

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Sacramento

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West Sacramento, CA 95605

Tel: (916)373-5600

TestAmerica Job ID: 320-41470-1

TestAmerica Sample Delivery Group: 20074-012

Client Project/Site: Offsite PFAS

For:

Shannon & Wilson, Inc

2355 Hill Rd.

Fairbanks, Alaska 99709-5244

Attn: Kristen Freiburger



Authorized for release by:

8/14/2018 6:29:27 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: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Qualifiers

LCMS

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

Glossary

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

Case Narrative

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Job ID: 320-41470-1

Laboratory: TestAmerica Sacramento

Narrative

Job Narrative 320-41470-1

Receipt

The samples were received on 7/25/2018 10:25 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.0° C.

LCMS

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

Organic Prep

Method(s) 3535: The following sample: [REDACTED]-2018PFAS-PreTreat (320-41470-11) in preparation batch 320-237103 was observed to contain sediment prior to extraction.

Method(s) 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 320-237103.

Method(s) 3535: The following samples: MW-150B-25 (320-41470-1), MW-250B-25 (320-41470-2), MW-150A-10 (320-41470-4), MW-332-150 (320-41470-5), MW-353-15 (320-41470-7), MW-314-15 (320-41470-8), 2 [REDACTED] 018 PFAS (320-41470-13), 9999Tanana-2018PFAS (320-41470-14) and [REDACTED]-y-2018PFAS-PreTreat (320-41470-16) in preparation batch 320-237295 were observed to contain sediment prior to extraction.

Method(s) 3535: The following samples: MW-150A-10 (320-41470-4), MW-353-15 (320-41470-7), [REDACTED]-2018 PFAS (320-41470-13), [REDACTED]-2018PFAS (320-41470-14) and [REDACTED]-2018PFAS-PreTreat (320-41470-16) in preparation batch 320-237295 were observed to be a yellow color prior to extraction.

Method(s) 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 320-237295.

Method(s) 3535: Due to the nature of the sample matrix, the entire sample could not be eluted through the SPE column, due to the sample clogging the SPE column. The initial volumes used for the following samples deviated from the standard procedure: MW-150B-25 (320-41470-1), MW-250B-25 (320-41470-2), MW-353-15 (320-41470-7), MW-314-15 (320-41470-8), [REDACTED]-2018 PFAS (320-41470-13) and [REDACTED]-2018PFAS (320-41470-14). The reporting limits (RLs) have been adjusted proportionately.

Method(s) 3535: The following sample: [REDACTED]-2018PFAS-PreTreat (320-41470-16) in preparation batch 320-237295 was observed to be a yellow color after it was brought to final volume.

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

Detection Summary

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Client Sample ID: MW-150B-25

Lab Sample ID: 320-41470-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	54		4.0	1.2	ng/L	1			537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	39		4.0	0.50	ng/L	1			537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	38		4.0	1.7	ng/L	1			537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	110		4.0	0.54	ng/L	1			537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	1.5	J	4.0	0.62	ng/L	1			537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	6.1		4.0	0.40	ng/L	1			537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	38	B	4.0	0.34	ng/L	1			537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	90		4.0	1.1	ng/L	1			537 (modified)	Total/NA

Client Sample ID: MW-250B-25

Lab Sample ID: 320-41470-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	38		2.7	0.78	ng/L	1			537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	28		2.7	0.34	ng/L	1			537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	28		2.7	1.1	ng/L	1			537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	85		2.7	0.36	ng/L	1			537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.84	J	2.7	0.42	ng/L	1			537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	4.1		2.7	0.27	ng/L	1			537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	26	B	2.7	0.23	ng/L	1			537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	73		2.7	0.73	ng/L	1			537 (modified)	Total/NA

Client Sample ID: EB-150B-25

Lab Sample ID: 320-41470-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Perfluorotetradecanoic acid (PFTeA)	0.52	J	1.6	0.24	ng/L	1			537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.31	J B	1.6	0.14	ng/L	1			537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.48	J	1.6	0.44	ng/L	1			537 (modified)	Total/NA

Client Sample ID: MW-150A-10

Lab Sample ID: 320-41470-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	22		1.6	0.48	ng/L	1			537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	16		1.6	0.21	ng/L	1			537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	14		1.6	0.70	ng/L	1			537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	43		1.6	0.22	ng/L	1			537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.40	J	1.6	0.25	ng/L	1			537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.2		1.6	0.16	ng/L	1			537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	15	B	1.6	0.14	ng/L	1			537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	28		1.6	0.44	ng/L	1			537 (modified)	Total/NA

Client Sample ID: MW-332-150

Lab Sample ID: 320-41470-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	3.4		1.6	0.47	ng/L	1			537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.1	J	1.6	0.20	ng/L	1			537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.6		1.6	0.69	ng/L	1			537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.58	J	1.6	0.22	ng/L	1			537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.83	J	1.6	0.16	ng/L	1			537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.8	B	1.6	0.14	ng/L	1			537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.6		1.6	0.44	ng/L	1			537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Client Sample ID: MW-346-65

Lab Sample ID: 320-41470-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	3.3		1.7	0.49	ng/L	1			537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.6	J	1.7	0.21	ng/L	1			537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	2.4		1.7	0.71	ng/L	1			537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	8.6		1.7	0.23	ng/L	1			537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.64	J	1.7	0.17	ng/L	1			537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.7	B	1.7	0.14	ng/L	1			537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.2	J	1.7	0.45	ng/L	1			537 (modified)	Total/NA

Client Sample ID: MW-353-15

Lab Sample ID: 320-41470-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	11		2.2	0.65	ng/L	1			537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	7.6		2.2	0.28	ng/L	1			537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	8.9		2.2	0.95	ng/L	1			537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	18		2.2	0.30	ng/L	1			537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.5		2.2	0.22	ng/L	1			537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	11	B	2.2	0.19	ng/L	1			537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	28		2.2	0.60	ng/L	1			537 (modified)	Total/NA

Client Sample ID: MW-314-15

Lab Sample ID: 320-41470-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	3.0		2.5	0.25	ng/L	1			537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	7.7	B	2.5	0.21	ng/L	1			537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.1	J	2.5	0.67	ng/L	1			537 (modified)	Total/NA

Client Sample ID: MW-353-65

Lab Sample ID: 320-41470-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	7.6		1.7	0.49	ng/L	1			537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.8		1.7	0.21	ng/L	1			537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	7.6		1.7	0.72	ng/L	1			537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	22		1.7	0.23	ng/L	1			537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.4	J	1.7	0.17	ng/L	1			537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	8.5	B	1.7	0.14	ng/L	1			537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	12		1.7	0.46	ng/L	1			537 (modified)	Total/NA

Client Sample ID: MW-353-100

Lab Sample ID: 320-41470-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	8.4		1.6	0.48	ng/L	1			537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.9		1.6	0.21	ng/L	1			537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	7.5		1.6	0.70	ng/L	1			537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	24		1.6	0.22	ng/L	1			537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.5	J	1.6	0.16	ng/L	1			537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	8.4	B	1.6	0.14	ng/L	1			537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	12		1.6	0.45	ng/L	1			537 (modified)	Total/NA

Client Sample ID: [REDACTED] 18PFAS-PreTreat

Lab Sample ID: 320-41470-11

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Client Sample ID: [REDACTED] **PFAS-PreTreat**
(Continued)

Lab Sample ID: 320-41470-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	23		1.6	0.46	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	17		1.6	0.20	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	14		1.6	0.68	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	34		1.6	0.22	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.5		1.6	0.16	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	18	B	1.6	0.14	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	17		1.6	0.43	ng/L	1		537 (modified)	Total/NA

Client Sample ID: [REDACTED] **18PFAS-PostTreat**

Lab Sample ID: 320-41470-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	0.23	J B	1.7	0.14	ng/L	1		537 (modified)	Total/NA

Client Sample ID: [REDACTED] **-2018 PFAS**

Lab Sample ID: 320-41470-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	17		2.5	0.72	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	11		2.5	0.31	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	13		2.5	1.1	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	42		2.5	0.33	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.9		2.5	0.25	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	21	B	2.5	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	41		2.5	0.67	ng/L	1		537 (modified)	Total/NA

Client Sample [REDACTED]

Lab Sample ID: 320-41470-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	16		2.3	0.65	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	11		2.3	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	12		2.3	0.96	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	41		2.3	0.30	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.1		2.3	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	19	B	2.3	0.19	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	40		2.3	0.61	ng/L	1		537 (modified)	Total/NA

Client Sample ID: [REDACTED] **8PFAS-PostTreat**

Lab Sample ID: 320-41470-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	2.0		1.7	0.49	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.92	J	1.7	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.63	J	1.7	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.65	J B	1.7	0.14	ng/L	1		537 (modified)	Total/NA

Client Sample [REDACTED] **-2018PFAS-PreTreat**

Lab Sample ID: 320-41470-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	17		1.7	0.48	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	11		1.7	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	9.9		1.7	0.71	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Client Sample ID: [REDACTED] -PreTreat
(Continued)

Lab Sample ID: 320-41470-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorononanoic acid (PFNA)	23		1.7	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.5	J	1.7	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	13	B	1.7	0.14	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	14		1.7	0.45	ng/L	1		537 (modified)	Total/NA

Client Sample ID: 1 [REDACTED] -2018PFAS-Pretreat

Lab Sample ID: 320-41470-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	1.8		1.6	0.47	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.54	J	1.6	0.20	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.4	J	1.6	0.70	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	4.8		1.6	0.22	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.25	J	1.6	0.16	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.8	B	1.6	0.14	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.73	J	1.6	0.44	ng/L	1		537 (modified)	Total/NA

Client Sample ID: [REDACTED] -2018PFAS-Posttreat

Lab Sample ID: 320-41470-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	0.27	J B	1.6	0.14	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Client Sample ID: MW-150B-25

Date Collected: 07/19/18 14:13

Date Received: 07/25/18 10:25

Lab Sample ID: 320-41470-1

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	54		4.0	1.2	ng/L		08/01/18 08:48	08/04/18 15:10	1
Perfluoroheptanoic acid (PFHpA)	39		4.0	0.50	ng/L		08/01/18 08:48	08/04/18 15:10	1
Perfluorooctanoic acid (PFOA)	38		4.0	1.7	ng/L		08/01/18 08:48	08/04/18 15:10	1
Perfluorononanoic acid (PFNA)	110		4.0	0.54	ng/L		08/01/18 08:48	08/04/18 15:10	1
Perfluorodecanoic acid (PFDA)	1.5	J	4.0	0.62	ng/L		08/01/18 08:48	08/04/18 15:10	1
Perfluoroundecanoic acid (PFUnA)	ND		4.0	2.2	ng/L		08/01/18 08:48	08/04/18 15:10	1
Perfluorododecanoic acid (PFDoA)	ND		4.0	1.1	ng/L		08/01/18 08:48	08/04/18 15:10	1
Perfluorotridecanoic Acid (PFTriA)	ND		4.0	2.6	ng/L		08/01/18 08:48	08/04/18 15:10	1
Perfluorotetradecanoic acid (PFTeA)	ND		4.0	0.58	ng/L		08/01/18 08:48	08/04/18 15:10	1
Perfluorobutanesulfonic acid (PFBS)	6.1		4.0	0.40	ng/L		08/01/18 08:48	08/04/18 15:10	1
Perfluorohexanesulfonic acid (PFHxS)	38	B	4.0	0.34	ng/L		08/01/18 08:48	08/04/18 15:10	1
Perfluorooctanesulfonic acid (PFOS)	90		4.0	1.1	ng/L		08/01/18 08:48	08/04/18 15:10	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C5 PFPeA	40		25 - 150				08/01/18 08:48	08/04/18 15:10	1
13C2 PFHxA	41		25 - 150				08/01/18 08:48	08/04/18 15:10	1
13C4-PFHpA	44		25 - 150				08/01/18 08:48	08/04/18 15:10	1
13C4 PFOA	44		25 - 150				08/01/18 08:48	08/04/18 15:10	1
13C5 PFNA	44		25 - 150				08/01/18 08:48	08/04/18 15:10	1
13C2 PFDA	44		25 - 150				08/01/18 08:48	08/04/18 15:10	1
13C2 PFUnA	38		25 - 150				08/01/18 08:48	08/04/18 15:10	1
13C2 PFDoA	33		25 - 150				08/01/18 08:48	08/04/18 15:10	1
13C2-PFTeDA	35		25 - 150				08/01/18 08:48	08/04/18 15:10	1
13C3-PFBS	39		25 - 150				08/01/18 08:48	08/04/18 15:10	1
18O2 PFHxS	38		25 - 150				08/01/18 08:48	08/04/18 15:10	1
13C4 PFOS	34		25 - 150				08/01/18 08:48	08/04/18 15:10	1

TestAmerica Sacramento

Client Sample Results

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Client Sample ID: MW-250B-25

Date Collected: 07/19/18 14:03

Date Received: 07/25/18 10:25

Lab Sample ID: 320-41470-2

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	38		2.7	0.78	ng/L		08/01/18 08:48	08/04/18 15:18	1
Perfluoroheptanoic acid (PFHpA)	28		2.7	0.34	ng/L		08/01/18 08:48	08/04/18 15:18	1
Perfluorooctanoic acid (PFOA)	28		2.7	1.1	ng/L		08/01/18 08:48	08/04/18 15:18	1
Perfluorononanoic acid (PFNA)	85		2.7	0.36	ng/L		08/01/18 08:48	08/04/18 15:18	1
Perfluorodecanoic acid (PFDA)	0.84	J	2.7	0.42	ng/L		08/01/18 08:48	08/04/18 15:18	1
Perfluoroundecanoic acid (PFUnA)	ND		2.7	1.5	ng/L		08/01/18 08:48	08/04/18 15:18	1
Perfluorododecanoic acid (PFDoA)	ND		2.7	0.74	ng/L		08/01/18 08:48	08/04/18 15:18	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.7	1.8	ng/L		08/01/18 08:48	08/04/18 15:18	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.7	0.39	ng/L		08/01/18 08:48	08/04/18 15:18	1
Perfluorobutanesulfonic acid (PFBS)	4.1		2.7	0.27	ng/L		08/01/18 08:48	08/04/18 15:18	1
Perfluorohexanesulfonic acid (PFHxS)	26	B	2.7	0.23	ng/L		08/01/18 08:48	08/04/18 15:18	1
Perfluorooctanesulfonic acid (PFOS)	73		2.7	0.73	ng/L		08/01/18 08:48	08/04/18 15:18	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C5 PFPeA	50		25 - 150				08/01/18 08:48	08/04/18 15:18	1
13C2 PFHxA	57		25 - 150				08/01/18 08:48	08/04/18 15:18	1
13C4-PFHpA	55		25 - 150				08/01/18 08:48	08/04/18 15:18	1
13C4 PFOA	60		25 - 150				08/01/18 08:48	08/04/18 15:18	1
13C5 PFNA	61		25 - 150				08/01/18 08:48	08/04/18 15:18	1
13C2 PFDA	60		25 - 150				08/01/18 08:48	08/04/18 15:18	1
13C2 PFUnA	52		25 - 150				08/01/18 08:48	08/04/18 15:18	1
13C2 PFDoA	47		25 - 150				08/01/18 08:48	08/04/18 15:18	1
13C2-PFTeDA	47		25 - 150				08/01/18 08:48	08/04/18 15:18	1
13C3-PFBS	48		25 - 150				08/01/18 08:48	08/04/18 15:18	1
18O2 PFHxS	52		25 - 150				08/01/18 08:48	08/04/18 15:18	1
13C4 PFOS	51		25 - 150				08/01/18 08:48	08/04/18 15:18	1

TestAmerica Sacramento

Client Sample Results

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Client Sample ID: EB-150B-25

Date Collected: 07/19/18 14:23

Date Received: 07/25/18 10:25

Lab Sample ID: 320-41470-3

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.6	0.48	ng/L		08/01/18 08:48	08/04/18 15:25	1
Perfluoroheptanoic acid (PFHpA)	ND		1.6	0.21	ng/L		08/01/18 08:48	08/04/18 15:25	1
Perfluorooctanoic acid (PFOA)	ND		1.6	0.70	ng/L		08/01/18 08:48	08/04/18 15:25	1
Perfluorononanoic acid (PFNA)	ND		1.6	0.22	ng/L		08/01/18 08:48	08/04/18 15:25	1
Perfluorodecanoic acid (PFDA)	ND		1.6	0.25	ng/L		08/01/18 08:48	08/04/18 15:25	1
Perfluoroundecanoic acid (PFUnA)	ND		1.6	0.90	ng/L		08/01/18 08:48	08/04/18 15:25	1
Perfluorododecanoic acid (PFDoA)	ND		1.6	0.45	ng/L		08/01/18 08:48	08/04/18 15:25	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.6	1.1	ng/L		08/01/18 08:48	08/04/18 15:25	1
Perfluorotetradecanoic acid (PFTeA)	0.52	J	1.6	0.24	ng/L		08/01/18 08:48	08/04/18 15:25	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.6	0.16	ng/L		08/01/18 08:48	08/04/18 15:25	1
Perfluorohexanesulfonic acid (PFHxS)	0.31	J B	1.6	0.14	ng/L		08/01/18 08:48	08/04/18 15:25	1
Perfluorooctanesulfonic acid (PFOS)	0.48	J	1.6	0.44	ng/L		08/01/18 08:48	08/04/18 15:25	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	78		25 - 150	08/01/18 08:48	08/04/18 15:25	1
13C2 PFHxA	92		25 - 150	08/01/18 08:48	08/04/18 15:25	1
13C4-PFHxA	88		25 - 150	08/01/18 08:48	08/04/18 15:25	1
13C4 PFOA	97		25 - 150	08/01/18 08:48	08/04/18 15:25	1
13C5 PFNA	98		25 - 150	08/01/18 08:48	08/04/18 15:25	1
13C2 PFDA	99		25 - 150	08/01/18 08:48	08/04/18 15:25	1
13C2 PFUnA	109		25 - 150	08/01/18 08:48	08/04/18 15:25	1
13C2 PFDoA	108		25 - 150	08/01/18 08:48	08/04/18 15:25	1
13C2-PFTeDA	120		25 - 150	08/01/18 08:48	08/04/18 15:25	1
13C3-PFBS	78		25 - 150	08/01/18 08:48	08/04/18 15:25	1
18O2 PFHxS	83		25 - 150	08/01/18 08:48	08/04/18 15:25	1
13C4 PFOS	87		25 - 150	08/01/18 08:48	08/04/18 15:25	1

TestAmerica Sacramento

Client Sample Results

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Client Sample ID: MW-150A-10

Date Collected: 07/19/18 14:58

Date Received: 07/25/18 10:25

Lab Sample ID: 320-41470-4

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	22		1.6	0.48	ng/L		08/01/18 08:48	08/04/18 15:33	1
Perfluoroheptanoic acid (PFHpA)	16		1.6	0.21	ng/L		08/01/18 08:48	08/04/18 15:33	1
Perfluorooctanoic acid (PFOA)	14		1.6	0.70	ng/L		08/01/18 08:48	08/04/18 15:33	1
Perfluorononanoic acid (PFNA)	43		1.6	0.22	ng/L		08/01/18 08:48	08/04/18 15:33	1
Perfluorodecanoic acid (PFDA)	0.40	J	1.6	0.25	ng/L		08/01/18 08:48	08/04/18 15:33	1
Perfluoroundecanoic acid (PFUnA)	ND		1.6	0.90	ng/L		08/01/18 08:48	08/04/18 15:33	1
Perfluorododecanoic acid (PFDoA)	ND		1.6	0.45	ng/L		08/01/18 08:48	08/04/18 15:33	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.6	1.1	ng/L		08/01/18 08:48	08/04/18 15:33	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.6	0.24	ng/L		08/01/18 08:48	08/04/18 15:33	1
Perfluorobutanesulfonic acid (PFBS)	2.2		1.6	0.16	ng/L		08/01/18 08:48	08/04/18 15:33	1
Perfluorohexanesulfonic acid (PFHxS)	15	B	1.6	0.14	ng/L		08/01/18 08:48	08/04/18 15:33	1
Perfluorooctanesulfonic acid (PFOS)	28		1.6	0.44	ng/L		08/01/18 08:48	08/04/18 15:33	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	79		25 - 150	08/01/18 08:48	08/04/18 15:33	1
13C2 PFHxA	84		25 - 150	08/01/18 08:48	08/04/18 15:33	1
13C4-PFHpA	88		25 - 150	08/01/18 08:48	08/04/18 15:33	1
13C4 PFOA	95		25 - 150	08/01/18 08:48	08/04/18 15:33	1
13C5 PFNA	96		25 - 150	08/01/18 08:48	08/04/18 15:33	1
13C2 PFDA	96		25 - 150	08/01/18 08:48	08/04/18 15:33	1
13C2 PFUnA	98		25 - 150	08/01/18 08:48	08/04/18 15:33	1
13C2 PFDoA	88		25 - 150	08/01/18 08:48	08/04/18 15:33	1
13C2-PFTeDA	84		25 - 150	08/01/18 08:48	08/04/18 15:33	1
13C3-PFBS	74		25 - 150	08/01/18 08:48	08/04/18 15:33	1
18O2 PFHxS	81		25 - 150	08/01/18 08:48	08/04/18 15:33	1
13C4 PFOS	80		25 - 150	08/01/18 08:48	08/04/18 15:33	1

TestAmerica Sacramento

Client Sample Results

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Client Sample ID: MW-332-150

Date Collected: 07/20/18 12:27

Date Received: 07/25/18 10:25

Lab Sample ID: 320-41470-5

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	3.4		1.6	0.47	ng/L		08/01/18 08:48	08/04/18 15:40	1
Perfluoroheptanoic acid (PFHpA)	1.1	J	1.6	0.20	ng/L		08/01/18 08:48	08/04/18 15:40	1
Perfluorooctanoic acid (PFOA)	1.6		1.6	0.69	ng/L		08/01/18 08:48	08/04/18 15:40	1
Perfluorononanoic acid (PFNA)	0.58	J	1.6	0.22	ng/L		08/01/18 08:48	08/04/18 15:40	1
Perfluorodecanoic acid (PFDA)	ND		1.6	0.25	ng/L		08/01/18 08:48	08/04/18 15:40	1
Perfluoroundecanoic acid (PFUnA)	ND		1.6	0.89	ng/L		08/01/18 08:48	08/04/18 15:40	1
Perfluorododecanoic acid (PFDoA)	ND		1.6	0.44	ng/L		08/01/18 08:48	08/04/18 15:40	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.6	1.1	ng/L		08/01/18 08:48	08/04/18 15:40	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.6	0.23	ng/L		08/01/18 08:48	08/04/18 15:40	1
Perfluorobutanesulfonic acid (PFBS)	0.83	J	1.6	0.16	ng/L		08/01/18 08:48	08/04/18 15:40	1
Perfluorohexanesulfonic acid (PFHxS)	3.8	B	1.6	0.14	ng/L		08/01/18 08:48	08/04/18 15:40	1
Perfluorooctanesulfonic acid (PFOS)	1.6		1.6	0.44	ng/L		08/01/18 08:48	08/04/18 15:40	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	89		25 - 150	08/01/18 08:48	08/04/18 15:40	1
13C2 PFHxA	93		25 - 150	08/01/18 08:48	08/04/18 15:40	1
13C4-PFHpA	94		25 - 150	08/01/18 08:48	08/04/18 15:40	1
13C4 PFOA	98		25 - 150	08/01/18 08:48	08/04/18 15:40	1
13C5 PFNA	107		25 - 150	08/01/18 08:48	08/04/18 15:40	1
13C2 PFDA	102		25 - 150	08/01/18 08:48	08/04/18 15:40	1
13C2 PFUnA	101		25 - 150	08/01/18 08:48	08/04/18 15:40	1
13C2 PFDoA	94		25 - 150	08/01/18 08:48	08/04/18 15:40	1
13C2-PFTeDA	104		25 - 150	08/01/18 08:48	08/04/18 15:40	1
13C3-PFBS	85		25 - 150	08/01/18 08:48	08/04/18 15:40	1
18O2 PFHxS	88		25 - 150	08/01/18 08:48	08/04/18 15:40	1
13C4 PFOS	92		25 - 150	08/01/18 08:48	08/04/18 15:40	1

TestAmerica Sacramento

Client Sample Results

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Client Sample ID: MW-346-65

Date Collected: 07/20/18 10:30

Date Received: 07/25/18 10:25

Lab Sample ID: 320-41470-6

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	3.3		1.7	0.49	ng/L		08/01/18 08:48	08/04/18 15:48	1
Perfluoroheptanoic acid (PFHpA)	1.6	J	1.7	0.21	ng/L		08/01/18 08:48	08/04/18 15:48	1
Perfluorooctanoic acid (PFOA)	2.4		1.7	0.71	ng/L		08/01/18 08:48	08/04/18 15:48	1
Perfluorononanoic acid (PFNA)	8.6		1.7	0.23	ng/L		08/01/18 08:48	08/04/18 15:48	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.26	ng/L		08/01/18 08:48	08/04/18 15:48	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.92	ng/L		08/01/18 08:48	08/04/18 15:48	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.46	ng/L		08/01/18 08:48	08/04/18 15:48	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.7	1.1	ng/L		08/01/18 08:48	08/04/18 15:48	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.24	ng/L		08/01/18 08:48	08/04/18 15:48	1
Perfluorobutanesulfonic acid (PFBS)	0.64	J	1.7	0.17	ng/L		08/01/18 08:48	08/04/18 15:48	1
Perfluorohexanesulfonic acid (PFHxS)	3.7	B	1.7	0.14	ng/L		08/01/18 08:48	08/04/18 15:48	1
Perfluorooctanesulfonic acid (PFOS)	1.2	J	1.7	0.45	ng/L		08/01/18 08:48	08/04/18 15:48	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C5 PFPeA	82		25 - 150				08/01/18 08:48	08/04/18 15:48	1
13C2 PFHxA	88		25 - 150				08/01/18 08:48	08/04/18 15:48	1
13C4-PFHpA	90		25 - 150				08/01/18 08:48	08/04/18 15:48	1
13C4 PFOA	98		25 - 150				08/01/18 08:48	08/04/18 15:48	1
13C5 PFNA	100		25 - 150				08/01/18 08:48	08/04/18 15:48	1
13C2 PFDA	100		25 - 150				08/01/18 08:48	08/04/18 15:48	1
13C2 PFUnA	101		25 - 150				08/01/18 08:48	08/04/18 15:48	1
13C2 PFDoA	94		25 - 150				08/01/18 08:48	08/04/18 15:48	1
13C2-PFTeDA	92		25 - 150				08/01/18 08:48	08/04/18 15:48	1
13C3-PFBS	77		25 - 150				08/01/18 08:48	08/04/18 15:48	1
18O2 PFHxS	87		25 - 150				08/01/18 08:48	08/04/18 15:48	1
13C4 PFOS	84		25 - 150				08/01/18 08:48	08/04/18 15:48	1

Client Sample Results

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Client Sample ID: MW-353-15

Date Collected: 07/20/18 14:46

Date Received: 07/25/18 10:25

Lab Sample ID: 320-41470-7

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	11		2.2	0.65	ng/L		08/01/18 08:48	08/04/18 15:55	1
Perfluoroheptanoic acid (PFHpA)	7.6		2.2	0.28	ng/L		08/01/18 08:48	08/04/18 15:55	1
Perfluorooctanoic acid (PFOA)	8.9		2.2	0.95	ng/L		08/01/18 08:48	08/04/18 15:55	1
Perfluorononanoic acid (PFNA)	18		2.2	0.30	ng/L		08/01/18 08:48	08/04/18 15:55	1
Perfluorodecanoic acid (PFDA)	ND		2.2	0.35	ng/L		08/01/18 08:48	08/04/18 15:55	1
Perfluoroundecanoic acid (PFUnA)	ND		2.2	1.2	ng/L		08/01/18 08:48	08/04/18 15:55	1
Perfluorododecanoic acid (PFDoA)	ND		2.2	0.62	ng/L		08/01/18 08:48	08/04/18 15:55	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.2	1.5	ng/L		08/01/18 08:48	08/04/18 15:55	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.2	0.32	ng/L		08/01/18 08:48	08/04/18 15:55	1
Perfluorobutanesulfonic acid (PFBS)	2.5		2.2	0.22	ng/L		08/01/18 08:48	08/04/18 15:55	1
Perfluorohexanesulfonic acid (PFHxS)	11	B	2.2	0.19	ng/L		08/01/18 08:48	08/04/18 15:55	1
Perfluorooctanesulfonic acid (PFOS)	28		2.2	0.60	ng/L		08/01/18 08:48	08/04/18 15:55	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	61		25 - 150	08/01/18 08:48	08/04/18 15:55	1
13C2 PFHxA	64		25 - 150	08/01/18 08:48	08/04/18 15:55	1
13C4-PFHpA	70		25 - 150	08/01/18 08:48	08/04/18 15:55	1
13C4 PFOA	77		25 - 150	08/01/18 08:48	08/04/18 15:55	1
13C5 PFNA	76		25 - 150	08/01/18 08:48	08/04/18 15:55	1
13C2 PFDA	69		25 - 150	08/01/18 08:48	08/04/18 15:55	1
13C2 PFUnA	64		25 - 150	08/01/18 08:48	08/04/18 15:55	1
13C2 PFDoA	54		25 - 150	08/01/18 08:48	08/04/18 15:55	1
13C2-PFTeDA	55		25 - 150	08/01/18 08:48	08/04/18 15:55	1
13C3-PFBS	60		25 - 150	08/01/18 08:48	08/04/18 15:55	1
18O2 PFHxS	65		25 - 150	08/01/18 08:48	08/04/18 15:55	1
13C4 PFOS	57		25 - 150	08/01/18 08:48	08/04/18 15:55	1

TestAmerica Sacramento

Client Sample Results

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Client Sample ID: MW-314-15

Date Collected: 07/20/18 11:20

Date Received: 07/25/18 10:25

Lab Sample ID: 320-41470-8

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		2.5	0.72	ng/L		08/01/18 08:48	08/04/18 16:10	1
Perfluoroheptanoic acid (PFHpA)	ND		2.5	0.31	ng/L		08/01/18 08:48	08/04/18 16:10	1
Perfluorooctanoic acid (PFOA)	ND		2.5	1.1	ng/L		08/01/18 08:48	08/04/18 16:10	1
Perfluorononanoic acid (PFNA)	ND		2.5	0.34	ng/L		08/01/18 08:48	08/04/18 16:10	1
Perfluorodecanoic acid (PFDA)	ND		2.5	0.39	ng/L		08/01/18 08:48	08/04/18 16:10	1
Perfluoroundecanoic acid (PFUnA)	ND		2.5	1.4	ng/L		08/01/18 08:48	08/04/18 16:10	1
Perfluorododecanoic acid (PFDoA)	ND		2.5	0.68	ng/L		08/01/18 08:48	08/04/18 16:10	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.5	1.6	ng/L		08/01/18 08:48	08/04/18 16:10	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.5	0.36	ng/L		08/01/18 08:48	08/04/18 16:10	1
Perfluorobutanesulfonic acid (PFBS)	3.0		2.5	0.25	ng/L		08/01/18 08:48	08/04/18 16:10	1
Perfluorohexanesulfonic acid (PFHxS)	7.7 B		2.5	0.21	ng/L		08/01/18 08:48	08/04/18 16:10	1
Perfluorooctanesulfonic acid (PFOS)	2.1 J		2.5	0.67	ng/L		08/01/18 08:48	08/04/18 16:10	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	56		25 - 150	08/01/18 08:48	08/04/18 16:10	1
13C2 PFHxA	59		25 - 150	08/01/18 08:48	08/04/18 16:10	1
13C4-PFHxA	61		25 - 150	08/01/18 08:48	08/04/18 16:10	1
13C4 PFOA	63		25 - 150	08/01/18 08:48	08/04/18 16:10	1
13C5 PFNA	65		25 - 150	08/01/18 08:48	08/04/18 16:10	1
13C2 PFDA	65		25 - 150	08/01/18 08:48	08/04/18 16:10	1
13C2 PFUnA	57		25 - 150	08/01/18 08:48	08/04/18 16:10	1
13C2 PFDoA	50		25 - 150	08/01/18 08:48	08/04/18 16:10	1
13C2-PFTeDA	54		25 - 150	08/01/18 08:48	08/04/18 16:10	1
13C3-PFBS	52		25 - 150	08/01/18 08:48	08/04/18 16:10	1
18O2 PFHxS	58		25 - 150	08/01/18 08:48	08/04/18 16:10	1
13C4 PFOS	57		25 - 150	08/01/18 08:48	08/04/18 16:10	1

TestAmerica Sacramento

Client Sample Results

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Client Sample ID: MW-353-65

Date Collected: 07/20/18 14:19

Date Received: 07/25/18 10:25

Lab Sample ID: 320-41470-9

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	7.6		1.7	0.49	ng/L		08/01/18 08:48	08/04/18 16:18	1
Perfluoroheptanoic acid (PFHpA)	5.8		1.7	0.21	ng/L		08/01/18 08:48	08/04/18 16:18	1
Perfluorooctanoic acid (PFOA)	7.6		1.7	0.72	ng/L		08/01/18 08:48	08/04/18 16:18	1
Perfluorononanoic acid (PFNA)	22		1.7	0.23	ng/L		08/01/18 08:48	08/04/18 16:18	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.26	ng/L		08/01/18 08:48	08/04/18 16:18	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.94	ng/L		08/01/18 08:48	08/04/18 16:18	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.47	ng/L		08/01/18 08:48	08/04/18 16:18	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.7	1.1	ng/L		08/01/18 08:48	08/04/18 16:18	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.25	ng/L		08/01/18 08:48	08/04/18 16:18	1
Perfluorobutanesulfonic acid (PFBS)	1.4	J	1.7	0.17	ng/L		08/01/18 08:48	08/04/18 16:18	1
Perfluorohexanesulfonic acid (PFHxS)	8.5	B	1.7	0.14	ng/L		08/01/18 08:48	08/04/18 16:18	1
Perfluorooctanesulfonic acid (PFOS)	12		1.7	0.46	ng/L		08/01/18 08:48	08/04/18 16:18	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	80		25 - 150	08/01/18 08:48	08/04/18 16:18	1
13C2 PFHxA	90		25 - 150	08/01/18 08:48	08/04/18 16:18	1
13C4-PFHpA	93		25 - 150	08/01/18 08:48	08/04/18 16:18	1
13C4 PFOA	92		25 - 150	08/01/18 08:48	08/04/18 16:18	1
13C5 PFNA	98		25 - 150	08/01/18 08:48	08/04/18 16:18	1
13C2 PFDA	100		25 - 150	08/01/18 08:48	08/04/18 16:18	1
13C2 PFUnA	100		25 - 150	08/01/18 08:48	08/04/18 16:18	1
13C2 PFDoA	94		25 - 150	08/01/18 08:48	08/04/18 16:18	1
13C2-PFTeDA	93		25 - 150	08/01/18 08:48	08/04/18 16:18	1
13C3-PFBS	76		25 - 150	08/01/18 08:48	08/04/18 16:18	1
18O2 PFHxS	83		25 - 150	08/01/18 08:48	08/04/18 16:18	1
13C4 PFOS	87		25 - 150	08/01/18 08:48	08/04/18 16:18	1

TestAmerica Sacramento

Client Sample Results

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Client Sample ID: MW-353-100

Date Collected: 07/20/18 13:48

Date Received: 07/25/18 10:25

Lab Sample ID: 320-41470-10

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	8.4		1.6	0.48	ng/L		08/01/18 08:48	08/04/18 16:25	1
Perfluoroheptanoic acid (PFHpA)	5.9		1.6	0.21	ng/L		08/01/18 08:48	08/04/18 16:25	1
Perfluorooctanoic acid (PFOA)	7.5		1.6	0.70	ng/L		08/01/18 08:48	08/04/18 16:25	1
Perfluorononanoic acid (PFNA)	24		1.6	0.22	ng/L		08/01/18 08:48	08/04/18 16:25	1
Perfluorodecanoic acid (PFDA)	ND		1.6	0.26	ng/L		08/01/18 08:48	08/04/18 16:25	1
Perfluoroundecanoic acid (PFUnA)	ND		1.6	0.91	ng/L		08/01/18 08:48	08/04/18 16:25	1
Perfluorododecanoic acid (PFDoA)	ND		1.6	0.45	ng/L		08/01/18 08:48	08/04/18 16:25	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.6	1.1	ng/L		08/01/18 08:48	08/04/18 16:25	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.6	0.24	ng/L		08/01/18 08:48	08/04/18 16:25	1
Perfluorobutanesulfonic acid (PFBS)	1.5	J	1.6	0.16	ng/L		08/01/18 08:48	08/04/18 16:25	1
Perfluorohexanesulfonic acid (PFHxS)	8.4	B	1.6	0.14	ng/L		08/01/18 08:48	08/04/18 16:25	1
Perfluorooctanesulfonic acid (PFOS)	12		1.6	0.45	ng/L		08/01/18 08:48	08/04/18 16:25	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	76		25 - 150	08/01/18 08:48	08/04/18 16:25	1
13C2 PFHxA	83		25 - 150	08/01/18 08:48	08/04/18 16:25	1
13C4-PFHpA	86		25 - 150	08/01/18 08:48	08/04/18 16:25	1
13C4 PFOA	95		25 - 150	08/01/18 08:48	08/04/18 16:25	1
13C5 PFNA	96		25 - 150	08/01/18 08:48	08/04/18 16:25	1
13C2 PFDA	95		25 - 150	08/01/18 08:48	08/04/18 16:25	1
13C2 PFUnA	95		25 - 150	08/01/18 08:48	08/04/18 16:25	1
13C2 PFDoA	90		25 - 150	08/01/18 08:48	08/04/18 16:25	1
13C2-PFTeDA	98		25 - 150	08/01/18 08:48	08/04/18 16:25	1
13C3-PFBS	81		25 - 150	08/01/18 08:48	08/04/18 16:25	1
18O2 PFHxS	86		25 - 150	08/01/18 08:48	08/04/18 16:25	1
13C4 PFOS	87		25 - 150	08/01/18 08:48	08/04/18 16:25	1

Client Sample Results

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Client Sample ID: [REDACTED]

Lab Sample ID: 320-41470-11

Date Collected: 07/17/18 10:11

Matrix: Water

Date Received: 07/25/18 10:25

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	23		1.6	0.46	ng/L		07/31/18 09:22	08/04/18 14:18	1
Perfluoroheptanoic acid (PFHpA)	17		1.6	0.20	ng/L		07/31/18 09:22	08/04/18 14:18	1
Perfluorooctanoic acid (PFOA)	14		1.6	0.68	ng/L		07/31/18 09:22	08/04/18 14:18	1
Perfluorononanoic acid (PFNA)	34		1.6	0.22	ng/L		07/31/18 09:22	08/04/18 14:18	1
Perfluorodecanoic acid (PFDA)	ND		1.6	0.25	ng/L		07/31/18 09:22	08/04/18 14:18	1
Perfluoroundecanoic acid (PFUnA)	ND		1.6	0.88	ng/L		07/31/18 09:22	08/04/18 14:18	1
Perfluorododecanoic acid (PFDoA)	ND		1.6	0.44	ng/L		07/31/18 09:22	08/04/18 14:18	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.6	1.0	ng/L		07/31/18 09:22	08/04/18 14:18	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.6	0.23	ng/L		07/31/18 09:22	08/04/18 14:18	1
Perfluorobutanesulfonic acid (PFBS)	2.5		1.6	0.16	ng/L		07/31/18 09:22	08/04/18 14:18	1
Perfluorohexanesulfonic acid (PFHxS)	18 B		1.6	0.14	ng/L		07/31/18 09:22	08/04/18 14:18	1
Perfluorooctanesulfonic acid (PFOS)	17		1.6	0.43	ng/L		07/31/18 09:22	08/04/18 14:18	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	82		25 - 150	07/31/18 09:22	08/04/18 14:18	1
13C2 PFHxA	91		25 - 150	07/31/18 09:22	08/04/18 14:18	1
13C4-PFHpA	92		25 - 150	07/31/18 09:22	08/04/18 14:18	1
13C4 PFOA	101		25 - 150	07/31/18 09:22	08/04/18 14:18	1
13C5 PFNA	102		25 - 150	07/31/18 09:22	08/04/18 14:18	1
13C2 PFDA	104		25 - 150	07/31/18 09:22	08/04/18 14:18	1
13C2 PFUnA	97		25 - 150	07/31/18 09:22	08/04/18 14:18	1
13C2 PFDoA	93		25 - 150	07/31/18 09:22	08/04/18 14:18	1
13C2-PFTeDA	98		25 - 150	07/31/18 09:22	08/04/18 14:18	1
13C3-PFBS	78		25 - 150	07/31/18 09:22	08/04/18 14:18	1
18O2 PFHxS	92		25 - 150	07/31/18 09:22	08/04/18 14:18	1
13C4 PFOS	89		25 - 150	07/31/18 09:22	08/04/18 14:18	1

TestAmerica Sacramento

Client Sample Results

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Client Sample ID: [REDACTED] n-2018PFAS-PostTreat

Lab Sample ID: 320-41470-12

Date Collected: 07/17/18 10:08

Matrix: Water

Date Received: 07/25/18 10:25

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.7	0.48	ng/L		07/31/18 09:22	08/04/18 14:25	1
Perfluoroheptanoic acid (PFHpA)	ND		1.7	0.21	ng/L		07/31/18 09:22	08/04/18 14:25	1
Perfluorooctanoic acid (PFOA)	ND		1.7	0.71	ng/L		07/31/18 09:22	08/04/18 14:25	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.23	ng/L		07/31/18 09:22	08/04/18 14:25	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.26	ng/L		07/31/18 09:22	08/04/18 14:25	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.92	ng/L		07/31/18 09:22	08/04/18 14:25	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.46	ng/L		07/31/18 09:22	08/04/18 14:25	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.7	1.1	ng/L		07/31/18 09:22	08/04/18 14:25	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.24	ng/L		07/31/18 09:22	08/04/18 14:25	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.7	0.17	ng/L		07/31/18 09:22	08/04/18 14:25	1
Perfluorohexanesulfonic acid (PFHxS)	0.23	J B	1.7	0.14	ng/L		07/31/18 09:22	08/04/18 14:25	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	0.45	ng/L		07/31/18 09:22	08/04/18 14:25	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C5 PFPeA	86		25 - 150				07/31/18 09:22	08/04/18 14:25	1
13C2 PFHxA	90		25 - 150				07/31/18 09:22	08/04/18 14:25	1
13C4-PFHxA	90		25 - 150				07/31/18 09:22	08/04/18 14:25	1
13C4 PFOA	94		25 - 150				07/31/18 09:22	08/04/18 14:25	1
13C5 PFNA	91		25 - 150				07/31/18 09:22	08/04/18 14:25	1
13C2 PFDA	94		25 - 150				07/31/18 09:22	08/04/18 14:25	1
13C2 PFUnA	90		25 - 150				07/31/18 09:22	08/04/18 14:25	1
13C2 PFDoA	92		25 - 150				07/31/18 09:22	08/04/18 14:25	1
13C2-PFTeDA	106		25 - 150				07/31/18 09:22	08/04/18 14:25	1
13C3-PFBS	80		25 - 150				07/31/18 09:22	08/04/18 14:25	1
18O2 PFHxS	89		25 - 150				07/31/18 09:22	08/04/18 14:25	1
13C4 PFOS	89		25 - 150				07/31/18 09:22	08/04/18 14:25	1

TestAmerica Sacramento

Client Sample Results

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Client Sample ID: [REDACTED] PFAS

Lab Sample ID: 320-41470-13

Date Collected: 07/20/18 13:55

Matrix: Water

Date Received: 07/25/18 10:25

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	17		2.5	0.72	ng/L		08/01/18 08:48	08/04/18 16:33	1
Perfluoroheptanoic acid (PFHpA)	11		2.5	0.31	ng/L		08/01/18 08:48	08/04/18 16:33	1
Perfluorooctanoic acid (PFOA)	13		2.5	1.1	ng/L		08/01/18 08:48	08/04/18 16:33	1
Perfluorononanoic acid (PFNA)	42		2.5	0.33	ng/L		08/01/18 08:48	08/04/18 16:33	1
Perfluorodecanoic acid (PFDA)	ND		2.5	0.38	ng/L		08/01/18 08:48	08/04/18 16:33	1
Perfluoroundecanoic acid (PFUnA)	ND		2.5	1.4	ng/L		08/01/18 08:48	08/04/18 16:33	1
Perfluorododecanoic acid (PFDoA)	ND		2.5	0.68	ng/L		08/01/18 08:48	08/04/18 16:33	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.5	1.6	ng/L		08/01/18 08:48	08/04/18 16:33	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.5	0.36	ng/L		08/01/18 08:48	08/04/18 16:33	1
Perfluorobutanesulfonic acid (PFBS)	2.9		2.5	0.25	ng/L		08/01/18 08:48	08/04/18 16:33	1
Perfluorohexanesulfonic acid (PFHxS)	21	B	2.5	0.21	ng/L		08/01/18 08:48	08/04/18 16:33	1
Perfluorooctanesulfonic acid (PFOS)	41		2.5	0.67	ng/L		08/01/18 08:48	08/04/18 16:33	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	57		25 - 150	08/01/18 08:48	08/04/18 16:33	1
13C2 PFHxA	65		25 - 150	08/01/18 08:48	08/04/18 16:33	1
13C4-PFHpA	62		25 - 150	08/01/18 08:48	08/04/18 16:33	1
13C4 PFOA	69		25 - 150	08/01/18 08:48	08/04/18 16:33	1
13C5 PFNA	64		25 - 150	08/01/18 08:48	08/04/18 16:33	1
13C2 PFDA	66		25 - 150	08/01/18 08:48	08/04/18 16:33	1
13C2 PFUnA	56		25 - 150	08/01/18 08:48	08/04/18 16:33	1
13C2 PFDoA	48		25 - 150	08/01/18 08:48	08/04/18 16:33	1
13C2-PFTeDA	49		25 - 150	08/01/18 08:48	08/04/18 16:33	1
13C3-PFBS	52		25 - 150	08/01/18 08:48	08/04/18 16:33	1
18O2 PFHxS	56		25 - 150	08/01/18 08:48	08/04/18 16:33	1
13C4 PFOS	56		25 - 150	08/01/18 08:48	08/04/18 16:33	1

TestAmerica Sacramento

Client Sample Results

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Client Sample XXXXXXXXXX 2018PFAS

Lab Sample ID: 320-41470-14

Date Collected: 07/20/18 13:45

Matrix: Water

Date Received: 07/25/18 10:25

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	16		2.3	0.65	ng/L		08/01/18 08:48	08/04/18 16:40	1
Perfluoroheptanoic acid (PFHpA)	11		2.3	0.28	ng/L		08/01/18 08:48	08/04/18 16:40	1
Perfluorooctanoic acid (PFOA)	12		2.3	0.96	ng/L		08/01/18 08:48	08/04/18 16:40	1
Perfluorononanoic acid (PFNA)	41		2.3	0.30	ng/L		08/01/18 08:48	08/04/18 16:40	1
Perfluorodecanoic acid (PFDA)	ND		2.3	0.35	ng/L		08/01/18 08:48	08/04/18 16:40	1
Perfluoroundecanoic acid (PFUnA)	ND		2.3	1.2	ng/L		08/01/18 08:48	08/04/18 16:40	1
Perfluorododecanoic acid (PFDoA)	ND		2.3	0.62	ng/L		08/01/18 08:48	08/04/18 16:40	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.3	1.5	ng/L		08/01/18 08:48	08/04/18 16:40	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.3	0.33	ng/L		08/01/18 08:48	08/04/18 16:40	1
Perfluorobutanesulfonic acid (PFBS)	3.1		2.3	0.23	ng/L		08/01/18 08:48	08/04/18 16:40	1
Perfluorohexanesulfonic acid (PFHxS)	19 B		2.3	0.19	ng/L		08/01/18 08:48	08/04/18 16:40	1
Perfluorooctanesulfonic acid (PFOS)	40		2.3	0.61	ng/L		08/01/18 08:48	08/04/18 16:40	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	69		25 - 150	08/01/18 08:48	08/04/18 16:40	1
13C2 PFHxA	76		25 - 150	08/01/18 08:48	08/04/18 16:40	1
13C4-PFHpA	73		25 - 150	08/01/18 08:48	08/04/18 16:40	1
13C4 PFOA	81		25 - 150	08/01/18 08:48	08/04/18 16:40	1
13C5 PFNA	80		25 - 150	08/01/18 08:48	08/04/18 16:40	1
13C2 PFDA	82		25 - 150	08/01/18 08:48	08/04/18 16:40	1
13C2 PFUnA	73		25 - 150	08/01/18 08:48	08/04/18 16:40	1
13C2 PFDoA	66		25 - 150	08/01/18 08:48	08/04/18 16:40	1
13C2-PFTeDA	67		25 - 150	08/01/18 08:48	08/04/18 16:40	1
13C3-PFBS	66		25 - 150	08/01/18 08:48	08/04/18 16:40	1
18O2 PFHxS	71		25 - 150	08/01/18 08:48	08/04/18 16:40	1
13C4 PFOS	67		25 - 150	08/01/18 08:48	08/04/18 16:40	1

TestAmerica Sacramento

Client Sample Results

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Client Sample ID: [REDACTED] -2018PFAS-PostTreat

Lab Sample ID: 320-41470-15

Date Collected: 07/24/18 10:24

Matrix: Water

Date Received: 07/25/18 10:25

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	2.0		1.7	0.49	ng/L		08/01/18 08:48	08/04/18 16:48	1
Perfluoroheptanoic acid (PFHpA)	0.92	J	1.7	0.21	ng/L		08/01/18 08:48	08/04/18 16:48	1
Perfluorooctanoic acid (PFOA)	ND		1.7	0.72	ng/L		08/01/18 08:48	08/04/18 16:48	1
Perfluorononanoic acid (PFNA)	0.63	J	1.7	0.23	ng/L		08/01/18 08:48	08/04/18 16:48	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.26	ng/L		08/01/18 08:48	08/04/18 16:48	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.94	ng/L		08/01/18 08:48	08/04/18 16:48	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.47	ng/L		08/01/18 08:48	08/04/18 16:48	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.7	1.1	ng/L		08/01/18 08:48	08/04/18 16:48	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.25	ng/L		08/01/18 08:48	08/04/18 16:48	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.7	0.17	ng/L		08/01/18 08:48	08/04/18 16:48	1
Perfluorohexanesulfonic acid (PFHxS)	0.65	J B	1.7	0.14	ng/L		08/01/18 08:48	08/04/18 16:48	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	0.46	ng/L		08/01/18 08:48	08/04/18 16:48	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C5 PFPeA	87		25 - 150				08/01/18 08:48	08/04/18 16:48	1
13C2 PFHxA	90		25 - 150				08/01/18 08:48	08/04/18 16:48	1
13C4-PFHpA	93		25 - 150				08/01/18 08:48	08/04/18 16:48	1
13C4 PFOA	96		25 - 150				08/01/18 08:48	08/04/18 16:48	1
13C5 PFNA	103		25 - 150				08/01/18 08:48	08/04/18 16:48	1
13C2 PFDA	96		25 - 150				08/01/18 08:48	08/04/18 16:48	1
13C2 PFUnA	96		25 - 150				08/01/18 08:48	08/04/18 16:48	1
13C2 PFDoA	98		25 - 150				08/01/18 08:48	08/04/18 16:48	1
13C2-PFTeDA	95		25 - 150				08/01/18 08:48	08/04/18 16:48	1
13C3-PFBS	79		25 - 150				08/01/18 08:48	08/04/18 16:48	1
18O2 PFHxS	85		25 - 150				08/01/18 08:48	08/04/18 16:48	1
13C4 PFOS	82		25 - 150				08/01/18 08:48	08/04/18 16:48	1

Client Sample Results

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Client Sample ID: [REDACTED] y-2018PFAS-PreTreat

Lab Sample ID: 320-41470-16

Date Collected: 07/24/18 10:27

Matrix: Water

Date Received: 07/25/18 10:25

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	17		1.7	0.48	ng/L		08/01/18 08:48	08/04/18 16:55	1
Perfluoroheptanoic acid (PFHpA)	11		1.7	0.21	ng/L		08/01/18 08:48	08/04/18 16:55	1
Perfluorooctanoic acid (PFOA)	9.9		1.7	0.71	ng/L		08/01/18 08:48	08/04/18 16:55	1
Perfluorononanoic acid (PFNA)	23		1.7	0.23	ng/L		08/01/18 08:48	08/04/18 16:55	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.26	ng/L		08/01/18 08:48	08/04/18 16:55	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.92	ng/L		08/01/18 08:48	08/04/18 16:55	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.46	ng/L		08/01/18 08:48	08/04/18 16:55	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.7	1.1	ng/L		08/01/18 08:48	08/04/18 16:55	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.24	ng/L		08/01/18 08:48	08/04/18 16:55	1
Perfluorobutanesulfonic acid (PFBS)	1.5	J	1.7	0.17	ng/L		08/01/18 08:48	08/04/18 16:55	1
Perfluorohexanesulfonic acid (PFHxS)	13	B	1.7	0.14	ng/L		08/01/18 08:48	08/04/18 16:55	1
Perfluorooctanesulfonic acid (PFOS)	14		1.7	0.45	ng/L		08/01/18 08:48	08/04/18 16:55	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	85		25 - 150	08/01/18 08:48	08/04/18 16:55	1
13C2 PFHxA	92		25 - 150	08/01/18 08:48	08/04/18 16:55	1
13C4-PFHpA	91		25 - 150	08/01/18 08:48	08/04/18 16:55	1
13C4 PFOA	97		25 - 150	08/01/18 08:48	08/04/18 16:55	1
13C5 PFNA	102		25 - 150	08/01/18 08:48	08/04/18 16:55	1
13C2 PFDA	98		25 - 150	08/01/18 08:48	08/04/18 16:55	1
13C2 PFUnA	94		25 - 150	08/01/18 08:48	08/04/18 16:55	1
13C2 PFDoA	95		25 - 150	08/01/18 08:48	08/04/18 16:55	1
13C2-PFTeDA	95		25 - 150	08/01/18 08:48	08/04/18 16:55	1
13C3-PFBS	82		25 - 150	08/01/18 08:48	08/04/18 16:55	1
18O2 PFHxS	84		25 - 150	08/01/18 08:48	08/04/18 16:55	1
13C4 PFOS	87		25 - 150	08/01/18 08:48	08/04/18 16:55	1

TestAmerica Sacramento

Client Sample Results

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Client Sample ID: [REDACTED] -2018PFAS-Pretreat

Lab Sample ID: 320-41470-17

Date Collected: 07/24/18 12:23

Matrix: Water

Date Received: 07/25/18 10:25

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	1.8		1.6	0.47	ng/L		08/01/18 08:48	08/04/18 17:03	1
Perfluoroheptanoic acid (PFHpA)	0.54	J	1.6	0.20	ng/L		08/01/18 08:48	08/04/18 17:03	1
Perfluorooctanoic acid (PFOA)	1.4	J	1.6	0.70	ng/L		08/01/18 08:48	08/04/18 17:03	1
Perfluorononanoic acid (PFNA)	4.8		1.6	0.22	ng/L		08/01/18 08:48	08/04/18 17:03	1
Perfluorodecanoic acid (PFDA)	ND		1.6	0.25	ng/L		08/01/18 08:48	08/04/18 17:03	1
Perfluoroundecanoic acid (PFUnA)	ND		1.6	0.90	ng/L		08/01/18 08:48	08/04/18 17:03	1
Perfluorododecanoic acid (PFDoA)	ND		1.6	0.45	ng/L		08/01/18 08:48	08/04/18 17:03	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.6	1.1	ng/L		08/01/18 08:48	08/04/18 17:03	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.6	0.24	ng/L		08/01/18 08:48	08/04/18 17:03	1
Perfluorobutanesulfonic acid (PFBS)	0.25	J	1.6	0.16	ng/L		08/01/18 08:48	08/04/18 17:03	1
Perfluorohexanesulfonic acid (PFHxS)	1.8	B	1.6	0.14	ng/L		08/01/18 08:48	08/04/18 17:03	1
Perfluorooctanesulfonic acid (PFOS)	0.73	J	1.6	0.44	ng/L		08/01/18 08:48	08/04/18 17:03	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	83		25 - 150	08/01/18 08:48	08/04/18 17:03	1
13C2 PFHxA	88		25 - 150	08/01/18 08:48	08/04/18 17:03	1
13C4-PFHpA	86		25 - 150	08/01/18 08:48	08/04/18 17:03	1
13C4 PFOA	95		25 - 150	08/01/18 08:48	08/04/18 17:03	1
13C5 PFNA	96		25 - 150	08/01/18 08:48	08/04/18 17:03	1
13C2 PFDA	98		25 - 150	08/01/18 08:48	08/04/18 17:03	1
13C2 PFUnA	97		25 - 150	08/01/18 08:48	08/04/18 17:03	1
13C2 PFDoA	90		25 - 150	08/01/18 08:48	08/04/18 17:03	1
13C2-PFTeDA	95		25 - 150	08/01/18 08:48	08/04/18 17:03	1
13C3-PFBS	75		25 - 150	08/01/18 08:48	08/04/18 17:03	1
18O2 PFHxS	82		25 - 150	08/01/18 08:48	08/04/18 17:03	1
13C4 PFOS	87		25 - 150	08/01/18 08:48	08/04/18 17:03	1

TestAmerica Sacramento

Client Sample Results

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Client Sample ID: [REDACTED] -2018PFAS-Posttreat

Lab Sample ID: 320-41470-18

Date Collected: 07/24/18 12:26

Matrix: Water

Date Received: 07/25/18 10:25

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.6	0.47	ng/L		08/01/18 08:48	08/04/18 17:10	1
Perfluoroheptanoic acid (PFHpA)	ND		1.6	0.20	ng/L		08/01/18 08:48	08/04/18 17:10	1
Perfluorooctanoic acid (PFOA)	ND		1.6	0.68	ng/L		08/01/18 08:48	08/04/18 17:10	1
Perfluorononanoic acid (PFNA)	ND		1.6	0.22	ng/L		08/01/18 08:48	08/04/18 17:10	1
Perfluorodecanoic acid (PFDA)	ND		1.6	0.25	ng/L		08/01/18 08:48	08/04/18 17:10	1
Perfluoroundecanoic acid (PFUnA)	ND		1.6	0.89	ng/L		08/01/18 08:48	08/04/18 17:10	1
Perfluorododecanoic acid (PFDoA)	ND		1.6	0.44	ng/L		08/01/18 08:48	08/04/18 17:10	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.6	1.0	ng/L		08/01/18 08:48	08/04/18 17:10	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.6	0.23	ng/L		08/01/18 08:48	08/04/18 17:10	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.6	0.16	ng/L		08/01/18 08:48	08/04/18 17:10	1
Perfluorohexanesulfonic acid (PFHxS)	0.27	J B	1.6	0.14	ng/L		08/01/18 08:48	08/04/18 17:10	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.6	0.43	ng/L		08/01/18 08:48	08/04/18 17:10	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C5 PFPeA	91		25 - 150				08/01/18 08:48	08/04/18 17:10	1
13C2 PFHxA	95		25 - 150				08/01/18 08:48	08/04/18 17:10	1
13C4-PFHpA	92		25 - 150				08/01/18 08:48	08/04/18 17:10	1
13C4 PFOA	96		25 - 150				08/01/18 08:48	08/04/18 17:10	1
13C5 PFNA	101		25 - 150				08/01/18 08:48	08/04/18 17:10	1
13C2 PFDA	98		25 - 150				08/01/18 08:48	08/04/18 17:10	1
13C2 PFUnA	96		25 - 150				08/01/18 08:48	08/04/18 17:10	1
13C2 PFDoA	96		25 - 150				08/01/18 08:48	08/04/18 17:10	1
13C2-PFTeDA	101		25 - 150				08/01/18 08:48	08/04/18 17:10	1
13C3-PFBS	80		25 - 150				08/01/18 08:48	08/04/18 17:10	1
18O2 PFHxS	82		25 - 150				08/01/18 08:48	08/04/18 17:10	1
13C4 PFOS	84		25 - 150				08/01/18 08:48	08/04/18 17:10	1

TestAmerica Sacramento

Isotope Dilution Summary

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFPeA (25-150)	PFHxA (25-150)	PFHpA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)	PFDoA (25-150)
320-41470-1	MW-150B-25	40	41	44	44	44	44	38	33
320-41470-2	MW-250B-25	50	57	55	60	61	60	52	47
320-41470-3	EB-150B-25	78	92	88	97	98	99	109	108
320-41470-4	MW-150A-10	79	84	88	95	96	96	98	88
320-41470-5	MW-332-150	89	93	94	98	107	102	101	94
320-41470-6	MW-346-65	82	88	90	98	100	100	101	94
320-41470-7	MW-353-15	61	64	70	77	76	69	64	54
320-41470-8	MW-314-15	56	59	61	63	65	65	57	50
320-41470-9	MW-353-65	80	90	93	92	98	100	100	94
320-41470-10	MW-353-100	76	83	86	95	96	95	95	90
320-41470-11	[REDACTED]	82	91	92	101	102	104	97	93
320-41470-12	eTreat								
	[REDACTED] AS-Po	86	90	90	94	91	94	90	92
	stTreat								
320-41470-13	[REDACTED]	57	65	62	69	64	66	56	48
320-41470-14	[REDACTED]	69	76	73	81	80	82	73	66
320-41470-15	[REDACTED] FAS-PostTr	87	90	93	96	103	96	96	98
320-41470-16	eat								
	[REDACTED] -2018PFAS-PreTre	85	92	91	97	102	98	94	95
320-41470-17	at								
	[REDACTED] 2018PFAS-Pretr	83	88	86	95	96	98	97	90
320-41470-18	eat								
	[REDACTED] 018PFAS-Postt	91	95	92	96	101	98	96	96
LCS 320-237103/2-A	reat								
	Lab Control Sample	85	90	91	95	99	94	97	92
LCS 320-237295/2-A	Lab Control Sample	93	95	98	97	98	99	100	95
LCS 320-237103/3-A	Lab Control Sample Dup	91	95	98	99	104	99	100	95
LCS 320-237295/3-A	Lab Control Sample Dup	92	97	99	104	105	93	103	105
MB 320-237103/1-A	Method Blank	93	93	97	101	105	97	100	97
MB 320-237295/1-A	Method Blank	93	99	93	94	99	101	98	97
Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFTDA (25-150)	3C3-PFB (25-150)	PFHxS (25-150)	PFOS (25-150)				
320-41470-1	MW-150B-25	35	39	38	34				
320-41470-2	MW-250B-25	47	48	52	51				
320-41470-3	EB-150B-25	120	78	83	87				
320-41470-4	MW-150A-10	84	74	81	80				
320-41470-5	MW-332-150	104	85	88	92				
320-41470-6	MW-346-65	92	77	87	84				
320-41470-7	MW-353-15	55	60	65	57				
320-41470-8	MW-314-15	54	52	58	57				
320-41470-9	MW-353-65	93	76	83	87				
320-41470-10	MW-353-100	98	81	86	87				
320-41470-11	[REDACTED] 018PFAS-Pr	98	78	92	89				
320-41470-12	eTreat								
	[REDACTED] 2018PFAS-Po	106	80	89	89				
	stTreat								
320-41470-13	[REDACTED] 8 PFAS	49	52	56	56				
320-41470-14	[REDACTED] 018PFAS	67	66	71	67				
320-41470-15	[REDACTED] 2018PFAS-PostTr	95	79	85	82				
	eat								

TestAmerica Sacramento

Isotope Dilution Summary

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

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

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFTDA (25-150)	3C3-PFB: (25-150)	PFHxS (25-150)	PFOS (25-150)
320-41470-16	██████████-2018PFAS-PreTre:	95	82	84	87
320-41470-17	██████████ FAS-Pretr	95	75	82	87
320-41470-18	eat ██████████-2018PFAS-Postt	101	80	82	84
LCS 320-237103/2-A	Lab Control Sample	113	86	88	86
LCS 320-237295/2-A	Lab Control Sample	107	89	90	89
LCSD 320-237103/3-A	Lab Control Sample Dup	120	84	93	95
LCSD 320-237295/3-A	Lab Control Sample Dup	108	84	94	90
MB 320-237103/1-A	Method Blank	109	83	87	93
MB 320-237295/1-A	Method Blank	106	92	87	87

Surrogate Legend

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

QC Sample Results

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-237103/1-A

Matrix: Water

Analysis Batch: 238010

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 237103

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		07/31/18 09:22	08/04/18 12:03	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		07/31/18 09:22	08/04/18 12:03	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		07/31/18 09:22	08/04/18 12:03	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		07/31/18 09:22	08/04/18 12:03	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		07/31/18 09:22	08/04/18 12:03	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		07/31/18 09:22	08/04/18 12:03	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		07/31/18 09:22	08/04/18 12:03	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.0	1.3	ng/L		07/31/18 09:22	08/04/18 12:03	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.29	ng/L		07/31/18 09:22	08/04/18 12:03	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		07/31/18 09:22	08/04/18 12:03	1
Perfluorohexanesulfonic acid (PFHxS)	0.376	J	2.0	0.17	ng/L		07/31/18 09:22	08/04/18 12:03	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		07/31/18 09:22	08/04/18 12:03	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	93		25 - 150	07/31/18 09:22	08/04/18 12:03	1
13C2 PFHxA	93		25 - 150	07/31/18 09:22	08/04/18 12:03	1
13C4-PFHpA	97		25 - 150	07/31/18 09:22	08/04/18 12:03	1
13C4 PFOA	101		25 - 150	07/31/18 09:22	08/04/18 12:03	1
13C5 PFNA	105		25 - 150	07/31/18 09:22	08/04/18 12:03	1
13C2 PFDA	97		25 - 150	07/31/18 09:22	08/04/18 12:03	1
13C2 PFUnA	100		25 - 150	07/31/18 09:22	08/04/18 12:03	1
13C2 PFDoA	97		25 - 150	07/31/18 09:22	08/04/18 12:03	1
13C2-PFTeDA	109		25 - 150	07/31/18 09:22	08/04/18 12:03	1
13C3-PFBS	83		25 - 150	07/31/18 09:22	08/04/18 12:03	1
18O2 PFHxS	87		25 - 150	07/31/18 09:22	08/04/18 12:03	1
13C4 PFOS	93		25 - 150	07/31/18 09:22	08/04/18 12:03	1

Lab Sample ID: LCS 320-237103/2-A

Matrix: Water

Analysis Batch: 238010

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 237103

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorohexanoic acid (PFHxA)	40.0	40.5		ng/L		101	66 - 126
Perfluoroheptanoic acid (PFHpA)	40.0	42.9		ng/L		107	66 - 126
Perfluorooctanoic acid (PFOA)	40.0	43.1		ng/L		108	64 - 124
Perfluorononanoic acid (PFNA)	40.0	41.1		ng/L		103	68 - 128
Perfluorodecanoic acid (PFDA)	40.0	40.7		ng/L		102	69 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	39.2		ng/L		98	60 - 120
Perfluorododecanoic acid (PFDoA)	40.0	44.0		ng/L		110	71 - 131
Perfluorotridecanoic Acid (PFTriA)	40.0	44.8		ng/L		112	72 - 132
Perfluorotetradecanoic acid (PFTeA)	40.0	39.8		ng/L		99	68 - 128
Perfluorobutanesulfonic acid (PFBS)	35.4	36.5		ng/L		103	73 - 133
Perfluorohexanesulfonic acid (PFHxS)	36.4	35.5		ng/L		98	63 - 123

TestAmerica Sacramento

QC Sample Results

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

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

Lab Sample ID: LCS 320-237103/2-A

Matrix: Water

Analysis Batch: 238010

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 237103

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)	37.1	39.5		ng/L		106	67 - 127
Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits				
13C5 PFPeA	85		25 - 150				
13C2 PFHxA	90		25 - 150				
13C4-PFHpA	91		25 - 150				
13C4 PFOA	95		25 - 150				
13C5 PFNA	99		25 - 150				
13C2 PFDA	94		25 - 150				
13C2 PFUnA	97		25 - 150				
13C2 PFDoA	92		25 - 150				
13C2-PFTeDA	113		25 - 150				
13C3-PFBS	86		25 - 150				
18O2 PFHxS	88		25 - 150				
13C4 PFOS	86		25 - 150				

Lab Sample ID: LCSD 320-237103/3-A

Matrix: Water

Analysis Batch: 238010

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 237103

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec.	RPD	RPD
	Added	Result	Qualifier			Limits	Limits		
Perfluorohexanoic acid (PFHxA)	40.0	40.3		ng/L		101	66 - 126	1	30
Perfluoroheptanoic acid (PFHpA)	40.0	43.8		ng/L		110	66 - 126	2	30
Perfluorooctanoic acid (PFOA)	40.0	41.4		ng/L		103	64 - 124	4	30
Perfluorononanoic acid (PFNA)	40.0	44.0		ng/L		110	68 - 128	7	30
Perfluorodecanoic acid (PFDA)	40.0	41.9		ng/L		105	69 - 129	3	30
Perfluoroundecanoic acid (PFUnA)	40.0	38.6		ng/L		97	60 - 120	2	30
Perfluorododecanoic acid (PFDoA)	40.0	45.1		ng/L		113	71 - 131	3	30
Perfluorotridecanoic Acid (PFTriA)	40.0	49.8		ng/L		125	72 - 132	11	30
Perfluorotetradecanoic acid (PFTeA)	40.0	42.7		ng/L		107	68 - 128	7	30
Perfluorobutanesulfonic acid (PFBS)	35.4	39.9		ng/L		113	73 - 133	9	30
Perfluorohexanesulfonic acid (PFHxS)	36.4	33.2		ng/L		91	63 - 123	7	30
Perfluorooctanesulfonic acid (PFOS)	37.1	38.4		ng/L		103	67 - 127	3	30
	LCSD	LCSD							
Isotope Dilution	%Recovery	Qualifier	Limits						
13C5 PFPeA	91		25 - 150						
13C2 PFHxA	95		25 - 150						
13C4-PFHpA	98		25 - 150						
13C4 PFOA	99		25 - 150						
13C5 PFNA	104		25 - 150						
13C2 PFDA	99		25 - 150						
13C2 PFUnA	100		25 - 150						

TestAmerica Sacramento

QC Sample Results

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

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

Lab Sample ID: LCSD 320-237103/3-A

Matrix: Water

Analysis Batch: 238010

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 237103

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C2 PFDoA	95		25 - 150
13C2-PFTeDA	120		25 - 150
13C3-PFBS	84		25 - 150
18O2 PFHxS	93		25 - 150
13C4 PFOS	95		25 - 150

Lab Sample ID: MB 320-237295/1-A

Matrix: Water

Analysis Batch: 238224

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 237295

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		08/01/18 08:48	08/04/18 14:48	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		08/01/18 08:48	08/04/18 14:48	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		08/01/18 08:48	08/04/18 14:48	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		08/01/18 08:48	08/04/18 14:48	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		08/01/18 08:48	08/04/18 14:48	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		08/01/18 08:48	08/04/18 14:48	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		08/01/18 08:48	08/04/18 14:48	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.0	1.3	ng/L		08/01/18 08:48	08/04/18 14:48	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.29	ng/L		08/01/18 08:48	08/04/18 14:48	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		08/01/18 08:48	08/04/18 14:48	1
Perfluorohexanesulfonic acid (PFHxS)	0.348	J	2.0	0.17	ng/L		08/01/18 08:48	08/04/18 14:48	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		08/01/18 08:48	08/04/18 14:48	1

Isotope Dilution	MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C5 PFPeA	93		25 - 150	08/01/18 08:48	08/04/18 14:48	1
13C2 PFHxA	99		25 - 150	08/01/18 08:48	08/04/18 14:48	1
13C4-PFHpA	93		25 - 150	08/01/18 08:48	08/04/18 14:48	1
13C4 PFOA	94		25 - 150	08/01/18 08:48	08/04/18 14:48	1
13C5 PFNA	99		25 - 150	08/01/18 08:48	08/04/18 14:48	1
13C2 PFDA	101		25 - 150	08/01/18 08:48	08/04/18 14:48	1
13C2 PFUnA	98		25 - 150	08/01/18 08:48	08/04/18 14:48	1
13C2 PFDoA	97		25 - 150	08/01/18 08:48	08/04/18 14:48	1
13C2-PFTeDA	106		25 - 150	08/01/18 08:48	08/04/18 14:48	1
13C3-PFBS	92		25 - 150	08/01/18 08:48	08/04/18 14:48	1
18O2 PFHxS	87		25 - 150	08/01/18 08:48	08/04/18 14:48	1
13C4 PFOS	87		25 - 150	08/01/18 08:48	08/04/18 14:48	1

Lab Sample ID: LCS 320-237295/2-A

Matrix: Water

Analysis Batch: 238224

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 237295

Analyte	Spike Added	LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
Perfluorohexanoic acid (PFHxA)	40.0	40.7		ng/L		102	66 - 126
Perfluoroheptanoic acid (PFHpA)	40.0	43.1		ng/L		108	66 - 126
Perfluorooctanoic acid (PFOA)	40.0	43.0		ng/L		107	64 - 124
Perfluorononanoic acid (PFNA)	40.0	42.9		ng/L		107	68 - 128
Perfluorodecanoic acid (PFDA)	40.0	41.0		ng/L		103	69 - 129

TestAmerica Sacramento

QC Sample Results

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

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

Lab Sample ID: LCS 320-237295/2-A

Matrix: Water

Analysis Batch: 238224

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 237295

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluoroundecanoic acid (PFUnA)	40.0	42.6		ng/L		107	60 - 120
Perfluorododecanoic acid (PFDoA)	40.0	43.5		ng/L		109	71 - 131
Perfluorotridecanoic Acid (PFTriA)	40.0	47.2		ng/L		118	72 - 132
Perfluorotetradecanoic acid (PFTeA)	40.0	38.9		ng/L		97	68 - 128
Perfluorobutanesulfonic acid (PFBS)	35.4	37.7		ng/L		107	73 - 133
Perfluorohexanesulfonic acid (PFHxS)	36.4	34.9		ng/L		96	63 - 123
Perfluorooctanesulfonic acid (PFOS)	37.1	39.6		ng/L		107	67 - 127

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C5 PFPeA	93		25 - 150
13C2 PFHxA	95		25 - 150
13C4-PFHpA	98		25 - 150
13C4 PFOA	97		25 - 150
13C5 PFNA	98		25 - 150
13C2 PFDA	99		25 - 150
13C2 PFUnA	100		25 - 150
13C2 PFDoA	95		25 - 150
13C2-PFTeDA	107		25 - 150
13C3-PFBS	89		25 - 150
18O2 PFHxS	90		25 - 150
13C4 PFOS	89		25 - 150

Lab Sample ID: LCSD 320-237295/3-A

Matrix: Water

Analysis Batch: 238224

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 237295

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Perfluorohexanoic acid (PFHxA)	40.0	40.3		ng/L		101	66 - 126	1	30
Perfluoroheptanoic acid (PFHpA)	40.0	42.8		ng/L		107	66 - 126	1	30
Perfluorooctanoic acid (PFOA)	40.0	38.5		ng/L		96	64 - 124	11	30
Perfluorononanoic acid (PFNA)	40.0	38.5		ng/L		96	68 - 128	11	30
Perfluorodecanoic acid (PFDA)	40.0	43.8		ng/L		109	69 - 129	6	30
Perfluoroundecanoic acid (PFUnA)	40.0	40.1		ng/L		100	60 - 120	6	30
Perfluorododecanoic acid (PFDoA)	40.0	40.9		ng/L		102	71 - 131	6	30
Perfluorotridecanoic Acid (PFTriA)	40.0	40.4		ng/L		101	72 - 132	16	30
Perfluorotetradecanoic acid (PFTeA)	40.0	39.6		ng/L		99	68 - 128	2	30
Perfluorobutanesulfonic acid (PFBS)	35.4	40.0		ng/L		113	73 - 133	6	30
Perfluorohexanesulfonic acid (PFHxS)	36.4	34.8		ng/L		96	63 - 123	0	30

TestAmerica Sacramento

QC Sample Results

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

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

Lab Sample ID: LCSD 320-237295/3-A

Matrix: Water

Analysis Batch: 238224

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 237295

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)	37.1	38.5		ng/L		104	67 - 127	3	30

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C5 PFPeA	92		25 - 150
13C2 PFHxA	97		25 - 150
13C4-PFHpA	99		25 - 150
13C4 PFOA	104		25 - 150
13C5 PFNA	105		25 - 150
13C2 PFDA	93		25 - 150
13C2 PFUnA	103		25 - 150
13C2 PFDoA	105		25 - 150
13C2-PFTeDA	108		25 - 150
13C3-PFBS	84		25 - 150
18O2 PFHxS	94		25 - 150
13C4 PFOS	90		25 - 150

QC Association Summary

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

LCMS

Prep Batch: 237103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-41470-11	PFAS-PreTreat	Total/NA	Water	3535	
320-41470-12	-PostTreat	Total/NA	Water	3535	
MB 320-237103/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-237103/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-237103/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Prep Batch: 237295

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-41470-1	MW-150B-25	Total/NA	Water	3535	
320-41470-2	MW-250B-25	Total/NA	Water	3535	
320-41470-3	EB-150B-25	Total/NA	Water	3535	
320-41470-4	MW-150A-10	Total/NA	Water	3535	
320-41470-5	MW-332-150	Total/NA	Water	3535	
320-41470-6	MW-346-65	Total/NA	Water	3535	
320-41470-7	MW-353-15	Total/NA	Water	3535	
320-41470-8	MW-314-15	Total/NA	Water	3535	
320-41470-9	MW-353-65	Total/NA	Water	3535	
320-41470-10	MW-353-100	Total/NA	Water	3535	
320-41470-13	2018 PFAS	Total/NA	Water	3535	
320-41470-14	-2018PFAS	Total/NA	Water	3535	
320-41470-15	8PFAS-PostTreat	Total/NA	Water	3535	
320-41470-16	PFAS-PreTreat	Total/NA	Water	3535	
320-41470-17	018PFAS-Pretreat	Total/NA	Water	3535	
320-41470-18	018PFAS-Posttreat	Total/NA	Water	3535	
MB 320-237295/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-237295/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-237295/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 238010

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-41470-11	S-PreTreat	Total/NA	Water	537 (modified)	237103
320-41470-12	018PFAS-PostTreat	Total/NA	Water	537 (modified)	237103
MB 320-237103/1-A	Method Blank	Total/NA	Water	537 (modified)	237103
LCS 320-237103/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	237103
LCSD 320-237103/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	237103

Analysis Batch: 238224

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-41470-1	MW-150B-25	Total/NA	Water	537 (modified)	237295
320-41470-2	MW-250B-25	Total/NA	Water	537 (modified)	237295
320-41470-3	EB-150B-25	Total/NA	Water	537 (modified)	237295
320-41470-4	MW-150A-10	Total/NA	Water	537 (modified)	237295
320-41470-5	MW-332-150	Total/NA	Water	537 (modified)	237295
320-41470-6	MW-346-65	Total/NA	Water	537 (modified)	237295
320-41470-7	MW-353-15	Total/NA	Water	537 (modified)	237295
320-41470-8	MW-314-15	Total/NA	Water	537 (modified)	237295
320-41470-9	MW-353-65	Total/NA	Water	537 (modified)	237295
320-41470-10	MW-353-100	Total/NA	Water	537 (modified)	237295
320-41470-13	018 PFAS	Total/NA	Water	537 (modified)	237295
320-41470-14	-2018PFAS	Total/NA	Water	537 (modified)	237295
320-41470-15	-2018PFAS-PostTreat	Total/NA	Water	537 (modified)	237295

TestAmerica Sacramento

QC Association Summary

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

LCMS (Continued)

Analysis Batch: 238224 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-41470-16	2018PFAS-PreTreat	Total/NA	Water	537 (modified)	237295
320-41470-17	018PFAS-Pretreat	Total/NA	Water	537 (modified)	237295
320-41470-18	018PFAS-Posttreat	Total/NA	Water	537 (modified)	237295
MB 320-237295/1-A	Method Blank	Total/NA	Water	537 (modified)	237295
LCS 320-237295/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	237295
LCSD 320-237295/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	237295

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Client Sample ID: MW-150B-25

Date Collected: 07/19/18 14:13

Date Received: 07/25/18 10:25

Lab Sample ID: 320-41470-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			125.1 mL	10.00 mL	237295	08/01/18 08:48	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1			238224	08/04/18 15:10	S1M	TAL SAC

Client Sample ID: MW-250B-25

Date Collected: 07/19/18 14:03

Date Received: 07/25/18 10:25

Lab Sample ID: 320-41470-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			185.2 mL	10.00 mL	237295	08/01/18 08:48	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1			238224	08/04/18 15:18	S1M	TAL SAC

Client Sample ID: EB-150B-25

Date Collected: 07/19/18 14:23

Date Received: 07/25/18 10:25

Lab Sample ID: 320-41470-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			304.8 mL	10.00 mL	237295	08/01/18 08:48	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1			238224	08/04/18 15:25	S1M	TAL SAC

Client Sample ID: MW-150A-10

Date Collected: 07/19/18 14:58

Date Received: 07/25/18 10:25

Lab Sample ID: 320-41470-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			304.8 mL	10.00 mL	237295	08/01/18 08:48	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1			238224	08/04/18 15:33	S1M	TAL SAC

Client Sample ID: MW-332-150

Date Collected: 07/20/18 12:27

Date Received: 07/25/18 10:25

Lab Sample ID: 320-41470-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			309 mL	10.00 mL	237295	08/01/18 08:48	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1			238224	08/04/18 15:40	S1M	TAL SAC

Client Sample ID: MW-346-65

Date Collected: 07/20/18 10:30

Date Received: 07/25/18 10:25

Lab Sample ID: 320-41470-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			298.3 mL	10.00 mL	237295	08/01/18 08:48	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1			238224	08/04/18 15:48	S1M	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Client Sample ID: MW-353-15

Lab Sample ID: 320-41470-7

Date Collected: 07/20/18 14:46

Matrix: Water

Date Received: 07/25/18 10:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			223.3 mL	10.00 mL	237295	08/01/18 08:48	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1			238224	08/04/18 15:55	S1M	TAL SAC

Client Sample ID: MW-314-15

Lab Sample ID: 320-41470-8

Date Collected: 07/20/18 11:20

Matrix: Water

Date Received: 07/25/18 10:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			201 mL	10.00 mL	237295	08/01/18 08:48	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1			238224	08/04/18 16:10	S1M	TAL SAC

Client Sample ID: MW-353-65

Lab Sample ID: 320-41470-9

Date Collected: 07/20/18 14:19

Matrix: Water

Date Received: 07/25/18 10:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			293.5 mL	10.00 mL	237295	08/01/18 08:48	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1			238224	08/04/18 16:18	S1M	TAL SAC

Client Sample ID: MW-353-100

Lab Sample ID: 320-41470-10

Date Collected: 07/20/18 13:48

Matrix: Water

Date Received: 07/25/18 10:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			303.1 mL	10.00 mL	237295	08/01/18 08:48	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1			238224	08/04/18 16:25	S1M	TAL SAC

Client Sample ID: [REDACTED] 018PFAS-PreTreat

Lab Sample ID: 320-41470-11

Date Collected: 07/17/18 10:11

Matrix: Water

Date Received: 07/25/18 10:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			311.9 mL	10.00 mL	237103	07/31/18 09:22	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1			238010	08/04/18 14:18	S1M	TAL SAC

Client Sample ID: [REDACTED] 18PFAS-PostTreat

Lab Sample ID: 320-41470-12

Date Collected: 07/17/18 10:08

Matrix: Water

Date Received: 07/25/18 10:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			299.9 mL	10.00 mL	237103	07/31/18 09:22	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1			238010	08/04/18 14:25	S1M	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Client Sample ID: [REDACTED] -2018 PFAS

Lab Sample ID: 320-41470-13

Date Collected: 07/20/18 13:55

Matrix: Water

Date Received: 07/25/18 10:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			201.9 mL	10.00 mL	237295	08/01/18 08:48	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1			238224	08/04/18 16:33	S1M	TAL SAC

Client Sample ID: [REDACTED] -2018PFAS

Lab Sample ID: 320-41470-14

Date Collected: 07/20/18 13:45

Matrix: Water

Date Received: 07/25/18 10:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			221.8 mL	10.00 mL	237295	08/01/18 08:48	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1			238224	08/04/18 16:40	S1M	TAL SAC

Client Sample ID: [REDACTED] -2018PFAS-PostTreat

Lab Sample ID: 320-41470-15

Date Collected: 07/24/18 10:24

Matrix: Water

Date Received: 07/25/18 10:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			293.7 mL	10.00 mL	237295	08/01/18 08:48	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1			238224	08/04/18 16:48	S1M	TAL SAC

Client Sample ID: [REDACTED] 018PFAS-PreTreat

Lab Sample ID: 320-41470-16

Date Collected: 07/24/18 10:27

Matrix: Water

Date Received: 07/25/18 10:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			299.3 mL	10.00 mL	237295	08/01/18 08:48	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1			238224	08/04/18 16:55	S1M	TAL SAC

Client Sample ID: [REDACTED] -2018PFAS-Pretreat

Lab Sample ID: 320-41470-17

Date Collected: 07/24/18 12:23

Matrix: Water

Date Received: 07/25/18 10:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			305.4 mL	10.00 mL	237295	08/01/18 08:48	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1			238224	08/04/18 17:03	S1M	TAL SAC

Client Sample ID: [REDACTED] 2018PFAS-Posttreat

Lab Sample ID: 320-41470-18

Date Collected: 07/24/18 12:26

Matrix: Water

Date Received: 07/25/18 10:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			310.5 mL	10.00 mL	237295	08/01/18 08:48	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1			238224	08/04/18 17:10	S1M	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Laboratory References:

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

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Accreditation/Certification Summary

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Laboratory: TestAmerica Sacramento

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-020	01-20-21
ANAB	DoD ELAP		L2468	01-20-21
Arizona	State Program	9	AZ0708	08-11-19
Arkansas DEQ	State Program	6	88-0691	06-17-19
California	State Program	9	2897	01-31-19
Colorado	State Program	8	CA00044	08-31-19
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-19
Georgia	State Program	4	N/A	01-28-19
Hawaii	State Program	9	N/A	01-29-19
Illinois	NELAP	5	200060	03-17-19
Kansas	NELAP	7	E-10375	10-31-18
Louisiana	NELAP	6	30612	06-30-19
Maine	State Program	1	CA0004	04-14-20
Michigan	State Program	5	9947	01-31-20
Nevada	State Program	9	CA00044	07-31-19
New Hampshire	NELAP	1	2997	04-18-19
New Jersey	NELAP	2	CA005	06-30-19
New York	NELAP	2	11666	03-31-19
Oregon	NELAP	10	4040	01-29-19
Pennsylvania	NELAP	3	68-01272	03-31-19
Texas	NELAP	6	T104704399	05-31-19
US Fish & Wildlife	Federal		LE148388-0	07-31-19
USDA	Federal		P330-18-00239	01-17-21
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-19
Vermont	State Program	1	VT-4040	04-30-19
Virginia	NELAP	3	460278	03-14-19
Washington	State Program	10	C581	05-05-19
West Virginia (DW)	State Program	3	9930C	12-31-18
Wyoming	State Program	8	8TMS-L	01-28-19

Method Summary

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

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

Sample Summary

Client: Shannon & Wilson, Inc
Project/Site: Offsite PFAS

TestAmerica Job ID: 320-41470-1
SDG: 20074-012

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-41470-1	MW-150B-25	Water	07/19/18 14:13	07/25/18 10:25
320-41470-2	MW-250B-25	Water	07/19/18 14:03	07/25/18 10:25
320-41470-3	EB-150B-25	Water	07/19/18 14:23	07/25/18 10:25
320-41470-4	MW-150A-10	Water	07/19/18 14:58	07/25/18 10:25
320-41470-5	MW-332-150	Water	07/20/18 12:27	07/25/18 10:25
320-41470-6	MW-346-65	Water	07/20/18 10:30	07/25/18 10:25
320-41470-7	MW-353-15	Water	07/20/18 14:46	07/25/18 10:25
320-41470-8	MW-314-15	Water	07/20/18 11:20	07/25/18 10:25
320-41470-9	MW-353-65	Water	07/20/18 14:19	07/25/18 10:25
320-41470-10	MW-353-100	Water	07/20/18 13:48	07/25/18 10:25
320-41470-11	[REDACTED]	Water	07/17/18 10:11	07/25/18 10:25
320-41470-12	[REDACTED]	Water	07/17/18 10:08	07/25/18 10:25
320-41470-13	[REDACTED] S	Water	07/20/18 13:55	07/25/18 10:25
320-41470-14	[REDACTED]-2018PFAS	Water	07/20/18 13:45	07/25/18 10:25
320-41470-15	[REDACTED]-2018PFAS-PostTreat	Water	07/24/18 10:24	07/25/18 10:25
320-41470-16	[REDACTED] 2018PFAS-PreTreat	Water	07/24/18 10:27	07/25/18 10:25
320-41470-17	[REDACTED] 18PFAS-Pretreat	Water	07/24/18 12:23	07/25/18 10:25
320-41470-18	[REDACTED]-2018PFAS-Posttreat	Water	07/24/18 12:26	07/25/18 10:25

CHAIN-OF-CUSTODY RECORD

Page 1 of
Laboratory Test America
Attn: David Alltucker

Analytical Methods (include preservative if used)

Turn Around Time:
☒ Normal ☐ Rush
Please Specify

Quote No:

J-Flags: ☒ Yes ☐ No

Sample Identity	Lab No.	Time	Date Sampled	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
MW-150B-25		1413	7/19/18	2	Groundwater
MW-250B-25		1403		2	
EB-150B-25		1423		2	
MW-150A-10		1458		2	
MW-332-150		1227	7/20/18	2	
MW-346-65		1030		2	
MW-353-15		1446		2	
MW-314-15		1120		2	
MW-353-65		1419		2	
MW-353-100		1348		2	



320-41470 Chain of Custody

Project Information		Sample Receipt		Relinquished By: 1.		Relinquished By: 2.		Relinquished By: 3.	
Number: <u>20074-012</u>		Total No. of Containers: <u> </u>		Signature: <u>[Signature]</u> Time: <u>1310</u>		Signature: <u> </u> Time: <u> </u>		Signature: <u> </u> Time: <u> </u>	
Name: <u>THRA OBS. & PTAS</u>		COC Seals/Intact? <u>Y/N/NA</u>		Printed Name: <u>A. Masters</u> Date: <u>7/24/18</u>		Printed Name: <u> </u> Date: <u> </u>		Printed Name: <u> </u> Date: <u> </u>	
Contact: <u>KRF</u>		Received Good Cond./Cold <u> </u>		Company: <u>Shannon & Wilson, Inc</u>		Company: <u> </u>		Company: <u> </u>	
Ongoing Project? Yes ☐ No ☒		Temp: <u> </u>		Received By: 1. Signature: <u>[Signature]</u> Time: <u>1035</u>		Received By: 2. Signature: <u> </u> Time: <u> </u>		Received By: 3. Signature: <u> </u> Time: <u> </u>	
Sampler: <u>ARM, CAB</u>		Delivery Method: <u>Goldstreak</u>		Printed Name: <u>C. Alltucker</u> Date: <u>7-25-18</u>		Printed Name: <u> </u> Date: <u> </u>		Printed Name: <u> </u> Date: <u> </u>	
Notes: <u> </u>		Company: <u> </u>		Company: <u> </u>		Company: <u> </u>		Company: <u> </u>	

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

No. 35526

CHAIN-OF-CUSTODY RECORD

Laboratory Test America Page 1 of 1
Attn: _____

Analytical Methods (include preservative if used)

Turn Around Time:
☒ Normal ☐ Rush
Please Specify

Quote No: _____

J-Flags: ☒ Yes ☐ No

Sample Identity	Lab No.	Time	Date Sampled	Analytical Methods (include preservative if used)					Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
[REDACTED]	1011		7/17/18	X					2	Groundwater
	at 1008		7/17/18	X					2	1

Project Information		Sample Receipt		Relinquished By: 1.		Relinquished By: 2.		Relinquished By: 3.	
Number: <u>20074-012</u>		Total No. of Containers: _____		Signature: _____ Time: <u>1:310</u>		Signature: _____ Time: _____		Signature: _____ Time: _____	
Name: <u>PFA's Sampling</u>		COC Seals/Intact? Y/N/NA _____		Printed Name: _____ Date: <u>7/24/18</u>		Printed Name: _____ Date: _____		Printed Name: _____ Date: _____	
Contact: <u>KRF</u>		Received Good Cond./Cold _____		A. Masters		Company: _____		Company: _____	
Ongoing Project? Yes ☐ No ☒		Temp: _____		Shannon & Wilson, Inc.		Company: _____		Company: _____	
Sampler: <u>ARM</u>		Delivery Method: <u>gold stream</u>		Received By: 1.		Received By: 2.		Received By: 3.	
Notes: _____		Signature: _____ Time: <u>1025</u>		Signature: _____ Time: _____		Signature: _____ Time: _____		Signature: _____ Time: _____	
		Printed Name: _____ Date: <u>7-25-18</u>		Printed Name: _____ Date: _____		Printed Name: _____ Date: _____		Printed Name: _____ Date: _____	
		Company: _____		Company: _____		Company: _____		Company: _____	

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

No. 35519

CHAIN-OF-CUSTODY RECORD

Page 1 of 1
Laboratory Test America
Attn: _____

Analytical Methods (include preservative if used)

Turn Around Time:
☒ Normal ☐ Rush
Please Specify

Quote No: _____

J-Flags: ☒ Yes ☐ No

Sample Identity	Lab No.	Time	Date Sampled	P1							Total	Composition/Grab? Sample Containers
		1355	7/20/18	2							2	Groundwater
		1345	7/29/18	2							2	!!

Project Information	Sample Receipt	Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Number: <u>20074-012</u>	Total No. of Containers: <u>4</u>	Signature: _____ Time: <u>1310</u>	Signature: _____ Time: _____	Signature: _____ Time: _____
Name: <u>PFAS Sampling</u>	COC Seals/Intact? Y/N/NA _____	Printed Name: _____ Date: <u>7/24/18</u>	Printed Name: _____ Date: _____	Printed Name: _____ Date: _____
Contact: <u>KRF</u>	Received Good Cond./Cold _____	Company: <u>A. Masters</u>	Company: _____	Company: _____
Ongoing Project? Yes ☐ No ☒	Temp: _____	Company: <u>Shannon & Wilson, Inc.</u>	Company: _____	Company: _____
Sampler: <u>SMH</u>	Delivery Method: <u>goldstream</u>	Received By: 1.	Received By: 2.	Received By: 3.
Notes: _____		Signature: _____ Time: <u>1028</u>	Signature: _____ Time: _____	Signature: _____ Time: _____
		Printed Name: _____ Date: <u>7-25-18</u>	Printed Name: _____ Date: _____	Printed Name: _____ Date: _____
		Company: _____	Company: _____	Company: _____

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

No. 35562

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Laboratory Test America
Attn: D. Alltup

Analytical Methods (include preservative if used)

Turn Around Time:
☒ Normal ☐ Rush
Please Specify

Quote No:

J-Flags: ☒ Yes ☐ No

Sample Identity	Lab No.	Time	Date Sampled	Analytical Methods (include preservative if used)				Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
[Redacted]	PostTreat	1024	7/24/18	X				2	GW
	PreTreat	0027	"	X				2	"

Project Information		Sample Receipt		Relinquished By: 1.		Relinquished By: 2.		Relinquished By: 3.	
Number: <u>20074-012</u>	Total No. of Containers: <u> </u>	Signature: <u>[Signature]</u>	Time: <u>1320</u>	Signature: <u> </u>	Time: <u> </u>	Signature: <u> </u>	Time: <u> </u>	Signature: <u> </u>	Time: <u> </u>
Name: <u>THRA 2018 PFAS</u>	COC Seals/Intact? Y/N/NA <u> </u>	Printed Name: <u>A. Masters</u>	Date: <u>7/24/18</u>	Printed Name: <u> </u>	Date: <u> </u>	Printed Name: <u> </u>	Date: <u> </u>	Printed Name: <u> </u>	Date: <u> </u>
Contact: <u>KRF</u>	Received Good Cond./Cold <u> </u>	Company: <u>Shannon & Wilson, Inc.</u>		Company: <u> </u>		Company: <u> </u>		Company: <u> </u>	
Ongoing Project? Yes ☐ No ☒	Temp: <u> </u>	Received By: 1.		Received By: 2.		Received By: 3.		Received By: 3.	
Sampler: <u>ARM</u>	Delivery Method: <u>goldstreak</u>	Signature: <u>[Signature]</u>	Time: <u>1625</u>	Signature: <u> </u>	Time: <u> </u>	Signature: <u> </u>	Time: <u> </u>	Signature: <u> </u>	Time: <u> </u>
Notes: <u> </u>		Printed Name: <u>C. Hyltrek</u>	Date: <u>7-25-18</u>	Printed Name: <u> </u>	Date: <u> </u>	Printed Name: <u> </u>	Date: <u> </u>	Printed Name: <u> </u>	Date: <u> </u>
		Company: <u> </u>		Company: <u> </u>		Company: <u> </u>		Company: <u> </u>	

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

No. 35567

CHAIN-OF-CUSTODY RECORD

Page 1 of 1
Laboratory Test America
Attn: D. Allfuer

Analytical Methods (include preservative if used)

Turn Around Time:
☒ Normal ☐ Rush
Please Specify

Quote No:

J-Flags: ☒ Yes ☐ No

Sample Identity	Lab No.	Time	Date Sampled	Analytical Methods (include preservative if used)				Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
[Redacted]	Retreat	1223	7/24/18	RTAs #see attached!				2	GW
	Post treat	1226	"					2	"

Project Information		Sample Receipt		Relinquished By: 1.		Relinquished By: 2.		Relinquished By: 3.	
Number: <u>20074-012</u>		Total No. of Containers: <u> </u>		Signature: <u>[Signature]</u> Time: <u>1320</u>		Signature: <u> </u> Time: <u> </u>		Signature: <u> </u> Time: <u> </u>	
Name: <u>FHR 2018 RTAS</u>		COC Seals/Intact? Y/N/NA <u> </u>		Printed Name: <u>A. Masters</u> Date: <u>7/24/18</u>		Printed Name: <u> </u> Date: <u> </u>		Printed Name: <u> </u> Date: <u> </u>	
Contact: <u>KRF</u>		Received Good Cond./Cold <u> </u>		Company: <u>Shannon & Wilson, Inc.</u>		Company: <u> </u>		Company: <u> </u>	
Ongoing Project? Yes ☐ No ☒		Temp: <u> </u>		Received By: 1.		Received By: 2.		Received By: 3.	
Sampler: <u>ARM</u>		Delivery Method: <u>Jobs track</u>		Signature: <u>[Signature]</u> Time: <u>1425</u>		Signature: <u> </u> Time: <u> </u>		Signature: <u> </u> Time: <u> </u>	
Notes:				Printed Name: <u>Cathy Trice</u> Date: <u>7-25-18</u>		Printed Name: <u> </u> Date: <u> </u>		Printed Name: <u> </u> Date: <u> </u>	
				Company: <u>TSR</u>		Company: <u> </u>		Company: <u> </u>	

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

No. 35565

- perfluorobutanesulfonic acid (PFBS);
- perfluorodecanoic acid (PFDA);
- perfluoroheptanoic acid (PFHpA);
- perfluorohexanesulfonic acid (PFHxS);
- perfluorohexanoic acid (PFHxA);
- perfluorolauric acid (PFDoA);
- perfluoromyristic acid (PFTA);
- perfluorononanoic acid (PFNA);
- perfluorooctane sulfonate (PFOS);
- perfluorooctanoic acid (PFOA);
- perfluorotridecanoic acid (PFTrDA); and
- perfluoroundecanoic acid (PFUnA).

Login Sample Receipt Checklist

Client: Shannon & Wilson, Inc

Job Number: 320-41470-1

SDG Number: 20074-012

Login Number: 41470

List Number: 1

Creator: Her, David A

List Source: TestAmerica Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
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 $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	