

## ANALYTICAL REPORT

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Tel: (916)373-5600

Laboratory Job ID: 320-52867-1  
Client Project/Site: PFAS, WDNR

**For:**

Wood E&I Solutions Inc  
800 Marquette Avenue  
Suite 1200  
Minneapolis, Minnesota 55402

Attn: Emma Driver



*Authorized for release by:  
8/26/2019 4:37:39 PM*

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



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# Definitions/Glossary

Client: Wood E&I Solutions Inc  
Project/Site: PFAS, WDNR

Job ID: 320-52867-1

## Qualifiers

### LCMS

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

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: Wood E&I Solutions Inc  
Project/Site: PFAS, WDNR

Job ID: 320-52867-1

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## Job ID: 320-52867-1

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### Laboratory: Eurofins TestAmerica, Sacramento

#### Narrative

##### Receipt

The samples were received on 8/1/2019 8:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.2° C.

##### LCMS

Method(s) 537 (modified): Results for samples SW-BSMT-0719 (320-52867-1) were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits

Method(s) 537 (modified), EPA 537 (Mod), EPA 537(Mod): The first level standard from the initial calibration curve is used to evaluate the tune criteria. The instrument mass windows are set at +/- 0.5amu; therefore, detection of the analyte serves as verification that the assigned mass is within +/- 0.5amu of the true value, which meets the DoD/DOE QSM tune criterion.

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

##### Organic Prep

Method(s) 3535: Insufficient sample volume was available to perform a matrix spike duplicate (MSD) associated with preparation batch 320-312378.

Method(s) 3535: The following sample was observed to contain sediment prior to extraction: SW-BSMT-0719 (320-52867-1).

Method(s) 3535: The following samples contain non-settleable particulate matter which plugged the solid-phase extraction column: SW-BSMT-0719 (320-52867-1).

Method(s) 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-313306.

Method(s) 3535: The following sample was observed to be a light yellow color in the final extract: SW-BSMT-0719 (320-52867-1).

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

# Detection Summary

Client: Wood E&I Solutions Inc  
Project/Site: PFAS, WDNR

Job ID: 320-52867-1

## Client Sample ID: SW-BSMT-0719

## Lab Sample ID: 320-52867-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	85		1.9	0.34	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	190		1.9	0.47	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	130		1.9	0.56	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	80		1.9	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	18		1.9	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	60		1.9	0.30	ng/L	1		537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	3.2		1.9	1.1	ng/L	1		537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	5.1		1.9	0.53	ng/L	1		537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	1.5	J	1.9	0.28	ng/L	1		537 (modified)	Total/NA
Perfluoro-n-hexadecanoic acid (PFHxDA)	1.0	J	1.9	0.86	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	5.7		1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	1.1	J	1.9	0.29	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	7.1	B	1.9	0.16	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	2.9		1.9	0.18	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	200		1.9	0.52	ng/L	1		537 (modified)	Total/NA
Perfluorodecanesulfonic acid (PFDS)	0.73	J	1.9	0.31	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	57	B	1.9	0.34	ng/L	1		537 (modified)	Total/NA
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	38		19	1.8	ng/L	1		537 (modified)	Total/NA
MeFOSA	3.0		1.9	0.41	ng/L	1		537 (modified)	Total/NA
10:2 FTS	0.28	J	1.9	0.18	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	710		19	8.2	ng/L	10		537 (modified)	Total/NA
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA) - DL	1400		190	30	ng/L	10		537 (modified)	Total/NA

## Client Sample ID: EB-BSMT-0719

## Lab Sample ID: 320-52867-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	0.23	J B	1.9	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.4	J	1.9	0.53	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	3.3	B	1.9	0.34	ng/L	1		537 (modified)	Total/NA
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.4	J	19	3.0	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

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# Client Sample Results

Client: Wood E&I Solutions Inc  
Project/Site: PFAS, WDNR

Job ID: 320-52867-1

**Client Sample ID: SW-BSMT-0719**

**Lab Sample ID: 320-52867-1**

Date Collected: 07/30/19 16:00

Matrix: Water

Date Received: 08/01/19 08:55

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	85		1.9	0.34	ng/L		08/08/19 08:01	08/11/19 21:04	1
Perfluoropentanoic acid (PFPeA)	190		1.9	0.47	ng/L		08/08/19 08:01	08/11/19 21:04	1
Perfluorohexanoic acid (PFHxA)	130		1.9	0.56	ng/L		08/08/19 08:01	08/11/19 21:04	1
Perfluoroheptanoic acid (PFHpA)	80		1.9	0.24	ng/L		08/08/19 08:01	08/11/19 21:04	1
Perfluorononanoic acid (PFNA)	18		1.9	0.26	ng/L		08/08/19 08:01	08/11/19 21:04	1
Perfluorodecanoic acid (PFDA)	60		1.9	0.30	ng/L		08/08/19 08:01	08/11/19 21:04	1
Perfluoroundecanoic acid (PFUnA)	3.2		1.9	1.1	ng/L		08/08/19 08:01	08/11/19 21:04	1
Perfluorododecanoic acid (PFDoA)	5.1		1.9	0.53	ng/L		08/08/19 08:01	08/11/19 21:04	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.3	ng/L		08/08/19 08:01	08/11/19 21:04	1
Perfluorotetradecanoic acid (PFTeA)	1.5 J		1.9	0.28	ng/L		08/08/19 08:01	08/11/19 21:04	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	1.0 J		1.9	0.86	ng/L		08/08/19 08:01	08/11/19 21:04	1
Perfluorobutanesulfonic acid (PFBS)	5.7		1.9	0.19	ng/L		08/08/19 08:01	08/11/19 21:04	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		1.9	0.44	ng/L		08/08/19 08:01	08/11/19 21:04	1
Perfluoropentanesulfonic acid (PFPeS)	1.1 J		1.9	0.29	ng/L		08/08/19 08:01	08/11/19 21:04	1
Perfluorohexanesulfonic acid (PFHxS)	7.1 B		1.9	0.16	ng/L		08/08/19 08:01	08/11/19 21:04	1
Perfluoroheptanesulfonic Acid (PFHpS)	2.9		1.9	0.18	ng/L		08/08/19 08:01	08/11/19 21:04	1
Perfluorooctanesulfonic acid (PFOS)	200		1.9	0.52	ng/L		08/08/19 08:01	08/11/19 21:04	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.15	ng/L		08/08/19 08:01	08/11/19 21:04	1
Perfluorodecanesulfonic acid (PFDS)	0.73 J		1.9	0.31	ng/L		08/08/19 08:01	08/11/19 21:04	1
Perfluorooctanesulfonamide (FOSA)	57 B		1.9	0.34	ng/L		08/08/19 08:01	08/11/19 21:04	1
N-ethylperfluorooctanesulfonamide doacetic acid (NEtFOSAA)	38		19	1.8	ng/L		08/08/19 08:01	08/11/19 21:04	1
4:2 FTS	ND		19	5.0	ng/L		08/08/19 08:01	08/11/19 21:04	1
6:2 FTS	ND		19	1.9	ng/L		08/08/19 08:01	08/11/19 21:04	1
NEtFOSAM	ND		1.9	0.84	ng/L		08/08/19 08:01	08/11/19 21:04	1
MeFOSA	3.0		1.9	0.41	ng/L		08/08/19 08:01	08/11/19 21:04	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.43	ng/L		08/08/19 08:01	08/11/19 21:04	1
F-53B Major	ND		1.9	0.23	ng/L		08/08/19 08:01	08/11/19 21:04	1
HFPO-DA (GenX)	ND		3.9	1.4	ng/L		08/08/19 08:01	08/11/19 21:04	1
F-53B Minor	ND		1.9	0.31	ng/L		08/08/19 08:01	08/11/19 21:04	1
10:2 FTS	0.28 J		1.9	0.18	ng/L		08/08/19 08:01	08/11/19 21:04	1
DONA	ND		1.9	0.17	ng/L		08/08/19 08:01	08/11/19 21:04	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	65		25 - 150	08/08/19 08:01	08/11/19 21:04	1
13C5 PFPeA	88		25 - 150	08/08/19 08:01	08/11/19 21:04	1
13C2 PFHxA	102		25 - 150	08/08/19 08:01	08/11/19 21:04	1
13C4 PFHpA	110		25 - 150	08/08/19 08:01	08/11/19 21:04	1
13C5 PFNA	112		25 - 150	08/08/19 08:01	08/11/19 21:04	1
13C2 PFDA	116		25 - 150	08/08/19 08:01	08/11/19 21:04	1
13C2 PFUnA	118		25 - 150	08/08/19 08:01	08/11/19 21:04	1

Euofins TestAmerica, Sacramento

# Client Sample Results

Client: Wood E&I Solutions Inc  
Project/Site: PFAS, WDNR

Job ID: 320-52867-1

**Client Sample ID: SW-BSMT-0719**

**Lab Sample ID: 320-52867-1**

**Date Collected: 07/30/19 16:00**

**Matrix: Water**

**Date Received: 08/01/19 08:55**

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDoA	114		25 - 150	08/08/19 08:01	08/11/19 21:04	1
13C2 PFTeDA	78		25 - 150	08/08/19 08:01	08/11/19 21:04	1
13C3 PFBS	109		25 - 150	08/08/19 08:01	08/11/19 21:04	1
18O2 PFHxS	115		25 - 150	08/08/19 08:01	08/11/19 21:04	1
13C4 PFOS	113		25 - 150	08/08/19 08:01	08/11/19 21:04	1
13C8 FOSA	100		25 - 150	08/08/19 08:01	08/11/19 21:04	1
d5-NEtFOSAA	116		25 - 150	08/08/19 08:01	08/11/19 21:04	1
M2-6:2 FTS	134		25 - 150	08/08/19 08:01	08/11/19 21:04	1
M2-4:2 FTS	140		25 - 150	08/08/19 08:01	08/11/19 21:04	1
13C2 PFHxDA	75		25 - 150	08/08/19 08:01	08/11/19 21:04	1
13C3 HFPO-DA	96		25 - 150	08/08/19 08:01	08/11/19 21:04	1
d9-N-EtFOSE-M	53		10 - 120	08/08/19 08:01	08/11/19 21:04	1
d-N-MeFOSA-M	66		20 - 150	08/08/19 08:01	08/11/19 21:04	1
d7-N-MeFOSE-M	54		10 - 120	08/08/19 08:01	08/11/19 21:04	1
d-N-EtFOSA-M	59		20 - 150	08/08/19 08:01	08/11/19 21:04	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	710		19	8.2	ng/L		08/08/19 08:01	08/17/19 21:39	10
N-methylperfluorooctanesulfonamide (NMeFOSAA)	1400		190	30	ng/L		08/08/19 08:01	08/17/19 21:39	10
8:2 FTS	ND		190	19	ng/L		08/08/19 08:01	08/17/19 21:39	10

  

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOA	107		25 - 150	08/08/19 08:01	08/17/19 21:39	10
d3-NMeFOSAA	99		25 - 150	08/08/19 08:01	08/17/19 21:39	10
M2-8:2 FTS	107		25 - 150	08/08/19 08:01	08/17/19 21:39	10

**Client Sample ID: EB-BSMT-0719**

**Lab Sample ID: 320-52867-2**

**Date Collected: 07/30/19 16:15**

**Matrix: Water**

**Date Received: 08/01/19 08:55**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.9	0.34	ng/L		08/08/19 08:01	08/11/19 21:12	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	0.48	ng/L		08/08/19 08:01	08/11/19 21:12	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.56	ng/L		08/08/19 08:01	08/11/19 21:12	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.24	ng/L		08/08/19 08:01	08/11/19 21:12	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.83	ng/L		08/08/19 08:01	08/11/19 21:12	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		08/08/19 08:01	08/11/19 21:12	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.30	ng/L		08/08/19 08:01	08/11/19 21:12	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		08/08/19 08:01	08/11/19 21:12	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		08/08/19 08:01	08/11/19 21:12	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.3	ng/L		08/08/19 08:01	08/11/19 21:12	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.28	ng/L		08/08/19 08:01	08/11/19 21:12	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.9	0.87	ng/L		08/08/19 08:01	08/11/19 21:12	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		08/08/19 08:01	08/11/19 21:12	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		1.9	0.45	ng/L		08/08/19 08:01	08/11/19 21:12	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.9	0.29	ng/L		08/08/19 08:01	08/11/19 21:12	1

Eurofins TestAmerica, Sacramento

# Client Sample Results

Client: Wood E&I Solutions Inc  
Project/Site: PFAS, WDNR

Job ID: 320-52867-1

**Client Sample ID: EB-BSMT-0719**

**Lab Sample ID: 320-52867-2**

Date Collected: 07/30/19 16:15

Matrix: Water

Date Received: 08/01/19 08:55

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Perfluorohexanesulfonic acid (PFHxS)</b>	<b>0.23</b>	<b>J B</b>	1.9	0.17	ng/L		08/08/19 08:01	08/11/19 21:12	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.18	ng/L		08/08/19 08:01	08/11/19 21:12	1
<b>Perfluorooctanesulfonic acid (PFOS)</b>	<b>1.4</b>	<b>J</b>	1.9	0.53	ng/L		08/08/19 08:01	08/11/19 21:12	1
Perfluorononanesulfonic acid (PFNS)	ND		1.9	0.16	ng/L		08/08/19 08:01	08/11/19 21:12	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.31	ng/L		08/08/19 08:01	08/11/19 21:12	1
<b>Perfluorooctanesulfonamide (FOSA)</b>	<b>3.3</b>	<b>B</b>	1.9	0.34	ng/L		08/08/19 08:01	08/11/19 21:12	1
<b>N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)</b>	<b>3.4</b>	<b>J</b>	19	3.0	ng/L		08/08/19 08:01	08/11/19 21:12	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		19	1.8	ng/L		08/08/19 08:01	08/11/19 21:12	1
4:2 FTS	ND		19	5.1	ng/L		08/08/19 08:01	08/11/19 21:12	1
6:2 FTS	ND		19	1.9	ng/L		08/08/19 08:01	08/11/19 21:12	1
8:2 FTS	ND		19	1.9	ng/L		08/08/19 08:01	08/11/19 21:12	1
NEtFOSAM	ND		1.9	0.85	ng/L		08/08/19 08:01	08/11/19 21:12	1
MeFOSA	ND		1.9	0.42	ng/L		08/08/19 08:01	08/11/19 21:12	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.9	0.44	ng/L		08/08/19 08:01	08/11/19 21:12	1
F-53B Major	ND		1.9	0.23	ng/L		08/08/19 08:01	08/11/19 21:12	1
HFPO-DA (GenX)	ND		3.9	1.5	ng/L		08/08/19 08:01	08/11/19 21:12	1
F-53B Minor	ND		1.9	0.31	ng/L		08/08/19 08:01	08/11/19 21:12	1
10:2 FTS	ND		1.9	0.18	ng/L		08/08/19 08:01	08/11/19 21:12	1
DONA	ND		1.9	0.18	ng/L		08/08/19 08:01	08/11/19 21:12	1
<b>Isotope Dilution</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
13C4 PFBA	94		25 - 150				08/08/19 08:01	08/11/19 21:12	1
13C5 PFPeA	99		25 - 150				08/08/19 08:01	08/11/19 21:12	1
13C2 PFHxA	103		25 - 150				08/08/19 08:01	08/11/19 21:12	1
13C4 PFHpA	105		25 - 150				08/08/19 08:01	08/11/19 21:12	1
13C4 PFOA	105		25 - 150				08/08/19 08:01	08/11/19 21:12	1
13C5 PFNA	105		25 - 150				08/08/19 08:01	08/11/19 21:12	1
13C2 PFDA	106		25 - 150				08/08/19 08:01	08/11/19 21:12	1
13C2 PFUnA	106		25 - 150				08/08/19 08:01	08/11/19 21:12	1
13C2 PFDoA	102		25 - 150				08/08/19 08:01	08/11/19 21:12	1
13C2 PFTeDA	113		25 - 150				08/08/19 08:01	08/11/19 21:12	1
13C3 PFBS	111		25 - 150				08/08/19 08:01	08/11/19 21:12	1
18O2 PFHxS	111		25 - 150				08/08/19 08:01	08/11/19 21:12	1
13C4 PFOS	98		25 - 150				08/08/19 08:01	08/11/19 21:12	1
13C8 FOSA	97		25 - 150				08/08/19 08:01	08/11/19 21:12	1
d3-NMeFOSAA	103		25 - 150				08/08/19 08:01	08/11/19 21:12	1
d5-NEtFOSAA	106		25 - 150				08/08/19 08:01	08/11/19 21:12	1
M2-6:2 FTS	135		25 - 150				08/08/19 08:01	08/11/19 21:12	1
M2-8:2 FTS	116		25 - 150				08/08/19 08:01	08/11/19 21:12	1
M2-4:2 FTS	106		25 - 150				08/08/19 08:01	08/11/19 21:12	1
13C2 PFHxDA	107		25 - 150				08/08/19 08:01	08/11/19 21:12	1
13C3 HFPO-DA	110		25 - 150				08/08/19 08:01	08/11/19 21:12	1
d9-N-EtFOSE-M	30		10 - 120				08/08/19 08:01	08/11/19 21:12	1
d-N-MeFOSA-M	66		20 - 150				08/08/19 08:01	08/11/19 21:12	1
d7-N-MeFOSE-M	33		10 - 120				08/08/19 08:01	08/11/19 21:12	1

Eurofins TestAmerica, Sacramento



# Client Sample Results

Client: Wood E&I Solutions Inc  
Project/Site: PFAS, WDNR

Job ID: 320-52867-1

**Client Sample ID: EB-BSMT-0719**

**Lab Sample ID: 320-52867-2**

**Date Collected: 07/30/19 16:15**

**Matrix: Water**

**Date Received: 08/01/19 08:55**

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

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>d-N-EtFOSA-M</i>	53		20 - 150	08/08/19 08:01	08/11/19 21:12	1

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# Isotope Dilution Summary

Client: Wood E&I Solutions Inc  
Project/Site: PFAS, WDNR

Job ID: 320-52867-1

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

Matrix: Water

Prep Type: Total/NA

### Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	PFHpA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-52867-1	SW-BSMT-0719	65	88	102	110		112	116	118
320-52867-1 - DL	SW-BSMT-0719					107			
320-52867-2	EB-BSMT-0719	94	99	103	105	105	105	106	106
LCS 320-313306/2-A	Lab Control Sample	105	104	103	107	104	101	106	104
LCSD 320-313306/3-A	Lab Control Sample Dup	110	108	112	105	111	112	109	117
MB 320-313306/1-A	Method Blank	104	96	102	103	104	105	103	106

### Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDaA (25-150)	PFTDA (25-150)	13C3-PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (25-150)	i-MeFOSA (25-150)	n-EtFOSA (25-150)
320-52867-1	SW-BSMT-0719	114	78	109	115	113	100		116
320-52867-1 - DL	SW-BSMT-0719							99	
320-52867-2	EB-BSMT-0719	102	113	111	111	98	97	103	106
LCS 320-313306/2-A	Lab Control Sample	112	110	112	112	102	99	110	103
LCSD 320-313306/3-A	Lab Control Sample Dup	109	123	118	116	106	109	108	107
MB 320-313306/1-A	Method Blank	99	111	108	111	99	102	99	101

### Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M262Fts (25-150)	M282Fts (25-150)	M242Fts (25-150)	PFHxDA (25-150)	HFPODA (25-150)	NEFM (10-120)	i-MeFOSA (20-150)	NMFM (10-120)
320-52867-1	SW-BSMT-0719	134		140	75	96	53	66	54
320-52867-1 - DL	SW-BSMT-0719		107						
320-52867-2	EB-BSMT-0719	135	116	106	107	110	30	66	33
LCS 320-313306/2-A	Lab Control Sample	129	140	111	103	93	21	71	24
LCSD 320-313306/3-A	Lab Control Sample Dup	131	133	126	112	112	30	78	32
MB 320-313306/1-A	Method Blank	131	125	112	98	90	24	71	28

### Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	n-EtFOSA (20-150)
320-52867-1	SW-BSMT-0719	59
320-52867-1 - DL	SW-BSMT-0719	
320-52867-2	EB-BSMT-0719	53
LCS 320-313306/2-A	Lab Control Sample	44
LCSD 320-313306/3-A	Lab Control Sample Dup	52
MB 320-313306/1-A	Method Blank	44

#### Surrogate Legend

- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- PFHpA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDaA = 13C2 PFDaA
- PFTDA = 13C2 PFTeDA
- 13C3-PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- PFOSA = 13C8 FOSA

# Isotope Dilution Summary

Job ID: 320-52867-1

Client: Wood E&I Solutions Inc

Project/Site: PFAS, WDNR

d3-NMeFOSAA = d3-NMeFOSAA

d5-NEtFOSAA = d5-NEtFOSAA

M262FTS = M2-6:2 FTS

M282FTS = M2-8:2 FTS

M242FTS = M2-4:2 FTS

PFHxDA = 13C2 PFHxDA

HFPODA = 13C3 HFPO-DA

NEFM = d9-N-EtFOSE-M

d-N-MeFOSA-M = d-N-MeFOSA-M

NMFM = d7-N-MeFOSE-M

d-N-EtFOSA-M = d-N-EtFOSA-M

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# QC Sample Results

Client: Wood E&I Solutions Inc  
Project/Site: PFAS, WDNR

Job ID: 320-52867-1

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

**Lab Sample ID: MB 320-313306/1-A**  
**Matrix: Water**  
**Analysis Batch: 314480**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 313306**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.0	0.35	ng/L		08/08/19 08:01	08/11/19 20:40	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		08/08/19 08:01	08/11/19 20:40	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		08/08/19 08:01	08/11/19 20:40	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		08/08/19 08:01	08/11/19 20:40	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		08/08/19 08:01	08/11/19 20:40	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		08/08/19 08:01	08/11/19 20:40	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		08/08/19 08:01	08/11/19 20:40	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		08/08/19 08:01	08/11/19 20:40	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		08/08/19 08:01	08/11/19 20:40	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		08/08/19 08:01	08/11/19 20:40	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.29	ng/L		08/08/19 08:01	08/11/19 20:40	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		2.0	0.89	ng/L		08/08/19 08:01	08/11/19 20:40	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		08/08/19 08:01	08/11/19 20:40	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		2.0	0.46	ng/L		08/08/19 08:01	08/11/19 20:40	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.30	ng/L		08/08/19 08:01	08/11/19 20:40	1
Perfluorohexanesulfonic acid (PFHxS)	0.243	J	2.0	0.17	ng/L		08/08/19 08:01	08/11/19 20:40	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19	ng/L		08/08/19 08:01	08/11/19 20:40	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		08/08/19 08:01	08/11/19 20:40	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.16	ng/L		08/08/19 08:01	08/11/19 20:40	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		08/08/19 08:01	08/11/19 20:40	1
Perfluorooctanesulfonamide (FOSA)	0.353	J	2.0	0.35	ng/L		08/08/19 08:01	08/11/19 20:40	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20	3.1	ng/L		08/08/19 08:01	08/11/19 20:40	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		20	1.9	ng/L		08/08/19 08:01	08/11/19 20:40	1
4:2 FTS	ND		20	5.2	ng/L		08/08/19 08:01	08/11/19 20:40	1
6:2 FTS	ND		20	2.0	ng/L		08/08/19 08:01	08/11/19 20:40	1
8:2 FTS	ND		20	2.0	ng/L		08/08/19 08:01	08/11/19 20:40	1
NEtFOSAM	ND		2.0	0.87	ng/L		08/08/19 08:01	08/11/19 20:40	1
MeFOSA	ND		2.0	0.43	ng/L		08/08/19 08:01	08/11/19 20:40	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.45	ng/L		08/08/19 08:01	08/11/19 20:40	1
F-53B Major	ND		2.0	0.24	ng/L		08/08/19 08:01	08/11/19 20:40	1
HFPO-DA (GenX)	ND		4.0	1.5	ng/L		08/08/19 08:01	08/11/19 20:40	1
F-53B Minor	ND		2.0	0.32	ng/L		08/08/19 08:01	08/11/19 20:40	1
10:2 FTS	ND		2.0	0.19	ng/L		08/08/19 08:01	08/11/19 20:40	1
DONA	ND		2.0	0.18	ng/L		08/08/19 08:01	08/11/19 20:40	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	104		25 - 150	08/08/19 08:01	08/11/19 20:40	1
13C5 PFPeA	96		25 - 150	08/08/19 08:01	08/11/19 20:40	1
13C2 PFHxA	102		25 - 150	08/08/19 08:01	08/11/19 20:40	1
13C4 PFHpA	103		25 - 150	08/08/19 08:01	08/11/19 20:40	1
13C4 PFOA	104		25 - 150	08/08/19 08:01	08/11/19 20:40	1
13C5 PFNA	105		25 - 150	08/08/19 08:01	08/11/19 20:40	1
13C2 PFDA	103		25 - 150	08/08/19 08:01	08/11/19 20:40	1

Eurofins TestAmerica, Sacramento

# QC Sample Results

Client: Wood E&I Solutions Inc  
Project/Site: PFAS, WDNR

Job ID: 320-52867-1

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

**Lab Sample ID: MB 320-313306/1-A**  
**Matrix: Water**  
**Analysis Batch: 314480**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 313306**

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C2 PFUnA	106		25 - 150	08/08/19 08:01	08/11/19 20:40	1
13C2 PFDoA	99		25 - 150	08/08/19 08:01	08/11/19 20:40	1
13C2 PFTeDA	111		25 - 150	08/08/19 08:01	08/11/19 20:40	1
13C3 PFBS	108		25 - 150	08/08/19 08:01	08/11/19 20:40	1
18O2 PFHxS	111		25 - 150	08/08/19 08:01	08/11/19 20:40	1
13C4 PFOS	99		25 - 150	08/08/19 08:01	08/11/19 20:40	1
13C8 FOSA	102		25 - 150	08/08/19 08:01	08/11/19 20:40	1
d3-NMeFOSAA	99		25 - 150	08/08/19 08:01	08/11/19 20:40	1
d5-NEtFOSAA	101		25 - 150	08/08/19 08:01	08/11/19 20:40	1
M2-6:2 FTS	131		25 - 150	08/08/19 08:01	08/11/19 20:40	1
M2-8:2 FTS	125		25 - 150	08/08/19 08:01	08/11/19 20:40	1
M2-4:2 FTS	112		25 - 150	08/08/19 08:01	08/11/19 20:40	1
13C2 PFHxDA	98		25 - 150	08/08/19 08:01	08/11/19 20:40	1
13C3 HFPO-DA	90		25 - 150	08/08/19 08:01	08/11/19 20:40	1
d9-N-EtFOSE-M	24		10 - 120	08/08/19 08:01	08/11/19 20:40	1
d-N-MeFOSA-M	71		20 - 150	08/08/19 08:01	08/11/19 20:40	1
d7-N-MeFOSE-M	28		10 - 120	08/08/19 08:01	08/11/19 20:40	1
d-N-EtFOSA-M	44		20 - 150	08/08/19 08:01	08/11/19 20:40	1

**Lab Sample ID: LCS 320-313306/2-A**  
**Matrix: Water**  
**Analysis Batch: 317318**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 313306**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanoic acid (PFBA)	40.0	39.3		ng/L		98	70 - 130
Perfluoropentanoic acid (PFPeA)	40.0	37.4		ng/L		94	66 - 126
Perfluorohexanoic acid (PFHxA)	40.0	39.7		ng/L		99	66 - 126
Perfluoroheptanoic acid (PFHpA)	40.0	37.7		ng/L		94	66 - 126
Perfluorooctanoic acid (PFOA)	40.0	41.4		ng/L		104	64 - 124
Perfluorononanoic acid (PFNA)	40.0	41.1		ng/L		103	68 - 128
Perfluorodecanoic acid (PFDA)	40.0	38.7		ng/L		97	69 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	39.5		ng/L		99	60 - 120
Perfluorododecanoic acid (PFDoA)	40.0	38.0		ng/L		95	71 - 131
Perfluorotridecanoic acid (PFTriA)	40.0	41.0		ng/L		102	72 - 132
Perfluorotetradecanoic acid (PFTeA)	40.0	35.8		ng/L		90	68 - 128
Perfluoro-n-hexadecanoic acid (PFHxDA)	40.0	39.0		ng/L		97	72 - 132
Perfluorobutanesulfonic acid (PFBS)	35.4	31.5		ng/L		89	73 - 133
Perfluoro-n-octadecanoic acid (PFODA)	40.0	40.2		ng/L		101	74 - 134
Perfluoropentanesulfonic acid (PFPeS)	37.5	34.3		ng/L		91	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	36.4	30.7		ng/L		84	63 - 123
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	39.8		ng/L		105	68 - 128

Eurofins TestAmerica, Sacramento

# QC Sample Results

Client: Wood E&I Solutions Inc  
Project/Site: PFAS, WDNR

Job ID: 320-52867-1

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

**Lab Sample ID: LCS 320-313306/2-A**  
**Matrix: Water**  
**Analysis Batch: 317318**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 313306**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)	37.1	36.1		ng/L		97	67 - 127
Perfluorononanesulfonic acid (PFNS)	38.4	37.8		ng/L		98	70 - 130
Perfluorodecanesulfonic acid (PFDS)	38.6	38.9		ng/L		101	68 - 128
Perfluorooctanesulfonamide (FOSA)	40.0	41.5		ng/L		104	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	42.5		ng/L		106	67 - 127
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	41.4		ng/L		103	65 - 125
4:2 FTS	37.4	38.5		ng/L		103	70 - 130
6:2 FTS	37.9	35.9		ng/L		95	66 - 126
8:2 FTS	38.3	39.0		ng/L		102	67 - 127
MeFOSA	40.0	39.5		ng/L		99	65 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.7	37.5		ng/L		97	70 - 130
F-53B Major	37.3	37.4		ng/L		100	70 - 130
HFPO-DA (GenX)	40.0	40.0		ng/L		100	70 - 130
F-53B Minor	37.7	38.9		ng/L		103	70 - 130
10:2 FTS	38.6	32.6		ng/L		84	70 - 130
DONA	37.7	40.3		ng/L		107	70 - 130

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFBA	105		25 - 150
13C5 PFPeA	104		25 - 150
13C2 PFHxA	103		25 - 150
13C4 PFHpA	107		25 - 150
13C4 PFOA	104		25 - 150
13C5 PFNA	101		25 - 150
13C2 PFDA	106		25 - 150
13C2 PFUnA	104		25 - 150
13C2 PFDoA	112		25 - 150
13C2 PFTeDA	110		25 - 150
13C3 PFBS	112		25 - 150
18O2 PFHxS	112		25 - 150
13C4 PFOS	102		25 - 150
13C8 FOSA	99		25 - 150
d3-NMeFOSAA	110		25 - 150
d5-NEtFOSAA	103		25 - 150
M2-6:2 FTS	129		25 - 150
M2-8:2 FTS	140		25 - 150
M2-4:2 FTS	111		25 - 150
13C2 PFHxDA	103		25 - 150
13C3 HFPO-DA	93		25 - 150
d9-N-EtFOSE-M	21		10 - 120
d-N-MeFOSA-M	71		20 - 150
d7-N-MeFOSE-M	24		10 - 120
d-N-EtFOSA-M	44		20 - 150

Eurofins TestAmerica, Sacramento

# QC Sample Results

Client: Wood E&I Solutions Inc  
Project/Site: PFAS, WDNR

Job ID: 320-52867-1

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

**Lab Sample ID: LCSD 320-313306/3-A**

**Matrix: Water**

**Analysis Batch: 314480**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

**Prep Batch: 313306**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD
									Limit
Perfluorobutanoic acid (PFBA)	40.0	37.2		ng/L		93	70 - 130	3	30
Perfluoropentanoic acid (PFPeA)	40.0	39.7		ng/L		99	66 - 126	1	30
Perfluorohexanoic acid (PFHxA)	40.0	37.0		ng/L		92	66 - 126	7	30
Perfluoroheptanoic acid (PFHpA)	40.0	41.7		ng/L		104	66 - 126	6	30
Perfluorooctanoic acid (PFOA)	40.0	41.9		ng/L		105	64 - 124	3	30
Perfluorononanoic acid (PFNA)	40.0	41.1		ng/L		103	68 - 128	1	30
Perfluorodecanoic acid (PFDA)	40.0	42.3		ng/L		106	69 - 129	4	30
Perfluoroundecanoic acid (PFUnA)	40.0	37.9		ng/L		95	60 - 120	1	30
Perfluorododecanoic acid (PFDoA)	40.0	41.5		ng/L		104	71 - 131	3	30
Perfluorotridecanoic acid (PFTriA)	40.0	45.4		ng/L		114	72 - 132	2	30
Perfluorotetradecanoic acid (PFTeA)	40.0	38.5		ng/L		96	68 - 128	2	30
Perfluoro-n-hexadecanoic acid (PFHxDA)	40.0	43.4		ng/L		108	72 - 132	6	30
Perfluorobutanesulfonic acid (PFBS)	35.4	33.2		ng/L		94	73 - 133	5	30
Perfluoro-n-octadecanoic acid (PFODA)	40.0	41.8		ng/L		104	74 - 134	6	30
Perfluoropentanesulfonic acid (PFPeS)	37.5	35.0		ng/L		93	70 - 130	0	30
Perfluorohexanesulfonic acid (PFHxS)	36.4	30.3		ng/L		83	63 - 123	3	30
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	39.8		ng/L		105	68 - 128	3	30
Perfluorooctanesulfonic acid (PFOS)	37.1	36.6		ng/L		99	67 - 127	4	30
Perfluorononanesulfonic acid (PFNS)	38.4	37.6		ng/L		98	70 - 130	1	30
Perfluorodecanesulfonic acid (PFDS)	38.6	41.2		ng/L		107	68 - 128	6	30
Perfluorooctanesulfonamide (FOSA)	40.0	41.3		ng/L		103	70 - 130	3	30
N-methylperfluorooctanesulfonamide acetic acid (NMeFOSAA)	40.0	40.0		ng/L		100	67 - 127	2	30
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	40.0	41.3		ng/L		103	65 - 125	5	30
4:2 FTS	37.4	35.7		ng/L		95	70 - 130	11	30
6:2 FTS	37.9	39.3		ng/L		104	66 - 126	15	30
8:2 FTS	38.3	35.5		ng/L		93	67 - 127	5	30
MeFOSA	40.0	44.5		ng/L		111	65 - 135	5	30
Perfluorododecanesulfonic acid (PFDoS)	38.7	41.9		ng/L		108	70 - 130	8	30
F-53B Major	37.3	41.6		ng/L		112	70 - 130	6	30
HFPO-DA (GenX)	40.0	39.3		ng/L		98	70 - 130	24	30
F-53B Minor	37.7	41.4		ng/L		110	70 - 130	2	30
10:2 FTS	38.6	34.8		ng/L		90	70 - 130	1	30
DONA	37.7	40.8		ng/L		108	70 - 130	4	30

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
<sup>13</sup> C4 PFBA	110		25 - 150

Eurofins TestAmerica, Sacramento

# QC Sample Results

Client: Wood E&I Solutions Inc  
 Project/Site: PFAS, WDNR

Job ID: 320-52867-1

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

Lab Sample ID: LCSD 320-313306/3-A

Matrix: Water

Analysis Batch: 314480

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 313306

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C5 PFPeA	108		25 - 150
13C2 PFHxA	112		25 - 150
13C4 PFHpA	105		25 - 150
13C4 PFOA	111		25 - 150
13C5 PFNA	112		25 - 150
13C2 PFDA	109		25 - 150
13C2 PFUnA	117		25 - 150
13C2 PFDoA	109		25 - 150
13C2 PFTeDA	123		25 - 150
13C3 PFBS	118		25 - 150
18O2 PFHxS	116		25 - 150
13C4 PFOS	106		25 - 150
13C8 FOSA	109		25 - 150
d3-NMeFOSAA	108		25 - 150
d5-NEtFOSAA	107		25 - 150
M2-6:2 FTS	131		25 - 150
M2-8:2 FTS	133		25 - 150
M2-4:2 FTS	126		25 - 150
13C2 PFHxDA	112		25 - 150
13C3 HFPO-DA	112		25 - 150
d9-N-EtFOSE-M	30		10 - 120
d-N-MeFOSA-M	78		20 - 150
d7-N-MeFOSE-M	32		10 - 120
d-N-EtFOSA-M	52		20 - 150



# QC Association Summary

Client: Wood E&I Solutions Inc  
Project/Site: PFAS, WDNR

Job ID: 320-52867-1

## LCMS

### Prep Batch: 313306

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-52867-1	SW-BSMT-0719	Total/NA	Water	3535	
320-52867-1 - DL	SW-BSMT-0719	Total/NA	Water	3535	
320-52867-2	EB-BSMT-0719	Total/NA	Water	3535	
MB 320-313306/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-313306/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-313306/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

### Analysis Batch: 314480

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-52867-1	SW-BSMT-0719	Total/NA	Water	537 (modified)	313306
320-52867-2	EB-BSMT-0719	Total/NA	Water	537 (modified)	313306
MB 320-313306/1-A	Method Blank	Total/NA	Water	537 (modified)	313306
LCSD 320-313306/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	313306

### Analysis Batch: 316079

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-52867-1 - DL	SW-BSMT-0719	Total/NA	Water	537 (modified)	313306

### Analysis Batch: 317318

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 320-313306/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	313306

# Lab Chronicle

Client: Wood E&I Solutions Inc  
 Project/Site: PFAS, WDNR

Job ID: 320-52867-1

**Client Sample ID: SW-BSMT-0719**

**Lab Sample ID: 320-52867-1**

**Date Collected: 07/30/19 16:00**

**Matrix: Water**

**Date Received: 08/01/19 08:55**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			259.3 mL	10.00 mL	313306	08/08/19 08:01	MYV	TAL SAC
Total/NA	Analysis	537 (modified)		1			314480	08/11/19 21:04	S1M	TAL SAC
Total/NA	Prep	3535	DL		259.3 mL	10.00 mL	313306	08/08/19 08:01	MYV	TAL SAC
Total/NA	Analysis	537 (modified)	DL	10			316079	08/17/19 21:39	S1M	TAL SAC

**Client Sample ID: EB-BSMT-0719**

**Lab Sample ID: 320-52867-2**

**Date Collected: 07/30/19 16:15**

**Matrix: Water**

**Date Received: 08/01/19 08:55**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			257.1 mL	10.00 mL	313306	08/08/19 08:01	MYV	TAL SAC
Total/NA	Analysis	537 (modified)		1			314480	08/11/19 21:12	S1M	TAL SAC

**Laboratory References:**

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



# Accreditation/Certification Summary

Client: Wood E&I Solutions Inc  
 Project/Site: PFAS, WDNR

Job ID: 320-52867-1

## Laboratory: Eurofins TestAmerica, Sacramento

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State Program	17-020	01-20-21
ANAB	Dept. of Defense ELAP	L2468	01-20-21
ANAB	DoD	L2468	01-20-21
ANAB	DOE	L2468.01	01-20-21
ANAB	ISO/IEC 17025	L2468	08-09-21
Arizona	State	AZ0708	08-11-20
Arizona	State Program	AZ0708	08-11-20
Arkansas DEQ	State Program	88-0691	06-17-20
California	State	2897	01-31-20
California	State Program	2897	01-31-20
Colorado	State Program	CA00044	08-31-19
Connecticut	State	PH-0691	06-30-21
Connecticut	State Program	PH-0691	06-30-21
Florida	NELAP	E87570	06-30-20
Florida	NELAP	E87570	06-30-20
Hawaii	State	<cert No.>	01-29-20
Hawaii	State Program	N/A	01-29-20
Illinois	NELAP	200060	03-17-20 *
Illinois	NELAP	200060	03-17-20
Kansas	NELAP	E-10375	10-31-19
Louisiana	NELAP	30612	06-30-20
Maine	State Program	CA0004	04-14-20
Michigan	State	9947	01-29-20
Michigan	State Program	9947	01-31-20
New Hampshire	NELAP	2997	04-20-20
New York	NELAP	11666	04-01-20
Oregon	NELAP	4040	01-29-20
Oregon	NELAP	4040	01-29-20
Pennsylvania	NELAP	68-01272	03-31-20
Pennsylvania	NELAP	68-01272	03-31-20
Texas	NELAP	T104704399	05-31-20
Texas	NELAP	T104704399-19-13	05-31-20
US Fish & Wildlife	Federal	LE148388-0	07-31-20
US Fish & Wildlife	US Federal Programs	58448	07-31-20
USDA	Federal	P330-18-00239	01-17-21
USEPA UCMR	Federal	CA00044	12-31-20
Utah	NELAP	CA00044	02-29-20
Vermont	State Program	VT-4040	04-16-20
Virginia	NELAP	460278	03-14-20
Virginia	NELAP	460278	03-14-20
Washington	State	C581	05-05-20
Washington	State Program	C581	05-05-20
West Virginia (DW)	State	9930C	12-31-19
West Virginia (DW)	State Program	9930C	12-31-19
Wyoming	State Program	8TMS-L	01-28-19 *

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

# Method Summary

Client: Wood E&I Solutions Inc  
Project/Site: PFAS, WDNR

Job ID: 320-52867-1

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

**Protocol References:**

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

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



# Sample Summary

Client: Wood E&I Solutions Inc  
Project/Site: PFAS, WDNR

Job ID: 320-52867-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
320-52867-1	SW-BSMT-0719	Water	07/30/19 16:00	08/01/19 08:55	
320-52867-2	EB-BSMT-0719	Water	07/30/19 16:15	08/01/19 08:55	

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Client Name: WOOD ENVIRONMENT & INFRASTRUCTURE Client #: \_\_\_\_\_  
 Address: 800 MARQUETTE AVENUE, SUITE 900  
 City/State/Zip Code: MINNEAPOLIS, MN 55402  
 Project Manager: EMMA DRIVER  
 Email Address: emma.driver@woodplc.com  
 Telephone Number: 612-252-3641 Fax: \_\_\_\_\_  
 Sampler Name: (Print Name) Cory Vowles  
 Sampler Signature: Cory V

Project Name: WDNR - Bertrand Residence  
 Project #: 731190019.1000  
 Site/Location ID: Marinette, WI State: WI  
 Report To: emma.driver@woodplc.com  
 Invoice To: same  
 Quote #: 32013586 PO#: \_\_\_\_\_

TAT			Date Needed:		Date Sampled		Time Sampled		Matrix	Preservation & # of Containers								Analyze For:								QC Deliverables		
<input type="checkbox"/> Standard <input type="checkbox"/> Rush (surcharges may apply)									SL - Sludge DW - Drinking Water GW - Groundwater S - Soil/Solid WW - Wastewater Specify Other	<input type="checkbox"/> HNO <sub>3</sub> <input type="checkbox"/> HCl <input type="checkbox"/> NaOH <input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> <input type="checkbox"/> Methanol <input type="checkbox"/> None <input type="checkbox"/> Other (Specify)																<input type="checkbox"/> None <input type="checkbox"/> Level 2 (Batch QC) <input type="checkbox"/> Level 3 <input type="checkbox"/> Level 4 Other: _____		
SAMPLE ID			Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	537 Mod (WT list 36)																REMARKS					
SW-BSMT-0719			7/30/19	1600	G	N	O <sub>1</sub>																3 bottles					
EB-BSMT-0719			7/30/19	1615	G	N	O <sub>2</sub>																					

Special Instructions:  
 O<sub>1</sub> = surface water  
 O<sub>2</sub> = lab provided water

Relinquished By: <u>Cory V</u>	Date: <u>7/31/19</u>	Time: <u>1530</u>	Received By: <u>[Signature]</u>	Date: <u>7-31-19</u>	Time: <u>1715</u>
Relinquished By: <u>[Signature]</u>	Date: <u>7-31-19</u>	Time: <u>1715</u>	Received By: <u>[Signature]</u>	Date: <u>8/01/19</u>	Time: <u>855</u>
Relinquished By: _____	Date: _____	Time: _____	Received By: _____	Date: _____	Time: _____

LABORATORY COMMENTS:



# Login Sample Receipt Checklist

Client: Wood E&I Solutions Inc

Job Number: 320-52867-1

**Login Number: 52867**

**List Source: Eurofins TestAmerica, Sacramento**

**List Number: 1**

**Creator: Thompson, Sarah W**

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	Seal present with no number.
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <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	

