510522

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-171404-7	Discharge	Total/NA	Water	1664B	
MB 500-510522/21-A	Method Blank	Total/NA	Water	1664B	
LCS 500-510522/2-A	Lab Control Sample	Total/NA	Water	1664B	

### Analysis Batch: 510523

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-171404-7	Discharge	Total/NA	Water	1664B	510522
MB 500-510522/21-A	Method Blank	Total/NA	Water	1664B	510522
LCS 500-510522/2-A	Lab Control Sample	Total/NA	Water	1664B	510522

# Surrogate Summary

Client: AECOM  
Project/Site: ATC - Madison 60611431

Job ID: 500-171404-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (75-126)	TOL (75-120)	BFB (72-124)	DBFM (75-120)
500-171404-7	Discharge	100	100	97	102
500-171404-8	Trip Blank	99	99	99	102
LCS 500-510359/4	Lab Control Sample	98	99	100	102
MB 500-510359/6	Method Blank	100	100	102	100

#### Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

TOL = Toluene-d8 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

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

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	FBP (34-110)	NBZ (36-120)	TPHL (40-145)
500-171404-7	Discharge	62	52	102
LCS 500-509338/2-A	Lab Control Sample	75	69	104
LCSD 500-509338/3-A	Lab Control Sample Dup	69	62	91
MB 500-509338/1-A	Method Blank	78	72	101

#### Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)

NBZ = Nitrobenzene-d5 (Surr)

TPHL = Terphenyl-d14 (Surr)

## Method: WI-DRO - Wisconsin - Diesel Range Organics (GC)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	C9 (42-111)
500-171404-1	OWS	0 D
500-171404-2	Inlet	22 X
500-171404-3	Bag 2	29 X
500-171404-4	ZEO	65
500-171404-5	GAC 1	56
500-171404-6	GAC 2	59
500-171404-7	Discharge	49
LCS 500-509431/2-A	Lab Control Sample	14 X
LCSD 500-509431/3-A	Lab Control Sample Dup	12 X
MB 500-509431/1-A	Method Blank	10 X

#### Surrogate Legend

C9 = n-Nonane

# QC Sample Results

Client: AECOM  
Project/Site: ATC - Madison 60611431

Job ID: 500-171404-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 500-510359/6**  
**Matrix: Water**  
**Analysis Batch: 510359**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/16/19 23:12	1
Toluene	<0.15		0.50	0.15	ug/L			10/16/19 23:12	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/16/19 23:12	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/16/19 23:12	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		75 - 126		10/16/19 23:12	1
Toluene-d8 (Surr)	100		75 - 120		10/16/19 23:12	1
4-Bromofluorobenzene (Surr)	102		72 - 124		10/16/19 23:12	1
Dibromofluoromethane (Surr)	100		75 - 120		10/16/19 23:12	1

**Lab Sample ID: LCS 500-510359/4**  
**Matrix: Water**  
**Analysis Batch: 510359**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	50.4		ug/L		101	70 - 120
Toluene	50.0	50.3		ug/L		101	70 - 125
Ethylbenzene	50.0	51.0		ug/L		102	70 - 123
Xylenes, Total	100	99.7		ug/L		100	70 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		75 - 126
Toluene-d8 (Surr)	99		75 - 120
4-Bromofluorobenzene (Surr)	100		72 - 124
Dibromofluoromethane (Surr)	102		75 - 120

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

**Lab Sample ID: MB 500-509338/1-A**  
**Matrix: Water**  
**Analysis Batch: 509351**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 509338**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<0.25		0.80	0.25	ug/L		10/10/19 08:28	10/10/19 14:08	1
Acenaphthylene	<0.21		0.80	0.21	ug/L		10/10/19 08:28	10/10/19 14:08	1
Anthracene	<0.27		0.80	0.27	ug/L		10/10/19 08:28	10/10/19 14:08	1
Benzo[a]anthracene	<0.045		0.16	0.045	ug/L		10/10/19 08:28	10/10/19 14:08	1
Benzo[a]pyrene	<0.079		0.16	0.079	ug/L		10/10/19 08:28	10/10/19 14:08	1
Benzo[b]fluoranthene	<0.065		0.16	0.065	ug/L		10/10/19 08:28	10/10/19 14:08	1
Benzo[g,h,i]perylene	<0.30		0.80	0.30	ug/L		10/10/19 08:28	10/10/19 14:08	1
Benzo[k]fluoranthene	<0.051		0.16	0.051	ug/L		10/10/19 08:28	10/10/19 14:08	1
Chrysene	<0.055		0.16	0.055	ug/L		10/10/19 08:28	10/10/19 14:08	1
Dibenz(a,h)anthracene	<0.041		0.24	0.041	ug/L		10/10/19 08:28	10/10/19 14:08	1
Fluoranthene	<0.36		0.80	0.36	ug/L		10/10/19 08:28	10/10/19 14:08	1
Fluorene	<0.20		0.80	0.20	ug/L		10/10/19 08:28	10/10/19 14:08	1
Indeno[1,2,3-cd]pyrene	<0.060		0.16	0.060	ug/L		10/10/19 08:28	10/10/19 14:08	1
1-Methylnaphthalene	<0.24		1.6	0.24	ug/L		10/10/19 08:28	10/10/19 14:08	1

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# QC Sample Results

Client: AECOM  
Project/Site: ATC - Madison 60611431

Job ID: 500-171404-1

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

**Lab Sample ID: MB 500-509338/1-A**  
**Matrix: Water**  
**Analysis Batch: 509351**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 509338**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
2-Methylnaphthalene	<0.052		1.6	0.052	ug/L		10/10/19 08:28	10/10/19 14:08	1
Naphthalene	<0.25		0.80	0.25	ug/L		10/10/19 08:28	10/10/19 14:08	1
Phenanthrene	<0.24		0.80	0.24	ug/L		10/10/19 08:28	10/10/19 14:08	1
Pyrene	<0.34		0.80	0.34	ug/L		10/10/19 08:28	10/10/19 14:08	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2-Fluorobiphenyl (Surr)	78		34 - 110	10/10/19 08:28	10/10/19 14:08	1
Nitrobenzene-d5 (Surr)	72		36 - 120	10/10/19 08:28	10/10/19 14:08	1
Terphenyl-d14 (Surr)	101		40 - 145	10/10/19 08:28	10/10/19 14:08	1

**Lab Sample ID: LCS 500-509338/2-A**  
**Matrix: Water**  
**Analysis Batch: 509351**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 509338**

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	Limits
		Result	Qualifier				
Acenaphthene	32.0	22.6		ug/L		71	46 - 110
Acenaphthylene	32.0	23.9		ug/L		75	47 - 113
Anthracene	32.0	28.5		ug/L		89	67 - 118
Benzo[a]anthracene	32.0	28.8		ug/L		90	70 - 126
Benzo[a]pyrene	32.0	29.3		ug/L		91	70 - 135
Benzo[b]fluoranthene	32.0	30.4		ug/L		95	69 - 136
Benzo[g,h,i]perylene	32.0	29.6		ug/L		93	70 - 135
Benzo[k]fluoranthene	32.0	31.9		ug/L		100	70 - 133
Chrysene	32.0	28.2		ug/L		88	68 - 129
Dibenz(a,h)anthracene	32.0	32.0		ug/L		100	70 - 134
Fluoranthene	32.0	30.1		ug/L		94	68 - 126
Fluorene	32.0	25.5		ug/L		80	53 - 120
Indeno[1,2,3-cd]pyrene	32.0	31.6		ug/L		99	65 - 133
1-Methylnaphthalene	32.0	20.5		ug/L		64	38 - 110
2-Methylnaphthalene	32.0	20.7		ug/L		65	34 - 110
Naphthalene	32.0	19.3		ug/L		60	36 - 110
Phenanthrene	32.0	27.6		ug/L		86	65 - 120
Pyrene	32.0	27.5		ug/L		86	70 - 126

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
2-Fluorobiphenyl (Surr)	75		34 - 110
Nitrobenzene-d5 (Surr)	69		36 - 120
Terphenyl-d14 (Surr)	104		40 - 145

**Lab Sample ID: LCSD 500-509338/3-A**  
**Matrix: Water**  
**Analysis Batch: 509351**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 509338**

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	Limits	RPD	Limit
		Result	Qualifier						
Acenaphthene	32.0	21.7		ug/L		68	46 - 110	4	20
Acenaphthylene	32.0	22.8		ug/L		71	47 - 113	5	20
Anthracene	32.0	27.7		ug/L		87	67 - 118	3	20
Benzo[a]anthracene	32.0	28.5		ug/L		89	70 - 126	1	20

Eurofins TestAmerica, Chicago

# QC Sample Results

Client: AECOM  
Project/Site: ATC - Madison 60611431

Job ID: 500-171404-1

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

**Lab Sample ID: LCSD 500-509338/3-A**  
**Matrix: Water**  
**Analysis Batch: 509351**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 509338**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[a]pyrene	32.0	29.8		ug/L		93	70 - 135	2	20
Benzo[b]fluoranthene	32.0	30.4		ug/L		95	69 - 136	0	20
Benzo[g,h,i]perylene	32.0	29.0		ug/L		91	70 - 135	2	20
Benzo[k]fluoranthene	32.0	30.8		ug/L		96	70 - 133	4	20
Chrysene	32.0	27.7		ug/L		87	68 - 129	2	20
Dibenz(a,h)anthracene	32.0	31.8		ug/L		99	70 - 134	1	20
Fluoranthene	32.0	30.4		ug/L		95	68 - 126	1	20
Fluorene	32.0	24.7		ug/L		77	53 - 120	3	20
Indeno[1,2,3-cd]pyrene	32.0	31.5		ug/L		98	65 - 133	0	20
1-Methylnaphthalene	32.0	19.6		ug/L		61	38 - 110	5	20
2-Methylnaphthalene	32.0	19.5		ug/L		61	34 - 110	6	20
Naphthalene	32.0	18.3		ug/L		57	36 - 110	5	20
Phenanthrene	32.0	26.8		ug/L		84	65 - 120	3	20
Pyrene	32.0	27.8		ug/L		87	70 - 126	1	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-Fluorobiphenyl (Surr)	69		34 - 110
Nitrobenzene-d5 (Surr)	62		36 - 120
Terphenyl-d14 (Surr)	91		40 - 145

## Method: WI-DRO - Wisconsin - Diesel Range Organics (GC)

**Lab Sample ID: MB 500-509431/1-A**  
**Matrix: Water**  
**Analysis Batch: 509442**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 509431**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
WI Diesel Range Organics (C10-C28)	<0.033		0.10	0.033	mg/L		10/10/19 13:38	10/10/19 16:10	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Nonane	10	X	42 - 111	10/10/19 13:38	10/10/19 16:10	1

**Lab Sample ID: LCS 500-509431/2-A**  
**Matrix: Water**  
**Analysis Batch: 509442**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 509431**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
WI Diesel Range Organics (C10-C28)	0.200	0.157		mg/L		78	75 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
n-Nonane	14	X	42 - 111

# QC Sample Results

Client: AECOM  
Project/Site: ATC - Madison 60611431

Job ID: 500-171404-1

## Method: WI-DRO - Wisconsin - Diesel Range Organics (GC) (Continued)

**Lab Sample ID: LCSD 500-509431/3-A**  
**Matrix: Water**  
**Analysis Batch: 509442**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 509431**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
WI Diesel Range Organics (C10-C28)	0.200	0.175		mg/L		87	75 - 125	11	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
n-Nonane	12	X	42 - 111

## Method: 1664B - HEM and SGT-HEM

**Lab Sample ID: MB 500-510522/21-A**  
**Matrix: Water**  
**Analysis Batch: 510523**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 510522**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	<1.3		5.0	1.3	mg/L		10/17/19 10:59	10/17/19 11:04	1

**Lab Sample ID: LCS 500-510522/2-A**  
**Matrix: Water**  
**Analysis Batch: 510523**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 510522**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
HEM (Oil & Grease)	40.0	37.70		mg/L		94	78 - 114

## Method: SM 5210B - BOD, 5-Day

**Lab Sample ID: USB 500-509722/1**  
**Matrix: Water**  
**Analysis Batch: 509722**

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

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	<2.0		2.0	2.0	mg/L			10/11/19 15:30	1

**Lab Sample ID: LCS 500-509722/2**  
**Matrix: Water**  
**Analysis Batch: 509722**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Biochemical Oxygen Demand	198	190		mg/L		96	85 - 115

**Lab Sample ID: LCSD 500-509722/3**  
**Matrix: Water**  
**Analysis Batch: 509722**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Biochemical Oxygen Demand	198	193		mg/L		98	85 - 115	2	20

# Lab Chronicle

Client: AECOM  
Project/Site: ATC - Madison 60611431

Job ID: 500-171404-1

**Client Sample ID: OWS**  
Date Collected: 10/08/19 00:00  
Date Received: 10/09/19 08:40

**Lab Sample ID: 500-171404-1**  
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			509431	10/10/19 13:38	BSO	TAL CHI
Total/NA	Analysis	WI-DRO		100	509442	10/11/19 07:43	SS	TAL CHI

**Client Sample ID: Inlet**  
Date Collected: 10/08/19 00:00  
Date Received: 10/09/19 08:40

**Lab Sample ID: 500-171404-2**  
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			509431	10/10/19 13:38	BSO	TAL CHI
Total/NA	Analysis	WI-DRO		5	509442	10/11/19 08:18	SS	TAL CHI

**Client Sample ID: Bag 2**  
Date Collected: 10/08/19 00:00  
Date Received: 10/09/19 08:40

**Lab Sample ID: 500-171404-3**  
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			509431	10/10/19 13:38	BSO	TAL CHI
Total/NA	Analysis	WI-DRO		5	509442	10/11/19 08:54	SS	TAL CHI

**Client Sample ID: ZEO**  
Date Collected: 10/08/19 00:00  
Date Received: 10/09/19 08:40

**Lab Sample ID: 500-171404-4**  
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			509431	10/10/19 13:38	BSO	TAL CHI
Total/NA	Analysis	WI-DRO		1	509442	10/10/19 19:43	SS	TAL CHI

**Client Sample ID: GAC 1**  
Date Collected: 10/08/19 00:00  
Date Received: 10/09/19 08:40

**Lab Sample ID: 500-171404-5**  
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			509431	10/10/19 13:38	BSO	TAL CHI
Total/NA	Analysis	WI-DRO		1	509442	10/10/19 20:19	SS	TAL CHI

**Client Sample ID: GAC 2**  
Date Collected: 10/08/19 00:00  
Date Received: 10/09/19 08:40

**Lab Sample ID: 500-171404-6**  
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			509431	10/10/19 13:38	BSO	TAL CHI
Total/NA	Analysis	WI-DRO		1	509442	10/10/19 20:55	SS	TAL CHI

# Lab Chronicle

Client: AECOM  
Project/Site: ATC - Madison 60611431

Job ID: 500-171404-1

## Client Sample ID: Discharge

Date Collected: 10/08/19 00:00

Date Received: 10/09/19 08:40

## Lab Sample ID: 500-171404-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	510359	10/17/19 05:10	PMF	TAL CHI
Total/NA	Prep	3510C			509338	10/10/19 08:28	BSO	TAL CHI
Total/NA	Analysis	8270D		1	509599	10/11/19 10:22	NRJ	TAL CHI
Total/NA	Prep	3510C			509431	10/10/19 13:38	BSO	TAL CHI
Total/NA	Analysis	WI-DRO		1	509442	10/10/19 21:30	SS	TAL CHI
Total/NA	Prep	1664B			510522	10/17/19 10:59	RES	TAL CHI
Total/NA	Analysis	1664B		1	510523	10/17/19 11:04	RES	TAL CHI
Total/NA	Analysis	SM 4500 H+ B		1	510271	10/16/19 14:09 (Start) 10/16/19 17:30 (End)	TMS	TAL CHI
Total/NA	Analysis	SM 5210B		1	509722	10/11/19 15:51	JGM	TAL CHI

## Client Sample ID: Trip Blank

Date Collected: 10/08/19 00:00

Date Received: 10/09/19 08:40

## Lab Sample ID: 500-171404-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	510359	10/17/19 05:36	PMF	TAL CHI

**Laboratory References:**

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200



# Accreditation/Certification Summary

Client: AECOM  
Project/Site: ATC - Madison 60611431

Job ID: 500-171404-1

## Laboratory: Eurofins TestAmerica, Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wisconsin	State Program	999580010	08-31-20

1

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3

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# Chain of Custody Record

388522



Environment Testing  
TestAmerica

Address: \_\_\_\_\_

Regulatory Program:  DW  NPDES  RCRA  Other: \_\_\_\_\_

TAL-8210

<b>Client Contact</b> Company Name: <u>AECOM</u> Address: <u>1555 N Rivercenter Dr</u> City/State/Zip: <u>Milwaukee WI 53</u> Phone: <u>414 429 8304</u> Fax: _____ Project Name: <u>AFC - Madison</u> Site: _____ P O # _____		<b>Project Manager:</b> <u>DAVE Henderson</u> Tel/Email: <u>414 429 8304</u> Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input type="checkbox"/> 2 weeks <input checked="" type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		<b>Site Contact:</b> _____ Lab Contact: _____ Date: <u>10/8/19</u> Carrier: _____		COC No: _____ of _____ COCs Sampler: _____ For Lab Use Only: Walk-in Client: _____ Lab Sampling: _____ Job / SDG No.: <u>500-171404</u>				
<b>Sample Identification</b>		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Perform MS / MSD (Y / N)	Filtered Sample (Y / N)	500-171404 COC 	Sample Specific Notes:
1	OWS	10/8/19		G	H <sub>2</sub> O					
2	Inlet									
3	BAG 2									
4	ZEO									
5	GAC 1									
6	GAC 2									
7	Discharge									
8	Trip Blank									
Preservation Used: 1=Ice, 2=HCl, 3=H <sub>2</sub> SO <sub>4</sub> , 4=HNO <sub>3</sub> , 5=NaOH, 6=Other										
<b>Possible Hazard Identification:</b> 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 type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown						<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b> <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
<b>Special Instructions/QC Requirements &amp; Comments:</b>										
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.: _____		Cooler Temp. (°C): Obs'd: <u>5.0</u> Cor'd: _____		Therm ID No.: _____				
Relinquished by: <u>D.S. Henderson</u>		Company: <u>Hea</u>		Date/Time: <u>10/8/19 3:50</u>		Received by: <u>Julia</u>		Company: <u>TA</u>		Date/Time: <u>10-8-19 3:50</u>
Relinquished by: <u>Julia</u>		Company: <u>TA</u>		Date/Time: <u>10-8-19 1700</u>		Received by: _____		Company: _____		Date/Time: _____
Relinquished by: _____		Company: _____		Date/Time: _____		Received by: <u>Shirley Smith</u>		Company: <u>TRCPT</u>		Date/Time: <u>10/9/19 0840</u>

## Login Sample Receipt Checklist

Client: AECOM

Job Number: 500-171404-1

**Login Number: 171404**

**List Source: Eurofins TestAmerica, Chicago**

**List Number: 1**

**Creator: Scott, Sherri L**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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	5.0
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.	N/A	





October 17, 2019

**Vista Work Order No. 1903574**

Mr. Dave Henderson  
AECOM  
1555 N. River Center Drive  
Milwaukee, WI 53212

Dear Mr. Henderson,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on October 10, 2019 under your Project Name 'ATC - Madison'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at [mmaier@vista-analytical.com](mailto:mmaier@vista-analytical.com).

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier  
Laboratory Director



*Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.*

## Vista Work Order No. 1903574

### Case Narrative

#### Sample Condition on Receipt:

Seven aqueous samples were received in good condition and within the method temperature requirements. The samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology. Sample "Field Blank" was not listed on the CoC. The sample collection date and time were not recorded on the sample labels.

#### Analytical Notes:

##### PFAS Isotope Dilution Method

The samples were extracted and analyzed for a selected list of PFAS using the PFAS Isotope Dilution Method. The results for PFHxS, PFOA, PFOS, MeFOSAA, and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

##### Holding Times

The samples were extracted and analyzed within the method hold times.

##### Quality Control

The Initial Calibration and Continuing Calibration Verifications met the acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit. The OPR recoveries were within the method acceptance criteria.

The internal standard recoveries outside the acceptance criteria are listed in the table below.

#### QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
1903574-01	Inlet	PFAS Isotope Dilution Method	13C3-PFBA	H	56.8
1903574-01	Inlet	PFAS Isotope Dilution Method	13C3-PFBS	H	188
1903574-01	Inlet	PFAS Isotope Dilution Method	13C2-4:2 FTS	H	195
1903574-01	Inlet	PFAS Isotope Dilution Method	13C3-PFHxS	H	133
1903574-02	Bag 2	PFAS Isotope Dilution Method	13C2-8:2 FTS	H	33.5
1903574-02	Bag 2	PFAS Isotope Dilution Method	13C2-PFDoA	H	150
1903574-05	GAC 2	PFAS Isotope Dilution Method	d5-EtFOSA	H	9.50
1903574-06	Discharge	PFAS Isotope Dilution Method	d3-MeFOSA	H	9.90
1903574-06	Discharge	PFAS Isotope Dilution Method	d5-EtFOSA	H	9.90
1903574-07	Field Blank	PFAS Isotope Dilution Method	d3-MeFOSA	H	9.50
1903574-07	Field Blank	PFAS Isotope Dilution Method	d5-EtFOSA	H	9.30

H = Recovery was outside laboratory acceptance criteria.

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# Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1903574-01	Inlet	08-Oct-19 13:49	10-Oct-19 10:00	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1903574-02	Bag 2	08-Oct-19 13:51	10-Oct-19 10:00	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1903574-03	ZEO	08-Oct-19 13:53	10-Oct-19 10:00	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1903574-04	GAC 1	08-Oct-19 13:55	10-Oct-19 10:00	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1903574-05	GAC 2	08-Oct-19 13:58	10-Oct-19 10:00	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1903574-06	Discharge	08-Oct-19 14:00	10-Oct-19 10:00	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1903574-07	Field Blank	08-Oct-19 00:00	10-Oct-19 10:00	HDPE Bottle, 250 mL HDPE Bottle, 250 mL

## **ANALYTICAL RESULTS**



Sample ID: Method Blank					PFAS Isotope Dilution Method						
Client Data					Laboratory Data						
Name:	AECOM	Matrix:	Aqueous		Lab Sample:	B9J0058-BLK1		Column:	BEH C18		
Project:	ATC - Madison										
Analyte	CAS Number	Conc. (ng/L)	MDL	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
PFBA	375-22-4	ND	0.365	2.00		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
PFPeA	2706-90-3	ND	0.640	2.00		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
PFBS	375-73-5	ND	0.895	2.00		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
4:2 FTS	757124-72-4	ND	0.695	2.00		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
PFHxA	307-24-4	ND	1.09	2.00		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
PFPeS	2706-91-4	ND	1.21	2.00		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
HFPO-DA	13252-13-6	ND	2.41	2.50		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
PFHpA	375-85-9	ND	0.296	2.00		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
ADONA	919005-14-4	ND	0.361	2.00		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
PFHxS	355-46-4	ND	0.474	2.00		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
6:2 FTS	27619-97-2	ND	1.00	2.00		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
PFOA	335-67-1	ND	0.326	2.00		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
PFHpS	375-92-8	ND	0.469	2.00		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
PFNA	375-95-1	ND	0.405	2.00		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
PFOSA	754-91-6	ND	0.885	2.00		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
PFOS	1763-23-1	0.644	0.404	2.00	J, Q	B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
9Cl-PF3ONS	756426-58-1	ND	0.725	2.00		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
PFDA	335-76-2	ND	0.745	2.00		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
8:2 FTS	39108-34-4	ND	1.03	2.00		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
PFNS	68259-12-1	ND	1.94	2.00		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
MeFOSAA	2355-31-9	ND	0.825	2.00		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
EtFOSAA	2991-50-6	ND	0.685	2.00		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
PFUnA	2058-94-8	ND	0.525	2.00		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
PFDS	335-77-3	ND	0.615	2.00		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
11Cl-PF3OUdS	763051-92-9	ND	1.21	2.00		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
10:2 FTS	120226-60-0	ND	1.57	2.00		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
PFDoA	307-55-1	ND	0.396	2.00		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
MeFOSA	31506-32-8	ND	1.92	10.0		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
PFTrDA	72629-94-8	ND	0.247	2.00		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
PFDoS	79780-39-5	ND	2.09	2.50		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
PFTeDA	376-06-7	ND	0.378	2.00		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
EtFOSA	4151-50-2	ND	2.56	10.0		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
PFHxDA	67905-19-5	0.197	0.147	2.00	J	B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
PFODA	16517-11-6	ND	3.07	3.50		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
MeFOSE	24448-09-7	ND	3.04	10.0		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
EtFOSE	1691-99-2	ND	4.72	10.0		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1	
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution		
13C3-PFBA	IS	94.6	60 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1		

**Sample ID: Method Blank** **PFAS Isotope Dilution Method**

<b>Client Data</b>				<b>Laboratory Data</b>			
Name:	AECOM	Matrix:	Aqueous	Lab Sample:	B9J0058-BLK1	Column:	BEH C18
Project:	ATC - Madison						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFPeA	IS	93.6	60 - 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1
13C3-PFBS	IS	87.2	60 - 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1
13C3-HFPO-DA	IS	98.1	60 - 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1
13C2-4:2 FTS	IS	92.7	20 - 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1
13C2-PFHxA	IS	91.4	70 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1
13C4-PFHpA	IS	101	60 - 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1
13C3-PFHxS	IS	86.2	60 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1
13C2-6:2 FTS	IS	97.7	40 - 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1
13C5-PFNA	IS	89.0	50 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1
13C8-PFOA	IS	44.6	20 - 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1
13C2-PFOA	IS	92.2	60 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1
13C8-PFOS	IS	90.4	60 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1
13C2-PFDA	IS	94.0	60 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1
13C2-8:2 FTS	IS	93.4	40 - 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1
d3-MeFOSAA	IS	79.0	50 - 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1
13C2-PFUnA	IS	92.2	60 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1
d5-EtFOSAA	IS	80.6	50 - 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1
13C2-PFDoA	IS	91.8	30 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1
d3-MeFOSA	IS	13.2	10 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1
13C2-PFTeDA	IS	75.6	20 - 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1
d5-EtFOSA	IS	10.5	10 - 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1
13C2-PFHxDA	IS	71.2	20 - 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1
d7-MeFOSE	IS	32.0	10 - 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1
d9-EtFOSE	IS	28.4	10 - 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:25	1

MDL - Method Detection Limit

RL - Reporting limit

Results reported to MDL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

**Sample ID: OPR**

**PFAS Isotope Dilution Method**

Client Data					Laboratory Data							
Name:	AECOM	Matrix:	Aqueous		Lab Sample:	B9J0058-BS1	Column:	BEH C18				
Project:	ATC - Madison											

Analyte	CAS Number	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	42.7	40.0	107	70 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
PFPeA	2706-90-3	42.4	40.0	106	70 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
PFBS	375-73-5	40.8	40.0	102	70 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
4:2 FTS	757124-72-4	43.3	40.0	108	60 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
PFHxA	307-24-4	43.8	40.0	109	70 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
PFPeS	2706-91-4	49.2	40.0	123	70 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
HFPO-DA	13252-13-6	36.6	40.0	91.4	70 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
PFHpA	375-85-9	43.7	40.0	109	70 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
ADONA	919005-14-4	39.4	40.0	98.6	70 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
PFHxS	355-46-4	41.9	40.0	105	70 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
6:2 FTS	27619-97-2	47.2	40.0	118	60 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
PFOA	335-67-1	45.0	40.0	113	70 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
PFHpS	375-92-8	44.8	40.0	112	60 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
PFNA	375-95-1	46.0	40.0	115	70 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
PFOSA	754-91-6	44.8	40.0	112	70 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
PFOS	1763-23-1	41.5	40.0	104	70 - 130	B	B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
9Cl-PF3ONS	756426-58-1	40.9	40.0	102	70 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
PFDA	335-76-2	42.1	40.0	105	70 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
8:2 FTS	39108-34-4	46.2	40.0	116	60 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
PFNS	68259-12-1	45.1	40.0	113	70 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
MeFOSAA	2355-31-9	47.1	40.0	118	70 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
EtFOSAA	2991-50-6	46.2	40.0	116	70 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
PFUnA	2058-94-8	47.7	40.0	119	70 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
PFDS	335-77-3	39.4	40.0	98.4	60 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
11Cl-PF3OUdS	763051-92-9	40.9	40.0	102	70 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
10:2 FTS	120226-60-0	45.3	40.0	113	60 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
PFDoA	307-55-1	41.6	40.0	104	70 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
MeFOSA	31506-32-8	153	200	76.3	70 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
PFTTrDA	72629-94-8	38.7	40.0	96.7	60 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
PFDoS	79780-39-5	46.3	40.0	116	60 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
PFTeDA	376-06-7	48.3	40.0	121	70 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
EtFOSA	4151-50-2	216	200	108	70 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
PFHxDA	67905-19-5	46.3	40.0	116	70 - 130	B	B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
PFODA	16517-11-6	22.3	40.0	55.8	40 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1

**Sample ID: OPR**

**PFAS Isotope Dilution Method**

Client Data					Laboratory Data						
Name:	AECOM	Matrix:	Aqueous		Lab Sample:	B9J0058-BS1	Column:	BEH C18			
Project:	ATC - Madison										

Analyte	CAS Number	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
MeFOSE	24448-09-7	193	200	96.4	70 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
EtFOSE	1691-99-2	235	200	117	70 - 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
Labeled Standards		Type		% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA		IS		101	60- 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
13C3-PFPeA		IS		96.4	60- 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
13C3-PFBS		IS		101	60- 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
13C3-HFPO-DA		IS		82.6	60- 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
13C2-4:2 FTS		IS		98.5	20- 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
13C2-PFHxA		IS		94.7	70- 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
13C4-PFHpA		IS		105	60- 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
13C3-PFHxS		IS		88.8	60- 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
13C2-6:2 FTS		IS		77.0	40- 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
13C5-PFNA		IS		95.4	50- 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
13C8-PFOSA		IS		52.6	20- 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
13C2-PFOA		IS		94.4	60- 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
13C8-PFOS		IS		92.4	60- 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
13C2-PFDA		IS		96.1	60- 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
13C2-8:2 FTS		IS		93.2	40- 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
d3-MeFOSAA		IS		84.1	50- 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
13C2-PFUnA		IS		91.1	60- 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
d5-EtFOSAA		IS		82.3	50- 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
13C2-PFDoA		IS		88.8	30- 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
d3-MeFOSA		IS		13.4	10- 130		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
13C2-PFTeDA		IS		76.5	20- 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
d5-EtFOSA		IS		11.0	10- 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
13C2-PFHxDA		IS		79.1	20- 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
d7-MeFOSE		IS		38.3	10- 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1
d9-EtFOSE		IS		33.9	10- 150		B9J0058	11-Oct-19	0.250 L	16-Oct-19 16:35	1

**Sample ID: Inlet**

**PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	AECOM	Matrix:	Aqueous	Lab Sample:	1903574-01	Column:	BEH C18
Project:	ATC - Madison	Date Collected:	08-Oct-19 13:49	Date Received:	10-Oct-19 10:00		

Analyte	CAS Number	Conc. (ng/L)	MDL	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	52.1	0.377	2.07		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
PFPeA	2706-90-3	37.2	0.662	2.07		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
PFBS	375-73-5	1.88	0.926	2.07	J	B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
4:2 FTS	757124-72-4	ND	0.719	2.07		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
PFHxA	307-24-4	91.9	1.13	2.07		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
PFPeS	2706-91-4	ND	1.25	2.07		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
HFPO-DA	13252-13-6	ND	2.49	2.59		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
PFHpA	375-85-9	9.48	0.306	2.07		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
ADONA	919005-14-4	ND	0.374	2.07		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
PFHxS	355-46-4	2.93	0.490	2.07		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
6:2 FTS	27619-97-2	1050	5.17	10.3	D	B9J0058	11-Oct-19	0.242 L	17-Oct-19 13:48	5
PFOA	335-67-1	37.8	0.337	2.07		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
PFHpS	375-92-8	ND	0.485	2.07		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
PFNA	375-95-1	1.67	0.419	2.07	J	B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
PFOSA	754-91-6	9.22	0.916	2.07		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
PFOS	1763-23-1	6.15	0.418	2.07	B, Q	B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
9CI-PF3ONS	756426-58-1	ND	0.750	2.07		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
PFDA	335-76-2	0.909	0.771	2.07	J, Q	B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
8:2 FTS	39108-34-4	17.2	1.07	2.07		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
PFNS	68259-12-1	ND	2.00	2.07		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
MeFOSAA	2355-31-9	ND	0.854	2.07		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
EtFOSAA	2991-50-6	ND	0.709	2.07		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
PFUnA	2058-94-8	ND	0.543	2.07		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
PFDS	335-77-3	ND	0.636	2.07		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
11CI-PF3OUdS	763051-92-9	ND	1.25	2.07		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
10:2 FTS	120226-60-0	ND	1.62	2.07		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
PFDoA	307-55-1	ND	0.410	2.07		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
MeFOSA	31506-32-8	ND	1.98	10.3		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
PFTTrDA	72629-94-8	ND	0.256	2.07		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
PFDoS	79780-39-5	ND	2.16	2.59		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
PFTeDA	376-06-7	ND	0.391	2.07		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
EtFOSA	4151-50-2	ND	2.64	10.3		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
PFHxDA	67905-19-5	ND	0.152	2.07		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
PFODA	16517-11-6	ND	3.18	3.62		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
MeFOSE	24448-09-7	ND	3.14	10.3		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
EtFOSE	1691-99-2	ND	4.88	10.3		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	56.8	60 - 130		H	B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1

**Sample ID: Inlet** **PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	AECOM	Matrix:	Aqueous	Lab Sample:	1903574-01	Column:	BEH C18
Project:	ATC - Madison	Date Collected:	08-Oct-19 13:49	Date Received:	10-Oct-19 10:00		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFPeA	IS	93.4	60 - 150		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
13C3-PFBS	IS	188	60 - 150	H	B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
13C3-HFPO-DA	IS	92.4	60 - 150		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
13C2-4:2 FTS	IS	195	20 - 150	H	B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
13C2-PFHxA	IS	95.3	70 - 130		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
13C4-PFHpA	IS	100	60 - 150		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
13C3-PFHxS	IS	133	60 - 130	H	B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
13C2-6:2 FTS	IS	66.5	40 - 150	D	B9J0058	11-Oct-19	0.242 L	17-Oct-19 13:48	5
13C5-PFNA	IS	89.1	50 - 130		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
13C8-PFOA	IS	50.8	20 - 150		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
13C2-PFOA	IS	96.4	60 - 130		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
13C8-PFOS	IS	82.1	60 - 130		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
13C2-PFDA	IS	87.9	60 - 130		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
13C2-8:2 FTS	IS	45.8	40 - 150		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
d3-MeFOSAA	IS	57.0	50 - 150		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
13C2-PFUnA	IS	86.6	60 - 130		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
d5-EtFOSAA	IS	79.8	50 - 150		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
13C2-PFDoA	IS	97.0	30 - 130		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
d3-MeFOSA	IS	16.0	10 - 130		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
13C2-PFTeDA	IS	77.5	20 - 150		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
d5-EtFOSA	IS	15.8	10 - 150		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
13C2-PFHxDA	IS	72.6	20 - 150		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
d7-MeFOSE	IS	58.8	10 - 150		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1
d9-EtFOSE	IS	57.9	10 - 150		B9J0058	11-Oct-19	0.242 L	16-Oct-19 17:07	1

MDL - Method Detection Limit

RL - Reporting limit

Results reported to MDL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

**Sample ID: Bag 2**
**PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	AECOM	Matrix:	Aqueous	Lab Sample:	1903574-02	Column:	BEH C18
Project:	ATC - Madison	Date Collected:	08-Oct-19 13:51	Date Received:	10-Oct-19 10:00		

Analyte	CAS Number	Conc. (ng/L)	MDL	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	61.6	0.378	2.08		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
PFPeA	2706-90-3	32.3	0.664	2.08		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
PFBS	375-73-5	1.52	0.929	2.08	J	B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
4:2 FTS	757124-72-4	ND	0.721	2.08		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
PFHxA	307-24-4	95.1	1.13	2.08		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
PFPeS	2706-91-4	ND	1.26	2.08		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
HFPO-DA	13252-13-6	ND	2.50	2.59		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
PFHpA	375-85-9	8.86	0.307	2.08		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
ADONA	919005-14-4	ND	0.375	2.08		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
PFHxS	355-46-4	9.26	0.491	2.08	Q	B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
6:2 FTS	27619-97-2	750	1.04	2.08		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
PFOA	335-67-1	36.2	0.338	2.08		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
PFHpS	375-92-8	ND	0.486	2.08		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
PFNA	375-95-1	1.91	0.420	2.08	J	B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
PFOSA	754-91-6	7.34	0.918	2.08		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
PFOS	1763-23-1	4.94	0.419	2.08	B	B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
9Cl-PF3ONS	756426-58-1	ND	0.752	2.08		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
PFDA	335-76-2	ND	0.773	2.08		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
8:2 FTS	39108-34-4	17.5	1.07	2.08		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
PFNS	68259-12-1	ND	2.01	2.08		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
MeFOSAA	2355-31-9	ND	0.856	2.08		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
EtFOSAA	2991-50-6	ND	0.711	2.08		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
PFUnA	2058-94-8	ND	0.545	2.08		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
PFDS	335-77-3	ND	0.638	2.08		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
11Cl-PF3OUdS	763051-92-9	ND	1.25	2.08		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
10:2 FTS	120226-60-0	ND	1.62	2.08		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
PFDoA	307-55-1	ND	0.411	2.08		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
MeFOSA	31506-32-8	ND	1.99	10.4		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
PFTTrDA	72629-94-8	ND	0.256	2.08		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
PFDoS	79780-39-5	ND	2.16	2.59		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
PFTeDA	376-06-7	ND	0.392	2.08		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
EtFOSA	4151-50-2	ND	2.65	10.4		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
PFHxDA	67905-19-5	ND	0.153	2.08		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
PFODA	16517-11-6	ND	3.19	3.63		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
MeFOSE	24448-09-7	ND	3.15	10.4		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
EtFOSE	1691-99-2	ND	4.90	10.4		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	65.6	60 - 130			B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1

**Sample ID: Bag 2**
**PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	AECOM	Matrix:	Aqueous	Lab Sample:	1903574-02	Column:	BEH C18
Project:	ATC - Madison	Date Collected:	08-Oct-19 13:51	Date Received:	10-Oct-19 10:00		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFPeA	IS	106	60 - 150		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
13C3-PFBS	IS	148	60 - 150		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
13C3-HFPO-DA	IS	136	60 - 150		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
13C2-4:2 FTS	IS	147	20 - 150		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
13C2-PFHxA	IS	97.2	70 - 130		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
13C4-PFHpA	IS	116	60 - 150		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
13C3-PFHxS	IS	99.5	60 - 130		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
13C2-6:2 FTS	IS	79.5	40 - 150		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
13C5-PFNA	IS	97.9	50 - 130		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
13C8-PFOA	IS	39.1	20 - 150		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
13C2-PFOA	IS	107	60 - 130		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
13C8-PFOS	IS	97.0	60 - 130		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
13C2-PFDA	IS	102	60 - 130		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
13C2-8:2 FTS	IS	33.5	40 - 150	H	B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
d3-MeFOSAA	IS	89.4	50 - 150		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
13C2-PFUnA	IS	88.1	60 - 130		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
d5-EtFOSAA	IS	98.4	50 - 150		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
13C2-PFDoA	IS	150	30 - 130	H	B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
d3-MeFOSA	IS	22.4	10 - 130		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
13C2-PFTeDA	IS	81.8	20 - 150		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
d5-EtFOSA	IS	27.1	10 - 150		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
13C2-PFHxDA	IS	67.3	20 - 150		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
d7-MeFOSE	IS	65.2	10 - 150		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1
d9-EtFOSE	IS	68.5	10 - 150		B9J0058	11-Oct-19	0.241 L	17-Oct-19 13:37	1

MDL - Method Detection Limit

RL - Reporting limit

Results reported to MDL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.



**Sample ID: ZEO**

**PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	AECOM	Matrix:	Aqueous	Lab Sample:	1903574-03	Column:	BEH C18
Project:	ATC - Madison	Date Collected:	08-Oct-19 13:53	Date Received:	10-Oct-19 10:00		

Analyte	CAS Number	Conc. (ng/L)	MDL	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	44.6	0.385	2.11		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
PFPeA	2706-90-3	15.3	0.676	2.11		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
PFBS	375-73-5	ND	0.946	2.11		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
4:2 FTS	757124-72-4	ND	0.734	2.11		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
PFHxA	307-24-4	29.7	1.15	2.11		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
PFPeS	2706-91-4	ND	1.28	2.11		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
HFPO-DA	13252-13-6	ND	2.55	2.64		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
PFHpA	375-85-9	1.31	0.312	2.11	J	B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
ADONA	919005-14-4	ND	0.381	2.11		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
PFHxS	355-46-4	ND	0.500	2.11		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
6:2 FTS	27619-97-2	86.3	1.06	2.11		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
PFOA	335-67-1	9.16	0.344	2.11		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
PFHpS	375-92-8	ND	0.495	2.11		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
PFNA	375-95-1	ND	0.428	2.11		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
PFOSA	754-91-6	72.6	0.935	2.11		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
PFOS	1763-23-1	8.34	0.426	2.11	B	B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
9CI-PF3ONS	756426-58-1	ND	0.766	2.11		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
PFDA	335-76-2	ND	0.787	2.11		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
8:2 FTS	39108-34-4	ND	1.09	2.11		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
PFNS	68259-12-1	ND	2.04	2.11		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
MeFOSAA	2355-31-9	ND	0.872	2.11		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
EtFOSAA	2991-50-6	ND	0.724	2.11		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
PFUnA	2058-94-8	ND	0.555	2.11		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
PFDS	335-77-3	ND	0.650	2.11		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
11CI-PF3OUdS	763051-92-9	ND	1.27	2.11		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
10:2 FTS	120226-60-0	ND	1.65	2.11		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
PFDoA	307-55-1	ND	0.418	2.11		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
MeFOSA	31506-32-8	ND	2.02	10.6		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
PFTrDA	72629-94-8	ND	0.261	2.11		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
PFDoS	79780-39-5	ND	2.20	2.64		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
PFTeDA	376-06-7	ND	0.399	2.11		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
EtFOSA	4151-50-2	ND	2.70	10.6		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
PFHxDA	67905-19-5	ND	0.155	2.11		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
PFODA	16517-11-6	ND	3.24	3.70		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
MeFOSE	24448-09-7	ND	3.21	10.6		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
EtFOSE	1691-99-2	ND	4.99	10.6		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	70.4	60 - 130			B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1

**Sample ID: ZEO** **PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	AECOM	Matrix:	Aqueous	Lab Sample:	1903574-03	Column:	BEH C18
Project:	ATC - Madison	Date Collected:	08-Oct-19 13:53	Date Received:	10-Oct-19 10:00		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFPeA	IS	93.3	60 - 150		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
13C3-PFBS	IS	104	60 - 150		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
13C3-HFPO-DA	IS	91.0	60 - 150		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
13C2-4:2 FTS	IS	104	20 - 150		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
13C2-PFHxA	IS	90.4	70 - 130		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
13C4-PFHpA	IS	99.3	60 - 150		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
13C3-PFHxS	IS	79.1	60 - 130		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
13C2-6:2 FTS	IS	135	40 - 150		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
13C5-PFNA	IS	82.8	50 - 130		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
13C8-PFOA	IS	54.6	20 - 150		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
13C2-PFOA	IS	87.7	60 - 130		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
13C8-PFOS	IS	79.9	60 - 130		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
13C2-PFDA	IS	77.4	60 - 130		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
13C2-8:2 FTS	IS	67.4	40 - 150		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
d3-MeFOSAA	IS	99.7	50 - 150		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
13C2-PFUnA	IS	79.1	60 - 130		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
d5-EtFOSAA	IS	89.3	50 - 150		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
13C2-PFDoA	IS	52.1	30 - 130		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
d3-MeFOSA	IS	18.6	10 - 130		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
13C2-PFTeDA	IS	29.2	20 - 150		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
d5-EtFOSA	IS	15.9	10 - 150		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
13C2-PFHxDA	IS	22.6	20 - 150		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
d7-MeFOSE	IS	51.9	10 - 150		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1
d9-EtFOSE	IS	56.8	10 - 150		B9J0058	11-Oct-19	0.237 L	16-Oct-19 18:00	1

MDL - Method Detection Limit

RL - Reporting limit

Results reported to MDL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

**Sample ID: GAC 1**

**PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	AECOM	Matrix:	Aqueous	Lab Sample:	1903574-04	Column:	BEH C18
Project:	ATC - Madison	Date Collected:	08-Oct-19 13:55	Date Received:	10-Oct-19 10:00		

Analyte	CAS Number	Conc. (ng/L)	MDL	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.387	2.13		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
PFPeA	2706-90-3	ND	0.680	2.13		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
PFBS	375-73-5	ND	0.951	2.13		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
4:2 FTS	757124-72-4	ND	0.739	2.13		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
PFHxA	307-24-4	ND	1.16	2.13		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
PFPeS	2706-91-4	ND	1.29	2.13		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
HFPO-DA	13252-13-6	ND	2.56	2.66		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
PFHpA	375-85-9	ND	0.314	2.13		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
ADONA	919005-14-4	ND	0.384	2.13		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
PFHxS	355-46-4	ND	0.503	2.13		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
6:2 FTS	27619-97-2	2.62	1.06	2.13	Q	B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
PFOA	335-67-1	ND	0.346	2.13		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
PFHpS	375-92-8	ND	0.498	2.13		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
PFNA	375-95-1	ND	0.431	2.13		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
PFOSA	754-91-6	7.71	0.941	2.13		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
PFOS	1763-23-1	0.632	0.429	2.13	J, B, Q	B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
9Cl-PF3ONS	756426-58-1	ND	0.771	2.13		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
PFDA	335-76-2	ND	0.792	2.13		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
8:2 FTS	39108-34-4	ND	1.09	2.13		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
PFNS	68259-12-1	ND	2.06	2.13		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
MeFOSAA	2355-31-9	ND	0.877	2.13		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
EtFOSAA	2991-50-6	ND	0.728	2.13		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
PFUnA	2058-94-8	ND	0.558	2.13		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
PFDS	335-77-3	ND	0.654	2.13		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
11Cl-PF3OUdS	763051-92-9	ND	1.28	2.13		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
10:2 FTS	120226-60-0	ND	1.66	2.13		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
PFDoA	307-55-1	ND	0.421	2.13		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
MeFOSA	31506-32-8	ND	2.04	10.6		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
PFTrDA	72629-94-8	ND	0.263	2.13		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
PFDoS	79780-39-5	ND	2.22	2.66		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
PFTeDA	376-06-7	ND	0.401	2.13		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
EtFOSA	4151-50-2	ND	2.72	10.6		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
PFHxDA	67905-19-5	ND	0.156	2.13		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
PFODA	16517-11-6	ND	3.26	3.72		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
MeFOSE	24448-09-7	ND	3.23	10.6		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
EtFOSE	1691-99-2	ND	5.02	10.6		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	92.4	60 - 130		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1

**Sample ID: GAC 1** **PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	AECOM	Matrix:	Aqueous	Lab Sample:	1903574-04	Column:	BEH C18
Project:	ATC - Madison	Date Collected:	08-Oct-19 13:55	Date Received:	10-Oct-19 10:00		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFPeA	IS	92.3	60 - 150		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
13C3-PFBS	IS	102	60 - 150		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
13C3-HFPO-DA	IS	69.6	60 - 150		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
13C2-4:2 FTS	IS	112	20 - 150		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
13C2-PFHxA	IS	96.6	70 - 130		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
13C4-PFHpA	IS	90.0	60 - 150		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
13C3-PFHxS	IS	111	60 - 130		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
13C2-6:2 FTS	IS	100	40 - 150		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
13C5-PFNA	IS	96.7	50 - 130		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
13C8-PFOA	IS	64.1	20 - 150		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
13C2-PFOA	IS	95.4	60 - 130		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
13C8-PFOS	IS	97.7	60 - 130		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
13C2-PFDA	IS	90.6	60 - 130		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
13C2-8:2 FTS	IS	98.9	40 - 150		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
d3-MeFOSAA	IS	90.1	50 - 150		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
13C2-PFUnA	IS	88.0	60 - 130		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
d5-EtFOSAA	IS	88.0	50 - 150		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
13C2-PFDoA	IS	83.6	30 - 130		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
d3-MeFOSA	IS	18.5	10 - 130		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
13C2-PFTeDA	IS	83.4	20 - 150		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
d5-EtFOSA	IS	15.0	10 - 150		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
13C2-PFHxDA	IS	77.7	20 - 150		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
d7-MeFOSE	IS	44.5	10 - 150		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1
d9-EtFOSE	IS	45.2	10 - 150		B9J0058	11-Oct-19	0.235 L	16-Oct-19 18:11	1

MDL - Method Detection Limit

RL - Reporting limit

Results reported to MDL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

**Sample ID: GAC 2**
**PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	AECOM	Matrix:	Aqueous	Lab Sample:	1903574-05	Column:	BEH C18
Project:	ATC - Madison	Date Collected:	08-Oct-19 13:58	Date Received:	10-Oct-19 10:00		

Analyte	CAS Number	Conc. (ng/L)	MDL	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.383	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
PFPeA	2706-90-3	ND	0.672	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
PFBS	375-73-5	ND	0.939	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
4:2 FTS	757124-72-4	ND	0.730	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
PFHxA	307-24-4	ND	1.14	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
PFPeS	2706-91-4	ND	1.27	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
HFPO-DA	13252-13-6	ND	2.53	2.62		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
PFHpA	375-85-9	ND	0.310	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
ADONA	919005-14-4	ND	0.379	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
PFHxS	355-46-4	ND	0.497	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
6:2 FTS	27619-97-2	ND	1.05	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
PFOA	335-67-1	ND	0.342	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
PFHpS	375-92-8	ND	0.492	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
PFNA	375-95-1	ND	0.425	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
PFOSA	754-91-6	3.34	0.929	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
PFOS	1763-23-1	0.520	0.424	2.10	J, B	B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
9CI-PF3ONS	756426-58-1	ND	0.761	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
PFDA	335-76-2	ND	0.782	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
8:2 FTS	39108-34-4	ND	1.08	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
PFNS	68259-12-1	ND	2.03	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
MeFOSAA	2355-31-9	ND	0.866	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
EtFOSAA	2991-50-6	ND	0.719	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
PFUnA	2058-94-8	ND	0.551	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
PFDS	335-77-3	ND	0.646	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
11CI-PF3OUdS	763051-92-9	ND	1.26	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
10:2 FTS	120226-60-0	ND	1.64	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
PFDoA	307-55-1	ND	0.416	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
MeFOSA	31506-32-8	ND	2.01	10.5		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
PFTriDA	72629-94-8	ND	0.259	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
PFDoS	79780-39-5	ND	2.19	2.62		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
PFTeDA	376-06-7	ND	0.396	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
EtFOSA	4151-50-2	ND	2.68	10.5		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
PFHxDA	67905-19-5	ND	0.154	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
PFODA	16517-11-6	ND	3.22	3.67		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
MeFOSE	24448-09-7	ND	3.19	10.5		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
EtFOSE	1691-99-2	ND	4.95	10.5		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	92.2	60 - 130			B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1

**Sample ID: GAC 2** **PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	AECOM	Matrix:	Aqueous	Lab Sample:	1903574-05	Column:	BEH C18
Project:	ATC - Madison	Date Collected:	08-Oct-19 13:58	Date Received:	10-Oct-19 10:00		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFPeA	IS	93.0	60 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
13C3-PFBS	IS	113	60 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
13C3-HFPO-DA	IS	91.6	60 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
13C2-4:2 FTS	IS	120	20 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
13C2-PFHxA	IS	93.9	70 - 130		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
13C4-PFHpA	IS	103	60 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
13C3-PFHxS	IS	101	60 - 130		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
13C2-6:2 FTS	IS	90.5	40 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
13C5-PFNA	IS	94.8	50 - 130		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
13C8-PFOA	IS	50.0	20 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
13C2-PFOA	IS	92.2	60 - 130		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
13C8-PFOS	IS	97.1	60 - 130		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
13C2-PFDA	IS	90.3	60 - 130		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
13C2-8:2 FTS	IS	100	40 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
d3-MeFOSAA	IS	83.2	50 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
13C2-PFUnA	IS	84.1	60 - 130		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
d5-EtFOSAA	IS	83.3	50 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
13C2-PFDoA	IS	87.2	30 - 130		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
d3-MeFOSA	IS	10.9	10 - 130		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
13C2-PFTeDA	IS	78.5	20 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
d5-EtFOSA	IS	9.50	10 - 150	H	B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
13C2-PFHxDA	IS	77.5	20 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
d7-MeFOSE	IS	32.3	10 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1
d9-EtFOSE	IS	31.1	10 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:21	1

MDL - Method Detection Limit

RL - Reporting limit

Results reported to MDL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: Discharge					PFAS Isotope Dilution Method						
Client Data					Laboratory Data						
Name:	AECOM		Matrix:	Aqueous	Lab Sample:	1903574-06		Column:	BEH C18		
Project:	ATC - Madison		Date Collected:	08-Oct-19 14:00	Date Received:	10-Oct-19 10:00					
Analyte	CAS Number	Conc. (ng/L)	MDL	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
PFBA	375-22-4	ND	0.383	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
PFPeA	2706-90-3	ND	0.672	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
PFBS	375-73-5	ND	0.940	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
4:2 FTS	757124-72-4	ND	0.730	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
PFHxA	307-24-4	ND	1.14	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
PFPeS	2706-91-4	ND	1.27	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
HFPO-DA	13252-13-6	ND	2.53	2.62		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
PFHpA	375-85-9	ND	0.310	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
ADONA	919005-14-4	ND	0.379	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
PFHxS	355-46-4	ND	0.497	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
6:2 FTS	27619-97-2	ND	1.05	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
PFOA	335-67-1	ND	0.342	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
PFHpS	375-92-8	ND	0.492	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
PFNA	375-95-1	ND	0.425	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
PFOSA	754-91-6	2.49	0.929	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
PFOS	1763-23-1	0.553	0.424	2.10	J, B	B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
9Cl-PF3ONS	756426-58-1	ND	0.761	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
PFDA	335-76-2	ND	0.782	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
8:2 FTS	39108-34-4	ND	1.08	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
PFNS	68259-12-1	ND	2.03	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
MeFOSAA	2355-31-9	ND	0.866	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
EtFOSAA	2991-50-6	ND	0.719	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
PFUnA	2058-94-8	ND	0.551	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
PFDS	335-77-3	ND	0.646	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
11Cl-PF3OUdS	763051-92-9	ND	1.27	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
10:2 FTS	120226-60-0	ND	1.64	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
PFDoA	307-55-1	ND	0.416	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
MeFOSA	31506-32-8	ND	2.01	10.5		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
PFTrDA	72629-94-8	ND	0.259	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
PFDoS	79780-39-5	ND	2.19	2.62		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
PFTeDA	376-06-7	ND	0.396	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
EtFOSA	4151-50-2	ND	2.68	10.5		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
PFHxDA	67905-19-5	ND	0.154	2.10		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
PFODA	16517-11-6	ND	3.22	3.67		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
MeFOSE	24448-09-7	ND	3.19	10.5		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
EtFOSE	1691-99-2	ND	4.96	10.5		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1	
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution		
13C3-PFBA	IS	93.2	60 - 130		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1		

**Sample ID: Discharge** **PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	AECOM	Matrix:	Aqueous	Lab Sample:	1903574-06	Column:	BEH C18
Project:	ATC - Madison	Date Collected:	08-Oct-19 14:00	Date Received:	10-Oct-19 10:00		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFPeA	IS	91.7	60 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1
13C3-PFBS	IS	121	60 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1
13C3-HFPO-DA	IS	90.8	60 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1
13C2-4:2 FTS	IS	132	20 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1
13C2-PFHxA	IS	99.0	70 - 130		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1
13C4-PFHpA	IS	100	60 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1
13C3-PFHxS	IS	120	60 - 130		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1
13C2-6:2 FTS	IS	117	40 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1
13C5-PFNA	IS	97.3	50 - 130		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1
13C8-PFOA	IS	51.4	20 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1
13C2-PFOA	IS	97.1	60 - 130		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1
13C8-PFOS	IS	97.4	60 - 130		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1
13C2-PFDA	IS	91.2	60 - 130		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1
13C2-8:2 FTS	IS	105	40 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1
d3-MeFOSAA	IS	79.1	50 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1
13C2-PFUnA	IS	92.2	60 - 130		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1
d5-EtFOSAA	IS	84.4	50 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1
13C2-PFDoA	IS	86.2	30 - 130		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1
d3-MeFOSA	IS	9.90	10 - 130	H	B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1
13C2-PFTeDA	IS	78.9	20 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1
d5-EtFOSA	IS	9.90	10 - 150	H	B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1
13C2-PFHxDA	IS	83.3	20 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1
d7-MeFOSE	IS	26.1	10 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1
d9-EtFOSE	IS	23.9	10 - 150		B9J0058	11-Oct-19	0.238 L	16-Oct-19 18:32	1

MDL - Method Detection Limit

RL - Reporting limit

Results reported to MDL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.



Sample ID: Field Blank					PFAS Isotope Dilution Method					
Client Data				Laboratory Data						
Name:	AECOM	Matrix:	Aqueous	Lab Sample:	1903574-07	Column:	BEH C18			
Project:	ATC - Madison	Date Collected:	08-Oct-19 00:00	Date Received:	10-Oct-19 10:00					
Analyte	CAS Number	Conc. (ng/L)	MDL	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.370	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
PFPeA	2706-90-3	ND	0.650	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
PFBS	375-73-5	ND	0.909	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
4:2 FTS	757124-72-4	ND	0.706	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
PFHxA	307-24-4	ND	1.11	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
PFPeS	2706-91-4	ND	1.23	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
HFPO-DA	13252-13-6	ND	2.45	2.54		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
PFHpA	375-85-9	ND	0.300	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
ADONA	919005-14-4	ND	0.367	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
PFHxS	355-46-4	ND	0.481	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
6:2 FTS	27619-97-2	ND	1.02	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
PFOA	335-67-1	ND	0.331	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
PFHpS	375-92-8	ND	0.476	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
PFNA	375-95-1	ND	0.411	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
PFOSA	754-91-6	ND	0.899	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
PFOS	1763-23-1	0.412	0.410	2.03	J, B	B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
9CI-PF3ONS	756426-58-1	ND	0.736	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
PFDA	335-76-2	ND	0.757	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
8:2 FTS	39108-34-4	ND	1.05	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
PFNS	68259-12-1	ND	1.97	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
MeFOSAA	2355-31-9	ND	0.838	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
EtFOSAA	2991-50-6	ND	0.696	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
PFUnA	2058-94-8	ND	0.533	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
PFDS	335-77-3	ND	0.625	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
11CI-PF3OUdS	763051-92-9	ND	1.22	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
10:2 FTS	120226-60-0	ND	1.59	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
PFDoA	307-55-1	ND	0.402	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
MeFOSA	31506-32-8	ND	1.95	10.2		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
PFTTrDA	72629-94-8	ND	0.251	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
PFDoS	79780-39-5	ND	2.12	2.54		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
PFTeDA	376-06-7	ND	0.383	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
EtFOSA	4151-50-2	ND	2.60	10.2		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
PFHxDA	67905-19-5	ND	0.149	2.03		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
PFODA	16517-11-6	ND	3.12	3.55		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
MeFOSE	24448-09-7	ND	3.08	10.2		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
EtFOSE	1691-99-2	ND	4.79	10.2		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C3-PFBA	IS	96.0	60 - 130		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1	

**Sample ID: Field Blank** **PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	AECOM	Matrix:	Aqueous	Lab Sample:	1903574-07	Column:	BEH C18
Project:	ATC - Madison	Date Collected:	08-Oct-19 00:00	Date Received:	10-Oct-19 10:00		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFPeA	IS	93.3	60 - 150		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
13C3-PFBS	IS	101	60 - 150		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
13C3-HFPO-DA	IS	76.1	60 - 150		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
13C2-4:2 FTS	IS	106	20 - 150		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
13C2-PFHxA	IS	92.7	70 - 130		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
13C4-PFHpA	IS	97.1	60 - 150		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
13C3-PFHxS	IS	94.5	60 - 130		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
13C2-6:2 FTS	IS	99.2	40 - 150		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
13C5-PFNA	IS	91.2	50 - 130		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
13C8-PFOA	IS	49.4	20 - 150		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
13C2-PFOA	IS	96.6	60 - 130		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
13C8-PFOS	IS	99.4	60 - 130		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
13C2-PFDA	IS	98.9	60 - 130		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
13C2-8:2 FTS	IS	104	40 - 150		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
d3-MeFOSAA	IS	78.7	50 - 150		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
13C2-PFUnA	IS	91.4	60 - 130		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
d5-EtFOSAA	IS	77.8	50 - 150		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
13C2-PFDoA	IS	88.7	30 - 130		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
d3-MeFOSA	IS	9.50	10 - 130	H	B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
13C2-PFTeDA	IS	74.9	20 - 150		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
d5-EtFOSA	IS	9.30	10 - 150	H	B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
13C2-PFHxDA	IS	80.2	20 - 150		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
d7-MeFOSE	IS	38.9	10 - 150		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1
d9-EtFOSE	IS	35.9	10 - 150		B9J0058	11-Oct-19	0.246 L	16-Oct-19 18:43	1

MDL - Method Detection Limit

RL - Reporting limit

Results reported to MDL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

## DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
D	Dilution
DL	Detection limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limits of Detection
LOQ	Limits of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
NA	Not applicable
ND	Not Detected
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

### Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	19-013-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-23
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2018017
Massachusetts Department of Environmental Protection	N/A
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	1521520
New Hampshire Environmental Accreditation Program	207718-B
New Jersey Department of Environmental Protection	190001
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-010
Pennsylvania Department of Environmental Protection	016
Texas Commission on Environmental Quality	T104704189-19-10
Vermont Department of Health	VT-4042
Virginia Department of General Services	10272
Washington Department of Ecology	C584-19
Wisconsin Department of Natural Resources	998036160

*Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.*

## NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	Method
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA TO-9A

MATRIX: Biological Tissue	
Description of Test	Method
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	Method
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613/1613B
1,4-Dioxane (1,4-Diethyleneoxide) analysis by GC/HRMS	EPA 522
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	ISO 25101 2009

MATRIX: Non-Potable Water	
Description of Test	Method
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	Method
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A



# CHAIN OF CUSTODY

**For Laboratory Use Only**  
 Work Order #: 1903574 Temp: 20.9 °C  
 Storage ID: R-13, WR-2 Storage Secured: Yes  No

Project ID: ATC - Madison PO#: 60611431 Sampler: dsh  
 (name)

TAT Standard:  21 days  
 (check one): Rush (surcharge may apply)  
 14 days  7 days Specify: \_\_\_\_\_

Relinquished by (printed name and signature): <u>Emily Sengstock</u>	Date: <u>10/9/19</u>	Time: <u>3:00pm</u>	Received by (printed name and signature): <u>Hayden Grant</u>	Date: <u>10/10/19</u>	Time: <u>10:00</u>
Relinquished by (printed name and signature): _____	Date: _____	Time: _____	Received by (printed name and signature): _____	Date: _____	Time: _____

SHIP TO: Vista Analytical Laboratory  
 1104 Windfield Way  
 El Dorado Hills, CA 95762  
 (916) 673-1520 \* Fax (916) 673-0106

Method of Shipment: \_\_\_\_\_

Add Analysis(es) Requested

ATTN: \_\_\_\_\_

Tracking No.: \_\_\_\_\_

Container(s)

Sample ID	Date	Time	Location/ Sample Description	Quantity	Type	Matrix	Add Analysis(es) Requested				OTHER: Please attach analyte list	Comments		
							PFOA/PFOS	UCMR3 PFAS List 6	537.1 List: 14 or 18 (Circle One)	EPA Draft List of 24			PFAS by Isotope Dilution	EPA Method 537 (DW only)
Inlet	10/8/19	1349	/	2	P	AQ					X	WI List of 36	WI List of 36	
Bag 2	10/8/19	1351										X	WI List of 36	WI List of 36
ZEO	10/8/19	1353										X	WI List of 36	WI List of 36
GAC 1	10/8/19	1355										X	WI List of 36	WI List of 36
GAC 2	10/8/19	1358										X	WI List of 36	WI List of 36
Discharge	10/8/19	1400										X	WI List of 36	WI List of 36
/	10/8/19	/											WI List of 36	WI List of 36
/	10/8/19	/											WI List of 36	WI List of 36

Special Instructions/Comments:

**SEND DOCUMENTATION AND RESULTS TO:**

Name: Dave Henderson  
 Company: AECOM  
 Address: 1555 N Rivercenter dr  
 City: Milwaukee WI 53212  
 Phone: 414-429-8304  
 Email: Dave.henderson@aecom.com

Container Types: P= HDPE, PJ= HDPE Jar  
 PY= Polypropylene, O = Other: AQ

Bottle Preservation Type:  
 TZ = Trizma: none

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,  
 SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: AQ

# Sample Log-In Checklist

 Page # 1 of 1

 Vista Work Order #: 1903574 TAT rush

Samples Arrival:	Date/Time <u>10/10/19 10:00</u>		Initials: <u>HOG</u>		Location: <u>WR-2</u>		
					Shelf/Rack: <u>NA</u>		
Delivered By:	<input checked="" type="checkbox"/> FedEx	<input type="checkbox"/> UPS	<input type="checkbox"/> On Trac	<input type="checkbox"/> GSO	<input type="checkbox"/> DHL	<input type="checkbox"/> Hand Delivered	<input type="checkbox"/> Other
Preservation:	<input checked="" type="checkbox"/> Ice		<input type="checkbox"/> Blue Ice		<input type="checkbox"/> Dry Ice		<input type="checkbox"/> None
Temp °C: <u>2.9</u>	(uncorrected)		Probe used: Y / <input checked="" type="checkbox"/> N			Thermometer ID: <u>IR-3</u>	
Temp °C: <u>2.9</u>	(corrected)						

	YES	NO	NA
Shipping Container(s) Intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shipping Custody Seals Intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Airbill	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trk # <u>7766 4555 7167</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shipping Documentation Present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shipping Container	<input type="checkbox"/> Vista	<input checked="" type="checkbox"/> <u>Client</u>	<input type="checkbox"/> Retain
	<input type="checkbox"/>	<input checked="" type="checkbox"/> <u>Return</u>	<input type="checkbox"/> Dispose
Chain of Custody / Sample Documentation Present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chain of Custody / Sample Documentation Complete?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Holding Time Acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Logged In:	Date/Time <u>10/10/19 1049</u>		Initials: <u>WWS</u>		Location: <u>R-13, WR-2</u>			
					Shelf/Rack: <u>A-2, E-6</u>			
COC Anomaly/Sample Acceptance Form completed?						<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:



# CoC/Label Reconciliation Report WO# 1903574

LabNumber	CoC Sample ID	Label ID matches COCID	Label ID doesn't match COCID	SampleAlias	Sampled	Label Sampled matches	Sampled doesn't match	Container	Container Correct	BaseMatrix	ReportMatrix
1903574-01	A Inlet	<input checked="" type="checkbox"/>			08-Oct-19 13:49	<input type="checkbox"/>		HDPE Bottle, 250 mL	<input checked="" type="checkbox"/>	Aqueous	Aqueous
1903574-01	B Inlet	<input checked="" type="checkbox"/>			08-Oct-19 13:49	<input type="checkbox"/>		HDPE Bottle, 250 mL	<input checked="" type="checkbox"/>	Aqueous	Aqueous
1903574-02	A Bag 2	<input checked="" type="checkbox"/>			08-Oct-19 13:51	<input type="checkbox"/>		HDPE Bottle, 250 mL	<input checked="" type="checkbox"/>	Aqueous	Aqueous
1903574-02	B Bag 2	<input checked="" type="checkbox"/>			08-Oct-19 13:51	<input type="checkbox"/>		HDPE Bottle, 250 mL	<input checked="" type="checkbox"/>	Aqueous	Aqueous
1903574-03	A ZEO	<input checked="" type="checkbox"/>			08-Oct-19 13:53	<input type="checkbox"/>		HDPE Bottle, 250 mL	<input checked="" type="checkbox"/>	Aqueous	Aqueous
1903574-03	B ZEO	<input checked="" type="checkbox"/>			08-Oct-19 13:53	<input type="checkbox"/>		HDPE Bottle, 250 mL	<input checked="" type="checkbox"/>	Aqueous	Aqueous
1903574-04	A GAC 1	<input checked="" type="checkbox"/>			08-Oct-19 13:55	<input type="checkbox"/>		HDPE Bottle, 250 mL	<input checked="" type="checkbox"/>	Aqueous	Aqueous
1903574-04	B GAC 1	<input checked="" type="checkbox"/>			08-Oct-19 13:55	<input type="checkbox"/>		HDPE Bottle, 250 mL	<input checked="" type="checkbox"/>	Aqueous	Aqueous
1903574-05	A GAC 2	<input checked="" type="checkbox"/>			08-Oct-19 13:58	<input type="checkbox"/>		HDPE Bottle, 250 mL	<input checked="" type="checkbox"/>	Aqueous	Aqueous
1903574-05	B GAC 2	<input checked="" type="checkbox"/>			08-Oct-19 13:58	<input type="checkbox"/>		HDPE Bottle, 250 mL	<input checked="" type="checkbox"/>	Aqueous	Aqueous
1903574-06	A Discharge	<input checked="" type="checkbox"/>			08-Oct-19 14:00	<input type="checkbox"/>		HDPE Bottle, 250 mL	<input checked="" type="checkbox"/>	Aqueous	Aqueous
1903574-06	B Discharge	<input checked="" type="checkbox"/>			08-Oct-19 14:00	<input type="checkbox"/>		HDPE Bottle, 250 mL	<input checked="" type="checkbox"/>	Aqueous	Aqueous
1903574-07	A Field Blank	<input checked="" type="checkbox"/>			08-Oct-19 00:00	<input type="checkbox"/>		HDPE Bottle, 250 mL	<input checked="" type="checkbox"/>	Aqueous	Aqueous
1903574-07	B Field Blank	<input checked="" type="checkbox"/>			08-Oct-19 00:00	<input type="checkbox"/>		HDPE Bottle, 250 mL	<input checked="" type="checkbox"/>	Aqueous	Aqueous

A)

X

	Yes	No	NA
Sample Container Intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample Custody Seals Intact?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Adequate Sample Volume?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Preservation Documented: Na2S2O3 Trizma <u>None</u> Other	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If Chlorinated or Drinking Water Samples, Acceptable Preservation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments:

\* time & Date not indicated on Client label

A) Sample not listed on Coc. Received (2) 250ml HDPE bottles

Verified by/Date: SLJ 10/10/19

Chain of Custody Anomaly/Sample Acceptance Form



Client: AECOM
Contact: Dave Henderson
Email: Dave.Henderson@aecom.com
Phone: (414) 944-6190

Workorder Number: 1903574
Date Received: 10-Oct-19 10:00
Documented by/date: MSparks/10-10-19

Please review the following information and complete the Client Authorization section. To comply with NELAC regulations, we must receive authorization before proceeding with sample analysis.

- Sample Collection Date and/or Time not provided on sample container labels
Temperature outside Method Requirement (WI-PHT)
Sample ID Not Reconcilable
Sample Holding Time Missed
Insufficient Sample Size
All Sample Container(s) Broken
Drinking Water Incorrect Container Type
Chain-of-Custody not received, illegible or destroyed
Other: see comments

Comments/Samples Affected:

Received 2-250mL HDPE bottles with sample label ID "Field Blank". Not listed on COC.

Client Authorization

Proceed with Analysis: YES NO

Signature and Date [Signature] 10/17/19

Client Comments/Instructions The client was notified by email Friday 10/11/19. -AMR

## Linnemanstons, Leo

---

**From:** Willis, Nathaniel E - DNR <Nathaniel.Willis@wisconsin.gov>  
**Sent:** Friday, October 18, 2019 2:20 PM  
**To:** Henderson, Dave  
**Cc:** Knutson, Jason R - DNR; Stocks, Adrian G - DNR; Schmoller, Michael R - DNR; Biemann, Erika; Linnemanstons, Leo; Moen, Trevor J - DNR  
**Subject:** RE: ATC Fire Suppression Water Treatment - startup lab results  
**Attachments:** Coverage Letter\_ATCBlountSSWaterDischarge.pdf; J171404-1 UDS Level 2 Report Final Report.pdf; Summary\_1903574.pdf; Figure 1 PFAS Treatment Flow Diagram.pdf

Hi Dave,

Thanks for submitting these results. Given the extremely low level of PFOS (0.553 ng/L) and comparable level of the contaminated sample blank (0.412 ng/L) in the effluent, along with the satisfactory levels of the other parameters, we don't object to this discharge under the Petroleum Contaminated Water General Permit. As a reminder of the conditions of the GP, I have attached the original cover letter to this email, and a link where the permit and fact sheet can be downloaded here: <http://dnr.wi.gov/topic/wastewater/generalpermits.html>. Please let me know if you have any questions.

Best,  
Nate

**We are committed to service excellence.**

Visit our survey at <http://dnr.wi.gov/customersurvey> to evaluate how I did.

**Nate Willis**

Phone: (608) 266-3221

[nathaniel.willis@wisconsin.gov](mailto:nathaniel.willis@wisconsin.gov)

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**From:** Henderson, Dave [mailto:Dave.Henderson@aecom.com]  
**Sent:** Friday, October 18, 2019 12:47 PM  
**To:** Willis, Nathaniel E - DNR <Nathaniel.Willis@wisconsin.gov>  
**Subject:** ATC Fire Suppression Water Treatment - startup lab results

Nate,

As we just discussed, attached are two lab reports. The Vista report is the PFAS results and the Eurofins report are the WPDES and DRO results.

As I mentioned, of our regulated PFAS compounds, we have a lab method blank detection for PFOS. The PFOS artifact, at a concentration of <1.0 ng/l, seems to carry over into the data set showing up after GAC-1, GAC-2, and GAC-3 (i.e. the discharge sample). I've attached a schematic figure showing the sampling locations relative to the treatment system.

On our client's behalf, we ask that the WDNR review the results, see if you concur with the lab artifact analysis, and if possible, provide approval to begin discharge from the treatment system under our WPDES permit.

Please call with any questions.

Thanks

dsh

**David Henderson, P.E. (WI)**

Senior Project Manager, Environment, Midwest

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**AECOM**

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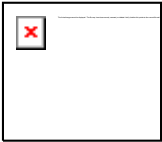
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